AQUATIC PEST MANAGEMENT PROGRAM

U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
MANAGED LANDS

Implementation Instructions

"NOT ALL Mechanical & Manual Controls can be performed due to Endangered Species Act and National Historic Preservation Act consultation.

Levees excluded/not permitted.

U.S. Army Corps of Engineers
Walla Walla District

Date: August 04, 2023

Acronyms

AOR	Area of responsibility
APHIS	Animal Plant and Health Inspection Service, USDA
APMP	Aquatic Pest Management Program
BA	Biological assessment
BMP	Best Management Practice
Corps	U.S. Army Corps of Engineers
db	Database
EDRR	early detection rapid response/ eradication
EPA	Environmental Protection Agency
ESA	Endangered Species Act
GIS	Geographic Information System
GPS	Global Positioning System
IDEQ	Idaho Department of Environmental Quality
IDFG	Idaho Department of Fish and Game
IPM	Integrated Pest Management
IPMP	Integrated Pest Management Program
mph	Miles per Hour
NMFS	National Marine Fisheries Service
NPDES	National Pollution Discharge Elimination System
O&M	Operations and maintenance
ODFW	Oregon Department of Fish and Wildlife
OHWM	Ordinary High Water Mark
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
WDFW	Washington Department of Fish and Wildlife
WS	Wildlife Services, Animal and Plant Health Inspection Services (APHIS), USDA

1. Introduction

The purpose of this document is to provide instructions for implementation of aquatic pest management activities and associated record keeping under the U.S. Army Corps of Engineers (Corps) Walla Walla District's (District) Aquatic Pest Management Program (APMP) on federal administered lands. These instructions outline biological and chemical control methods and record keeping for managing animal and vegetation pests on Corps federal administered lands within the District, as well as the record keeping required for APMP activities.

The requirements set forth in this document are in addition to all other applicable laws, rules, and regulations. The District is issuing these instructions to ensure that APMP actions and activities comply with those additional requirements and ensure consistent record keeping and to allow accuracy in the required reporting by all users and in all areas of the District.

Aquatic pest management activities are ongoing and shall continue as long as there are pest problems on Corps federal administered lands within the District.

2. Purpose

The purpose of the APMP is to accomplish routine daily operation and maintenance (O&M) in areas within the District affected by aquatic vegetation pests. This is achieved by continuing to use an integrated pest management (IPM) approach, as part of the District's overall Integrated Pest Management Program (IPMP). IPM is a holistic, multifaceted approach, which minimizes pesticide usage and resistance of invasive pests to pesticides through use of diversified control methods, and achieves effective management and eradication of targeted pests wherever practical and possible. These methods also encompass the use of natural pest predators or competitors through establishment of native plant species, or a "positive native seed bank." The overall long-term goal is to reduce aquatic pest management treatments once control or eradication is achieved.

The APMP has two pest management components: routine control and maintenance, and early detection rapid response/eradication (EDRR). Control and maintenance is managing already established invasive pest species to control either spreading from their current location, or managing them within their location to meet mission goals.

EDRR primarily focuses on newly discovered or established pest species in order to take care of the incipient stage of those infestations before they become too large. Adopting the EDRR strategy allows for controlling new infestations that are small in size thus decreasing cost and the need for repeated applications. It is also advantageous because: 1) the precise location of individual target plants is subject to rapid and/or unpredictable change; and 2) presently known infestations may grow during the time it typically takes to complete the environmental compliance process.

EDRR is projected to primarily consist of active management of an infestation for two to three years, followed by monitoring of the site to ensure there is no new establishment or reestablishment of pest species. If EDRR is unsuccessful, then assessment of the invasive

species will occur to move actions into the control and maintenance of pest species under IPM, based on mission and management goals.

3. "Additional Restrictions"

The requirements set forth in this document are in compliance with, and in many cases, are in addition to all other applicable laws, rules, and regulations, including in addition to, but not superseding or replacing label restrictions. It's important for everyone involved in implementation of the APMP to understand that, as with the terrestrial portion of the District's IPMP, implementation instructions issued by the District for the APMP help describe how to comply with these "additional restrictions" that have resulted from compliance with a variety of environmental laws and regulations.

All aquatic applications must comply with National Pollution Discharge Elimination System (NPDES) permits. In Washington that is the federal Environmental Protection Agency (EPA) Pesticide General Permit (PGP) for 2021 located at: https://www.epa.gov/npdes/pesticide-permitting-2021-pgp. In Idaho that is the Idaho Department of Environmental Quality (IDEQ) NPDES permit for federal agencies is currently the EPA NPDES 2016 permit. In Oregon Walla Walla District does not have a permit and NO aquatic applications are permitted at this time.

In the case of both the terrestrial and aquatic (APMP) portions of the District's IPMP, most of what could be interpreted by applicators as "additional restrictions" comes from the Endangered Species Act (ESA), National Historic Preservation Act (NHPA), and the District's compliance with them. The District, as with all federal agencies, must consult with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) (collectively referred to as the "Services") when authorizing, funding, or carrying out activities ("federal actions") that "may affect" species listed as threatened or endangered under the ESA or designated critical habitat. The areas identified in the District where APMP activities may occur have a variety of ESA-listed species and critical habitats.

Section 7(a)(2) of the ESA outlines the process for consulting with NMFS and USFWS (the Services). While there are many intricacies that go into the consultation process itself, the basic requirements are that any federal agency must develop a biological assessment (BA) if listed species or critical habitat may be present in the area affected by a federal action. The BA describes the "proposed action" (scope of work) and analyzes potential effects of the action (beneficial, neutral, or adverse). The federal agency, known as the "action agency" under the ESA, then makes an "effect determination" based on all of the information and analysis in the BA.

The BA is then sent to NMFS and USFWS, where they use it to understand the action and the effects of the action. They also, through the consultation process, work together with the agency to iron out any gaps in their understanding. This often leads to discussions about incorporating scope changes that would help avoid adverse effects that could delay or stop the consultation process, which did happen for the APMP consultations with NMFS and USFWS.

ESA consultation ends with NMFS and USFWS issuing either a "letter of concurrence", concurring with the action agency determination, which was the case for the aquatic portion of the IPMP, or a biological opinion (BO). A BO is a further analysis by the Service(s) to develop their opinion as to whether or not the effects of the agency's action would "jeopardize the continued existence of the species or adversely modify or destroy critical habitat." A BO is also issued with requirements (i.e. "additional restrictions") that minimize the effects of the action. These are called "terms and conditions." These must be adhered to by the action agency, and by those operating under the proposed action. Otherwise the compliance with the ESA may no longer be valid, and work could be shut down. Stopping work would be an extreme case, but it did happen in the District in 2009. The worst-case scenario for not complying with BO terms and conditions could be civil and criminal penalties, which could apply down to the applicator.

For the APMP, the BA determined that the action would have beneficial and adverse effects to ESA-listed species and critical habitats. The Services both issued BOs with a variety of requirements ("additional restrictions"). These "additional restrictions" are included throughout the following sections in this document to ensure that these requirements are met and that all users of this document understand them.

For the APMP, the section 106 of the National Historic Preservation Act (NHPA) review determined some integrated activities/methods could potentially cause effects on historic resource and some activities will have no potential to cause effects. These instructions differentiate which activities/methods are allowed/permitted by NHPA and which ones are not.

If the activity (method) is not described henceforth in these instructions, that activity (method) is not "covered" for NHPA section 106, ESA, and NEPA.

*Note: Methods not permitted/allowed are currently not covered under the NHPA 106 programmatic "no potential to effect" determination and therefore are not permitted at this time. The methods and activities not consulted on would require additional review and are foreseen to have a potential effect to historic properties. Outgrantees and Projects could choose to incur the cost of additional NHPA section 106 consultation with no guarantee of permission being granted. Activity/method and location that the activity is to be performed are a significant factor in consultation and that is why NWW was unable to perform a programmatic or blanket district coverage on these activities/methods that are listed as not allowed/permitted.

4. Roles and Responsibilities

U.S. Army Corps of Engineers, Walla Walla District will:

- Issue implementation instructions.
- Provide implementation training, and provide continued customer service to ensure proper implementation.
- Perform quality control and data management on application records submitted by grantees and data submitted by contractors and Corps employees.
- Provide pest managers and applicators historic use data.

- Compile and maintained pest management anticipated use and actual application data (reports) in the District's existing geographic information system (GIS) database. This same database has been used for the terrestrial portion of the District's IPMP since 2012.
- Compile anticipated use and annual use reports for reporting requirements under the Endangered Species Act (ESA).
- Annual reports for grantees shall be generated by the Corps using data collected in the GIS database from actual use records.
- Provide anticipated and actual use record training materials to grantees, contractors, and Corps employees.
- Provide database training materials to pest managers and applicators.

Grantees, contractors, pest managers, and applicators will:

- Perform pest management activities in accordance with all applicable laws, rules, and regulations, and these implementation instructions.
- Provide accurate anticipated use data. Including locations (GIS) for mechanical and manual control operations.
- Provide accurate actual use data.
- Use sound IPM strategies.

5. Current Target Species

5.1. Vegetation

The Corps has a mission to manage natural resources and act as a steward of its lands and waters. Vegetation control is part of the Corps' natural resources management mission to "manage and conserve those natural resources, consistent with ecosystem management principles, while providing quality public outdoor recreation experiences to serve the needs of present and future generations." The APMP is designed to control noxious weeds and to eradicate or limit the spread of invasive weeds in riparian and aquatic habitats within the District. Areas of Responsibility (AORs) where the majority of weed control treatments will occur include project operations areas, habitat management units, recreation areas, and outgrant areas[1]. The Corps, their contractors, and a limited number of grantees (entities that have received outgrants from the Corps to use government property by lease, easement, license, or permit) may treat pests. Aquatic vegetation treatments shall include manual, mechanical, and chemical control methods to control or eradicate nuisance and noxious weeds

Treatments shall target all Class A, B, and C weeds for the State of Washington[2], Idaho[3], and Oregon[4] listed weeds, as well as some nuisance native plants in areas identified by Corps biologists. The plants on all of these lists (current as of the date of this document) are listed in Table 1 for reference purposes with specific species identified for early detection and rapid response (EDRR).

[1] Management around private docks is not permitted.
[2] http://www.nwcb.wa.gov/siteFiles/2012%20State%20Weed%20List_Scientific_Name.pdf
[3] http://www.agri.state.id.us/Categories/PlantsInsects/NoxiousWeeds/watchlist.php
[4] http://www.oregon.gov/ODA/PLANT/WEEDS/pages/statelist2.aspx

Table 1. Plants targeted for control in riparian and aquatic habitats by the APMP, their target intensity, and their designations on state noxious plant lists (**A**, **most invasive and damaging; B, more naturalized and less damaging; C, established and less damaging).**

Target Common Name	Target Scientific Name	WA List	OR List	ID List	Target Intensity
Eurasian Watermilfoil	*Myriophyllum spicatum*	B	B	B	Nuisance only*
Parrotfeather	*M. aquaticum*	B	B	B	Routine O&M
Curly-leaf Pondweed	*Potamogeton crispus*	C		C	Routine O&M
False Indigo	*Amorpha fruticose*	B	B		Routine O&M
Flowering Rush	*Butomus umbellatus*	A	A	C	Routine O&M /EDRR
Hairy Willow-Herb	*Epilobium hirsutum*	B			Routine O&M
Japanese Knotweed	*Polygonum cuspidatum*	B	B	B	Routine O&M
Narrowleaf Cattail	*Typha angustifolia*	C			Routine O&M
Cattail hybrid	*T. glauca*				Routine O&M
Perennial Pepperweed	*Lepidium latifolium*	B	B	C	Routine O&M
Phragmites (common reed)	*Phragmites australis*	B	B	B	Routine O&M
Poison Hemlock	*Conium maculatum*	B	B	C	Routine O&M
Purple Loosestrife	*Lythrum salicaria*	B	B	C	Routine O&M /EDRR
Reed Canarygrass	*Phalaris arundinacea*	C			Routine O&M
Russian Olive	*Elaeagnus angustifolia*	C			Routine O&M
Saltcedar	*Tamarix ramosissima*	B	B	C	Routine O&M
Tree-of-Heaven	*Ailanthus altissima*	C	B		Routine O&M
Yellow-flag Iris (Pale Yellow Iris)	*Iris pseudacorus*	C	B	C	Routine O&M
Algae	*Various species*				Routine O&M
New Invasive Species	varies				Routine O&M /EDRR

Milfoil only to be treated on a nuisance occurrence (e.g., around marinas, boat ramps, and swim beaches).

Table 1 lists the most common vegetation targets in the District by common and scientific name. Scientific names are used to ensure that the same species is not duplicated because of varying common names used in various areas. This table should help with consistent record keeping and reporting throughout the District. "Other" can be used when treating a species not found on the states' lists, but should not be used when the target is clearly identified.

5.2. Early Detection Rapid Response (EDRR)

It is reasonable to assume not all invasive plant locations have been identified and new sites will emerge throughout District lands. New detections in all areas of the District shall be subject to the EDRR process described in this section. Present species identified for EDRR are listed in Table 1. The EDRR treatments shall be conducted under the same guidance and criteria established for the District. Newly discovered infestations or sites shall receive a high priority for treatment to eradicate the invasive plants while the infestation is small and easily treatable. No aerial treatment is authorized under EDRR.

In the context of biological invasion, EDRR is a series of sustained and coordinated actions to eradicate an invasive species population before it establishes and spreads so widely that eradication (i.e. the elimination of the population) is no longer feasible. More specifically, early detection is a process for surveying for, reporting, and verifying the presence of a non-native species before the founding population becomes established or spreads. Rapid response is a process to eradicate the founding population of a non-native species from a specific location.

Invasive species infestations often cross jurisdictional boundaries. Therefore, coordination among neighboring jurisdictions is essential for EDRR to be successful. Anyone finding something should report it to:

USACE- Walla Walla District Pest Manager,
509-527-7136
NWW.DistrictPestManager@usace.army.mil

The following is the decision process used in the District for EDRR herbicide use. It's adapted from the U.S. Forest Service's (USFS) (2010) EDRR and will be implemented in order to have some adaptive management capability within any given treatment season:

1. **EDRR Aquatic Herbicide Use Decision Process**
   - **Yes (use herbicides)**: List approved herbicide choices available and integrated prescription. Review label directions and project design criteria. Consider non-target vegetation (aquatic and terrestrial) surrounding treatment locations and use selective herbicides as appropriate. Consider sediment conditions at the treatment site. Consider previous treatments that have occurred on the site. Were they effective? Would another herbicide or combination of methods be more effective? Go to 2.
   - **No**: Use non-herbicide methods. **Mechanical and Manual methods must have cultural clearance prior to action taking place.**
2. Do the size, density, and/or distribution of invasive plants warrant the broadcast application method?
   - **Yes**: Is the noxious/invasive plant treatment location a monoculture? Monoculture is defined as any contiguous body of aquatic plants greater than 2,500 square feet in area. Is the site in an area that has specific restrictions to broadcasting? Go to 3.
   - **No:** Use spot and/or selective methods.
3. Will spot and/or selective methods be reasonably effective in this situation?
   - **Yes**: Apply spot/selective buffers and use aquatic labeled herbicides.
   - **No:** Seek approval for treatment through additional decision process (NEPA/section 7 processes).

6. Application Windows

6.1. All District Areas Except Chemical controls at Mill Creek

The following application windows apply everywhere in the District where APMP activities are authorized, except for Mill Creek. Mill Creek's specific windows are listed in the next section. Timing is summarized in Table 2.

- **Manual** control methods (excluding controlled burning) may be used **year-round**.
- **Controlled burning** would occur **January 1 – April 15 and September 15 – December 31**. No burning would occur from April 15 – September 15. (No NHPA coverage)
- **Biological controls** can be released **year-round**, depending on the target plant (Eurasian watermilfoil or purple loosestrife) and control species.
- **Mechanical** control timing is different for emergent and submerged plants.
    - **Emergent** plant control may occur **year-round** (e.g. mowing,).
    - **Submerged** plant control may only occur from **July 1 – September 15.**
- **Chemical** control timing is different for emergent and submerged plants. Mill Creek has different windows and additional restrictions, see below.
    - **Submerged** vegetation treatment may occur **July 1 – September 15**.
    - **Emergent** plant treatment with spot spray and other hand methods may **begin April 15, except for the active ingredient Diquat (see below)**.
    - **Necessary emergent broadcast application with a prior use check-in with the Services may occur April 15 to June 1.**
    - **Emergent Diquat spot spray** and other hand application methods may **begin May 5**.
    - **Emergent Diquat broadcast** application with a prior use **check-in with the Services may occur May 5-June 1.**
- **All other broadcast** chemical applications may occur **June 1 – October 15**.

6.2. Mill Creek

Because of requirements in the USFWS BO, at Mill Creek, all chemical emergent manual, and submerged manual APMP activities at Mill Creek are only allowed from **July 1 through 15**. there are specific terms and conditions required prior to APMP activities at Mill Creek:

- During the month of July there is required check in 7 days prior to work. This means that a Corps fish biologist and USFWS fish biologists from the USFWS' Eastern Washington Field Office must confirm that program activities are implemented during conditions where bull trout are unlikely to occur in the area.
- These conditions are:
    - Water temperatures below 18 Celsius
    - Flows (see below)
    - Weather (see below)
    - Bull trout detection and distribution information
- **The above conditions must be documented in comment section of PDF application form**

If stream temperatures are below 18 degrees C (64.4 F) or if a significant rain event (>0.5 inches) is anticipated with two days of treatment, hold off on treatment until any

increased flows have subsided and stream temperatures are above 18 degrees C (fish will have moved out of the area).

From August 15 and September 15 at Mill Creek chemical, submerged mechanical and submerged manual APMP activities may occur without the above contingencies.

DISTRICT WIDE APPLICATION WINDOW TABLE:

(Summation of the above written description, however, please review the above)

Table 2 APMP timing windows (shaded area).

Activity		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Chemical	Emergent (spot spray and other hand methods) (Except Diquat)												
	Necessary Emergent broadcast application with a prior use check-in with the Services.												
	-Diquat **Diquat spot spray** and other hand application methods - (beginning May 5)												
	-Diquat Broadcast with check-in (May 5-June 1) **broadcast** application with a prior use **check-in with the Services may occur**												
	-Broadcast without check-in (begins June 1)												
	Submerged												
Mechanical (McNary Only)*	Emergent												
	Submerged												
Burning (NO NHPA coverage)	Emergent												
	Submerged (NA)												
Bio Control	Emergent (DEP ON SPP)												
	Submerged (NA)												
Mill Creek (chemical, emergent manual and submerged manual)													

*Mechanical control may be used only at private (leased) marinas and only in McNary Pool

6.3. Rationale for Timing Restrictions

NMFS provided information in their BO to describe the rationale behind the timing restrictions:

> "Exposure of listed salmonids to herbicide treatments in the proposed action will only occur between July 1 and September 15. This timing of application avoids eggs, larval fish, and spawning adults, and therefore effects to these life stages will be minimal. By late spring, most subyearlings and older juveniles tend to move away from warming shallows to rear in relatively deep and flowing water. For this reason, they will have limited risk of exposure and potential toxicity effects to these fish will be unlikely due to dilution effects in the deeper water. Migrating juveniles and adults likely use main channels and adjacent peripheral habitats, and are expected to remain in deeper water and not be exposed to herbicide toxicity. Some juvenile salmonids and adults may hold under overhanging riparian vegetation, undercut banks, and shoreline cover in close proximity to potential treatment areas, but are usually in water deeper than a foot or two, and will not be exposed to herbicide toxicity. In relatively rare instances when fish may be present in very shallow water or hiding in weeds being treated, they will likely detect presence of operator disturbance and traces of herbicide in water and move away from the surface and general vicinity of treatments, resulting in only limited exposure to low levels of herbicide."

USFWS provided additional information in their BO to describe the rationale behind further restricting the window at Mill Creek:

> "Mill Creek headwaters and tributaries support spawning and rearing habitat for all life history forms, and year-round habitat for resident bull trout. This is a major local population spawning area. Between the Corps Diversion Dam and the headwaters, Mill Creek supports subadult rearing, migration, adult staging, and overwintering. The lower reaches of Mill Creek, and Yellowhawk Creek support potential adult migration and overwintering, and subadult migration."
>
> "During program implementation, certain activities are reasonably certain to expose listed bull trout to small-scale and temporary disturbances, increased turbidity, elevated concentrations of herbicides, and temporary reductions in cover and forage. As previously described, adult and sub-adult bull trout occur year round in low to medium densities in mainstem river portions of the action area. Higher numbers of adult and subadult bull trout use the Mill Creek action area for foraging, migration, and overwintering and may occur in portions of the action area year-round."
>
> "In the Mill Creek Project area during manual and mechanical operations, bull trout are anticipated to be present year round above Bennington Diversion Dam, and are likely present below Bennington Diversion Dam most of the year, though their presence is less likely in August and September, depending on flows and weather. Therefore, bull trout are likely to be exposed to manual and mechanical control methods during the work window of July 1st to August 15th. This exposure is expected to temporarily reduce feeding efforts and force fish to seek other available nearby cover that may temporarily

increase risk of predation. Moreover, placement and removal of substrate screens, pulling rakes and blades through the water column, and digging with hand tools will generate limited turbidity and temporarily disturb or displace bull trout in Mill Creek. Bull trout are especially likely to be disturbed by these activities in Mill Creek if they occur in areas where bull trout are isolated during low flows and cannot escape. This form of disturbance is expected to be of short duration, however bull trout that are unable to leave the area due to pooled water and low flows will have significantly disrupted normal behavior patterns, including feeding or sheltering"

"Adverse effects of herbicide use, mechanical, and manual treatment of invasive weeds in the Mill Creek action area are more likely, due to higher densities of bull trout, and the inability of bull trout to move away from the turbidity or chemicals during some flows and scenarios, even within the work window. Disturbance, injury, or impaired feeding may occur in the Mill Creek action area for the following reasons:

1.Bull trout may occur in the Mill Creek action area year-round, especially above the Bennington Diversion Dam. Below the dam subadult and adult bull trout migrate through the action area most months, though they are less likely to be present in August and the first half of September. During low flows, bull trout may become isolated in pools and be exposed to turbidity, herbicides, or technician activities associated with the Program and be unable to move away, especially during July, depending on the flows through the action area.

2. Herbicides selected for use are considered to be only slightly toxic to fish and forage species and worst-case and conservative toxicity limits were used to verify exposure will be minor and not likely to harm bull trout. Bull trout may be exposed to herbicides within the work window in Mill Creek, although the effects will be short-term and will not be adverse.

3. Sediment and turbidity effects will likely be short tenn, however bull trout in isolated pools in Mill Creek may not be able to escape, and may be injured by the sediment, or feeding may be impaired for the several hour duration until the turbidity settles.

4. Vegetation removal may decrease forage in a small area, and if bull trout cannot escape the area feeding may be impaired. The habitat impact will be sho'rt-tenn, and vegetation will fill-in by the next summer.

5. Disturbance of bull trout isolated in small areas may occur from Program activities."

"In Mill Creek disturbance effects from chemical applications will be temporary and occur in small areas, however bull trout are expected to be exposed to this disturbance in areas under conditions where they cannot move away, such as in low flow periods if bull trout are in pools between weirs in Mill Creek. The work window of July 1st through August 15th will not avoid exposure to bull trout."

7. Chemical Application Methods

1) Emergent Chemical Hand/Select and Spot Treatment applications can occur April 15th thru October 15th except for the Active Ingredient Diquat.

-Emergent Chemical Diquat Hand/Select and Spot Treatment applications can occur May 5 thru October 15.

2) Necessary Emergent Chemical Broadcast Treatment applications with a prior use check-in with the Services may occur April 15 to June 1 except for Diquat.

-Emergent Chemical Diquat Broadcast treatment applications with a prior use check-in with the Service may occur May 5 to June 1.

3) Emergent Chemical Broadcast Treatment applications can occur June 1 thru October 15.

4) **Submerged** vegetation treatments (Spot and Broadcast treatments) may only occur **July 1 – September 15**

The above does not apply to Mill Creek, see Mill Creek section 6.2 for details and restrictions.

There are three general methods for chemical application under the APMP. Each general method is further described in the following sections. These general methods are:

- Hand/select
- Spot
- Broadcast

7.1. Hand/Select

Any of the following hand/select methods maybe employed (NHPA Section 106 covered):

- Wicking and wiping
- Basal bark
- Frill or hack and squirt
- Stem injection
- Cut-stump

7.2. Spot (NHPA Section 106 covered)

Chemical applications are made by either ground-based sprayers (mounted to small all-terrain vehicles (ATVs), vessel (boat), full-size vehicle (trucks or tractors)), or with backpack sprayers. These applicators range from motorized vehicles with spray hoses, to backpack sprayers, to hand-pumped spray or squirt bottles. Hand-pumped spray and squirt bottles can target very small plants or parts of plants.

7.3. Broadcast (NHPA Section 106 covered)

Broadcast methods may be used for emergent or submerged vegetation. A boom (a long horizontal tube with multiple spray heads) is mounted or attached to a vessel, tractor, ATV, or other vehicle for emergent applications. Nozzles control the droplet size and the area being covered. Boomless nozzles and backpack sprayers may also be used as a broadcast tool.

Submerged applications include underwater booms with lines and nozzles that release at one or more depths targeting under water plants.

Broadcast treatments are primarily for monocultures of noxious, invasive, or nuisance plant species. A monoculture is defined as any contiguous body of aquatic plants greater than 2,500 square feet in area.

8. Herbicides & Chemicals Controls (NHPA Section 106 covered)

1) Emergent Chemical Hand/Select and Spot Treatment applications can occur April 15 thru October 15 except for the Active Ingredient Diquat.

-Emergent Chemical Diquat Hand/Select and Spot Treatment applications can occur May 5 thru October 15.

2) Necessary Emergent Chemical Broadcast Treatment applications with a prior use check-in with the Services may occur April 15 to June 1 except for Diquat.

-Emergent Chemical Diquat Broadcast treatment applications with a prior use check-in with the Service may occur May 5 to June 1.

3) Emergent Chemical Broadcast Treatment applications can occur June 1 thru October 15.

4) **Submerged** vegetation treatments (Spot and Broadcast treatments) may only occur **July 1 – September 15**

The above does not apply to Mill Creek, see Mill Creek section 6.2 for details and restrictions.

Table 3 lists the active ingredients and application rates allowed for use in the District[5], while Table 4 identifies some example trade (label) names. These products, and others with similar ingredients, resources are examples of what may be used for treatments. This list should, in no way, be considered to be exhaustive or restrictive for labels. Rather, the active ingredient is what is most important.

[5] Another form of vegetation control that does not necessarily fit into any of the other categories will be environmentally friendly products such as ordinary vinegar.

Table 3. Active ingredients and minimum to maximum application rates (pints per acre) allowed for use in the District.

Active Ingredient	Emergent Application Rate (pt/ac)	Submerged Application Rate (pt/ac-ft of water)
2,4-D (amine only)	4 to 8	11.3 to 22.7
Ammonium salt of imazamox	0.156 to 8	1.0625 to 10.8125
Diquat dibromide	4 to 16	2 to 4
Endothall (dipotassium only)	3.6 to 25.6	3.6 to 25.6
Fluridone	0.4 to 3.84	0.4 to 3.84
Glyphosate	1.5 to 7	Not for submerged
Imazapyr	2 to 6	Not for submerged
Triclopyr (TEA only)	4 to 16	5.6 to 18.4
Sodium carbonate peroxyhydrate	10 to 100 lb/ac ft or 10 to 100 pt/ac	10 to 100 lb/ac or 10 to 100 pt/ac
Colorants (dyes)	Varies	Varies
Adjuvants (no petroleum, non-metallic, aquatic registered, targeting lower toxicity)	May vary	Not for submerged application

Through ESA consultation, the Corps has identified specific controls for some of the active ingredients:

- Only aquatic registered, labeled herbicides and surfactants shall be used.
- Surfactant/Adjuvants must be non-petroleum, non-metallice, aquatic registered, targeting lower toxicity.
- Only amine formulas of 2,4-D can be used.
- Only dipotassium formulas of Endothall can be used.
- Only TEA formulas of Triclopyr can be used.
- For emergent aquatic vegetation:
    - Applications shall utilize nozzles and pressures that produce droplets in the 177 to 428 micron range (medium, coarse, very coarse) to reduce the possibility of drift.
    - Nozzles and pressures, which create droplet sizes of 176 microns or less, shall not be used.
    - Droplet sizes of 429 microns or larger (extremely coarse and ultra coarse) are acceptable and encouraged, provided that the volume of the spray solution is not so great as to cause excessive runoff, the labels typical state to thoroughly wet all foliage or thoroughly wetting all foliage and stems.
- For submerged aquatic vegetation: Use the label recommended methods for application.

9. Manual Controls

Emergent Manual methods can take place **year-round** district wide. Submerged manual methods can take place year-round, except for Mill Creek Project area. Emergent and Submerged manual applications at Mill Creek are only allowed from **July 1 through September 15.**

Manual controls include:

- Physical removal by hand pulling
    - Only allowed in survey/monitoring where there is one or two plants in a new area of early detection.
- Manual digging with hand tools **NOT allowed (NO NHPA section 106 coverage)**
- Non-mechanical cutting and raking
    - Manual cutting- Allowed- NHPA section 106 covered
    - Rake cutting-**Not Allowed-NO NHPA section 106 coverage**
- Laying semi-permanent material/barrier (substrate screen)
    - Allowed with restrictions
        - *Anchors that require any ground disturbance, such as stake anchors or screw in anchors **are NOT Permitted**.
- Diver Assisted Suction Harvesting (DASH)
    - **Not Permitted/Allowed-NO NHPA section 106 coverage**.
- Prescribed Fire (riparian areas only)
    - **Not Permitted/Allowed-NO NHPA section 106 coverage.**

Manual treatments or physical removal using hand tools may occur year-round for any of the plants listed in Table 1. Physical removal is effective for small quantities of plants near shorelines. Entire plants (leaves, stems, and roots) will be removed from the area of concern and disposed of away from water

Cutting and raking differ from hand pulling in that plant roots are not usually removed. Cutting is performed by standing on a dock or on shore and throwing a cutting tool into the water. Non-mechanical aquatic weed cutters and rakes may be used. Cut plants rise to the surface where they can be removed.

Another manual control method to be used includes laying semi-permanent materials over the top of aquatic vegetation beds analogous to using landscape fabric to suppress the growth of weeds in yards. A substrate screen or benthic barrier covers the sediment like a blanket, compressing aquatic plants while reducing, or blocking light. Materials such as burlap, plastics, perforated black Mylar, and woven synthetics can all be used as substrate screens. Screen material will be durable, heavier than water, reduce or block light, prevent plants from growing into and under the fabric, be easy to install and maintain, and should readily allow gases produced by rotting weeds to escape. Substrate screens will be securely anchored to prevent navigation and swimming hazards. Anchors will consist of natural materials such as rocks or sandbags, must be effective in keeping the material down, and will be regularly checked. Anchors that require any ground disturbance, such as stake anchors or screw in anchors are not permitted. The duration of weed control depends on the rate that weeds can grow through or on top of the screen, the rate that new sediment is deposited on the screen, and the durability and longevity of the material. Regular maintenance is essential and can extend the life of most substrate screens. Installation is easier in spring before plants mature. In summer, cutting or hand pulling the plants first will help facilitate screen installation.

Through ESA consultation, the Corps has identified specific controls for some of the active manual controls:

- Substrate screens and associated materials will be removed outside of target plant growing seasons each year, except screens covering small patches of flowering rush and screens controlling weeds in boat lanes and marinas may remain deployed for longer periods if properly maintained.
- Substrate screens may be used to control invasive submerged plants in areas up to 1-contiguous acre and in several smaller areas within each AOR.
- Biodegradable substrate screens will be prioritized for use over synthetic materials and will be deployed in the smallest and narrowest forms required to control target invasive plants.
- The water's edge along banks and shorelines will not be covered with substrate screens.
- Individual treatments will be reported by location, need, area, and duration for monitoring purposes (through pdf actual submitted documents).

Mowing is used in riparian areas only, and not in the water. Mowing can remove excess vegetation to aid chemical treatment, kill living rhizomes, and promote native plant growth.

***Note:** Methods not permitted/allowed are not covered under the NHPA 106 programmatic no potential to effect determination and that is why they are not permitted at this time. The methods and activities not consulted on would require additional review and are foreseen to have a potential effect to historic properties. Outgrantees and Projects could choose to incur the cost of additional NHPA section 106 consultation with no guarantee of permission being granted. Activity/method and location that the activity is to be performed are a significant factor in consultation and that is why NWW was unable to perform a programmatic or blanket district coverage on these activities/methods that are listed as not allowed/permitted.

10. Mechanical Controls

Mechanical cutting, harvesting, and rotovation can only be employed in private marinas on the McNary pool (Lake Wallula).

Emergent Mechanical methods can take place **year-round in McNary pool. Submerged Mechanical methods can take place from July 1 through September 15 in McNary pool.**

Mechanical controls include:

- Mechanical Flail Chopper[6]
    - **Allowed-** NHPA section 106 covered with restrictions*This method is only allowed but the chopper blades are not contacting the ground/sediment surface during submerged, emergent, or riparian treatment activities.
- Chopping

[6] Mechanical flail chopper is not allowed at Mill Creek.

- **Allowed-** NHPA section 106 covered with restrictions*This method is only allowed but the chopper blades are not contacting the ground/sediment surface during submerged, emergent, or riparian treatment activities.

Mechanical methods may be used to control submerged vegetation (Table 1) in deeper water or in riparian areas near water within the same treatment windows as chemical methods.

A flail chopper is a mechanical implement attached to a boat, which includes a number of knife blades that rotate rapidly inside a hood. Flail choppers may be used to remove the top few feet of submersed aquatic vegetation without disturbing sediment when clearing ONLY boat lanes to ramps and marinas.

***Note:** Methods not permitted/allowed are not covered under the NHPA 106 programmatic no potential to effect determination and that is why they are not permitted at this time. The methods and activities not consulted on would require additional review and are foreseen to have a potential effect to historic properties. Outgrantees and Projects could choose to incur the cost of additional NHPA section 106 consultation with no guarantee of permission being granted. Activity/method and location that the activity is to be performed are a significant factor in consultation and that is why NWW was unable to perform a programmatic or blanket district coverage on these activities/methods that are listed as not allowed/permitted.

11. Biological Controls

Biological control of aquatic weeds includes the use of insects, waterfowl, and fish that feed on vegetation . The goal is to hold the line for extensive infestations, or to completely eradicate new infestation, so biological control should be secondary options following hand pulling, digging, and herbicides. **Biological control insects would only be released if USDA Approved, in accordance with appropriate regulations and permitting requirements**

Current biological controls approved for release under the APMP are the American Milfoil Weevil *(Euhrychiopsis lecontei)* and *Galerucella* leaf beetles *(Galerucella calmariensis)* and *(G. pusilla).*

12. Treatment Area Limits

The following area limits apply to all methods of aquatic pest management in Walla Walla District.

- Emergent – maximum of 2 contiguous acres per day per AOR.
- Submerged – maximum of 5 contiguous acres per day per AOR.
- **Contiguous chemical block treatments of 2 acres emergent and 5 acres submerged within off-channel habitats (e.g. backwaters and sloughs) would occur with 2 days**

between treatments, allowing for chemical dissipation and dissolved oxygen (DO) rebound per AOR.400 acres maximum treatment, District-wide, annually (all methods).

- **Mill Creek:** 5 acres chemical, and 5 acres manual treatment, annually.

Chemical retreatments may occur after a period of at least 21 days, if needed to meet performance requirements in Corps contracts pertaining to vegetation management.

Table 7: ESA/NEPA Summary

TREATMENT / CONTROL	TOOL / METHOD	TREATMENT WINDOW	Acreage Limit	ACTIVE INGREDIENT (AI) IN RELATION TO TREATMENT TOOLS		
				All AI (Except Diquat)	Diquat	Adjuvants (no-petroleum, non-metallic, aquatic registered, targeting lower toxicity)
Chemical (NO Combining Active Ingredients)	Hand select		400 (total combined with other methods) Daily Limits of 2 acres emergent and 5 acres submerged	X	X	X
	Wicking and wiping			X	X	X
	Basal bark			X	X	X
	Frill or hack and squirt			X	X	X
	Stem injection			X	X	X
	Cut Stump			X	X	X
	Spot (hand-held, low-pressure applicators)	Submerged: July 1 thru September 15 Emergent- April 15 thru October 15 except Diquat- May 5 thru October 15		X	X	X
	Broadcast (hand-held, low-pressure applicators)	Submerged- July 1 to Sept 15		X	X	X

		Emergent- June 1 thru October 15 (see section 8 for additional Service Check-in)				
Manual	Physical removal by hand pulling (No NHPA coverage)	Emergent: Year round Submerged: July 1 thru September 15	400 (total combined with other methods) Daily Limits of 2 acres emergent and 5 acres submerged			
	Manual digging with hand tools (No NHPA coverage)					
	Non-mechanical cutting					
	Laying semi-permanent material/barrier		Daily Limits of 2 acres emergent and 5 acres submerged			
	Diver Assisted Suction Harvesting		No NHPA coverage			
Mechanical (McNary Pool ONLY)	Mechanical flail chopper	Emergent: Year round Submerged: July 1 thru September 15	Daily Limits of 2 acres emergent and 5 acres submerged			
	Mowing		400 (total combined with other methods)			
	Prescribed fire (No NHPA coverage)					

*Mill Creek is an exception to the above and has additional restrictions and limitations, refer to the Mill Creek Section 6.2 within this document, not the above table.

Table 8 Cultural Programmatic Summary:

Category	Method	BMP(s)	106 Consultation
Mechanical	Manual Cutting	None	Completed- Review Date: 6-21-22

	Bottom Barriers	No ground disturbance such as stakes or screw in anchoring	Completed- Review Date: 6-21-22
	Chopping (i.e. flail choppers)	No Ground Disturbance	Completed- Review Date: 6-21-22
	specialized underwater harvesters	No Ground Disturbance	Completed- Review Date: 6-21-22
Biological Control	American Watermilfoil Weevil	For Eurasian Milfoil	Completed-Review Date: 6-21-22
	leaf beetles belong to the Galerucella Genus (G. *calmariensis* and G. *pusilla*)	For Purple Loosestrife	Completed- Review Date: 6-21-22
Chemical	Target Specific spot treatments a. backpack sprayer, hand sprayer, wick and wiping b. Frill Method/"Hack and squirt treatment": c. Stump treatment	Emergent and riparian only	Completed- Review Date: 6-21-22
	Spot and Broadcast Treatment of small and large patches along with monocultures- a. Motorized vehicles (such as ATVs or boats) with spray hoses, backpack sprayers, hand-pumped spray or squirt bottles. b. Broadcast treatments encompass using hose sprayers or booms using an array of spray nozzles to broadcast herbicide. c. Submerged treatments the chemical is injected into the water column. i. In submerged applications the use of certain tools such as a bubble curtain to isolate areas of invasive monocultures up	Emergent, Riparian, Submerged. a. Maximum daily acres for emergent is 2 acres total and submerged is 5 acres total; in accordance with BMPs described in Agencies Bos	Completed- Review Date: 6-21-22

	to 5 acres in size is permitted		

13. Best Management Practices

The following best management practices (BMPs) shall be implemented and adhered to in addition to label or other state or federal requirements:

1. General Practices:

    a. Licensing/Certification: All applicators shall be state licensed or certified, or under the direct visual supervision of a state licensed or certified applicator.

    b. All applicators shall comply with all applicable federal, state (Oregon, Idaho, and Washington), and herbicide manufacturer's directions and requirements for handling pesticides, including storage, transportation, application, container disposal, and spill cleanup.

    c. Herbicide application shall be according to the chemical manufacturer's label recommendations. Applicators shall use caution to minimize the application of herbicides to non-target species and structures within the application areas.

2. Calibration/Maintenance:

    a. All application equipment shall be properly calibrated according to the chemical manufacturer's suggested application rates printed on the chemical label prior to use. Equipment and settings shall be properly maintained for the duration of the contract performance period.

    b. Appropriately sized nozzles shall be used to minimize the potential for drift.

    c. Winds and certain very still conditions (inversions) can increase overspray and drift of spray herbicide into water. Operators shall not apply chemicals when winds are over 10 miles per hour, during inversions (within 1 hour of sunrise or sunset), or immediately preceding storms, or during other unsettled weather and precipitation.

    d. Application equipment will be maintained to ensure proper application rates, minimize leakage, reduce drift, and ensure applicator safety. Equipment will be maintained, and visually inspected prior to each application.

3. Record Keeping:

    a. Grantees, contractors, and COE employees shall perform work planning by submitting their anticipated use on the "District Pest Control Application Record" forms, as provided by the District.

b. All actual pesticide applications shall be recorded and submitted on the "District Pest Control Application Record" forms, as provided by the District.

c. The District shall provide annual reporting to the Services on anticipated use and actual use.

d. An annual report will be produced for the Services by May 1 of the following year. This report will summarize the area of treatment by species, chemical, and amount used. This summary report will be forwarded to the Services by the District's Environmental Compliance Section.

4. Spill Management:

a. All applicators shall carry a District-approved APMP Spill Prevention and Control Plan. The Plan shall provide detailed descriptions on how to prevent a spill or ensure effective and timely containment of any chemical spill. The Spill Prevention and Control Plan shall include spill control, containment, clean up, and reporting procedures.

b. A spill kit will be available to all applicators and shall be within 150 feet of the application site.

c. Equipment refueling will not occur within 100 feet of open water. This includes ATVs, trucks, tractors, aircraft, etc.

d. All concentrated or mixed solution pesticides shall be placed in locked storage in closed containers with watertight lids and placed in secondary containment vessels, with 2.4 gallons of freeboard space.

e. All mixing for spray bottles and backpack sprayers shall be done within a container capable of containing 110% capacity of the liquid.

5. Disposal:

a. Disposal of waste materials shall be in accordance with label restrictions and instructions and all applicable federal, state, and county laws and regulations.

6. Water Quality:

a. Only aquatic formulations of authorized chemicals will be used within 15 feet of water or areas with shallow water tables.

7. Timing:

a. The COE will adhere to the proposed treatment windows.

b. Narrower windows and additional protection measures established by states will also be followed, such as Washington Department of Ecology's (WDOE's) Recommended Fish and Wildlife Treatment Windows for aquatic plant control.

14. Reseeding/Site Restoration

If a monoculture (greater than 2,500 square feet) were to be completely treated and cleared, replanting with desirable species would occur to enhance the native vegetation's ability to recover the site.

1. All invasive, non-native riparian vegetation monocultures treated with herbicides shall be monitored for 2 years following treatment.
2. If desirable vegetation does not reestablish itself naturally, managers shall plant or seed new native riparian vegetation in order to reduce the need for future chemical application in the area, and to improve shade and cover for ESA-listed fish and their habitat.

15. Anticipated Use and Actual Use Records and Data

Grantees, contractors, and Corps employees shall perform work planning and annual reporting by submission of records (anticipated and actual use) or by GIS data. All of this information shall be compiled into a GIS database.

Overview of IPMP GIS

Purpose

The purpose of the Integrated Pest Management Plan (IPMP) database (db) is to comply with legal requirements, maintain District data regarding animal and vegetation pest control, to supply information to managers and planners, and to support planning and execution of the program.

Specifically, the objectives of the IPMP db are to:

- Maintain records of actual pest management actions
- Maintain records on anticipated pest management actions
- Screen Outgrant applications by proposed pest management actions
- Produce annual plan of proposed pest management actions
- Produce annual reports of actual pest management actions

Flow of information

Two data collection forms are used as a part of this program. 1) Pest Control Anticipated Application Record; and 2) Pest Control Application Record. Each record has four varieties: a Real Estate / Construction version, an Operations version, a USDA version, and Quality Assurance version. For applicators that are not-GIS capable, PDF records are available to collect both anticipated and actual pest control information. Applicators that possess GIS capabilities

can populate a template geodatabase with pest control data. See Figures 1 and 2 for flow of information diagrams.

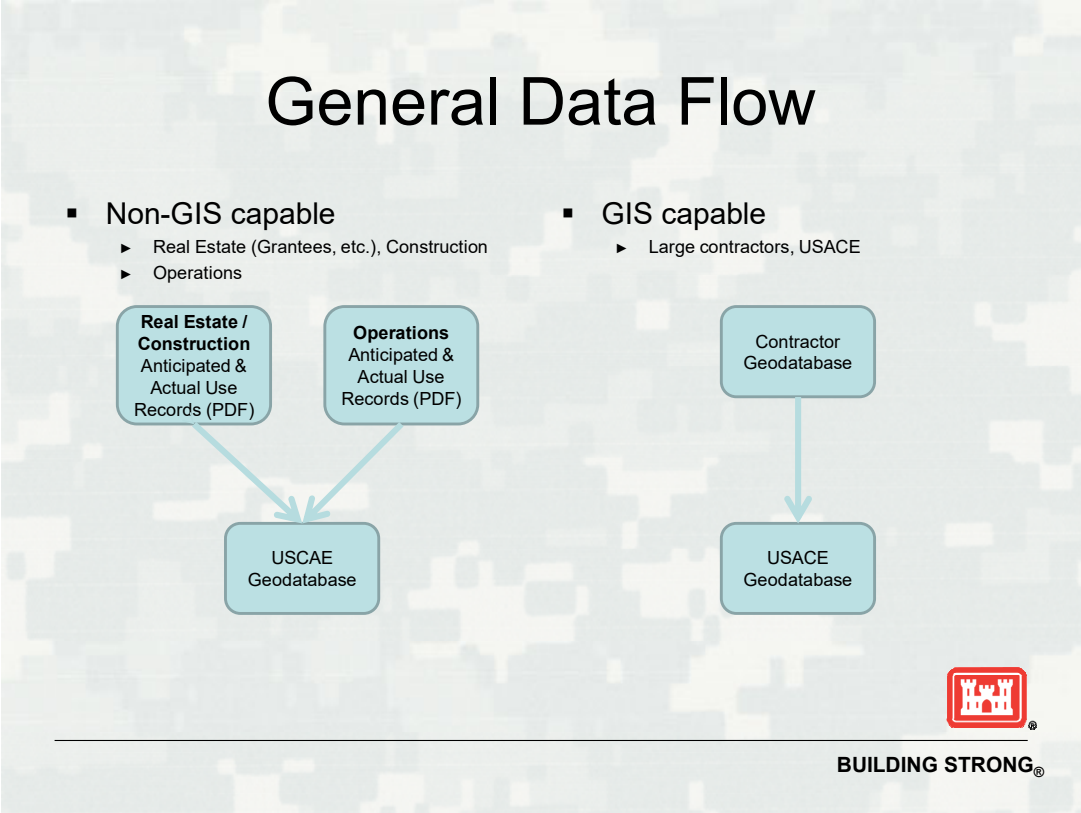


Figure 1. Flow of information for anticipated and actual pest control records to populate the USACE geodatabase.

Training materials and blank PDF records will be provided to applicators via email or may be accessed on the internet at: http://www.nww.usace.army.mil/Missions/Projects/Pest-Management/ (Figure 2). Project Pest Managers will provide copies of a blank geodatabase and training materials to GIS-capable applicators (Figure 3).

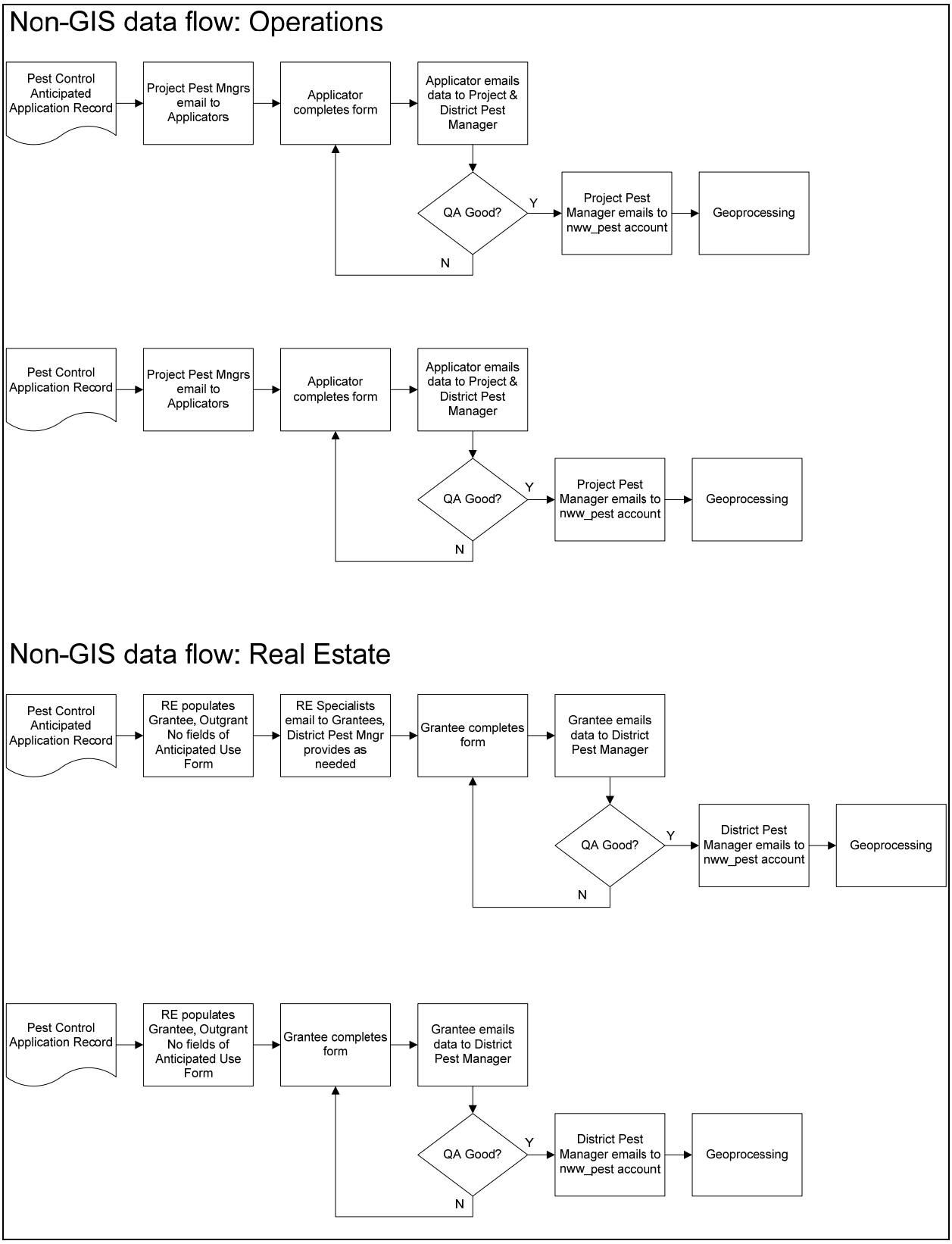


Figure 2. Flow of information for anticipated and actual pest control records via non-GIS-capable entities to populate the USACE geodatabase.

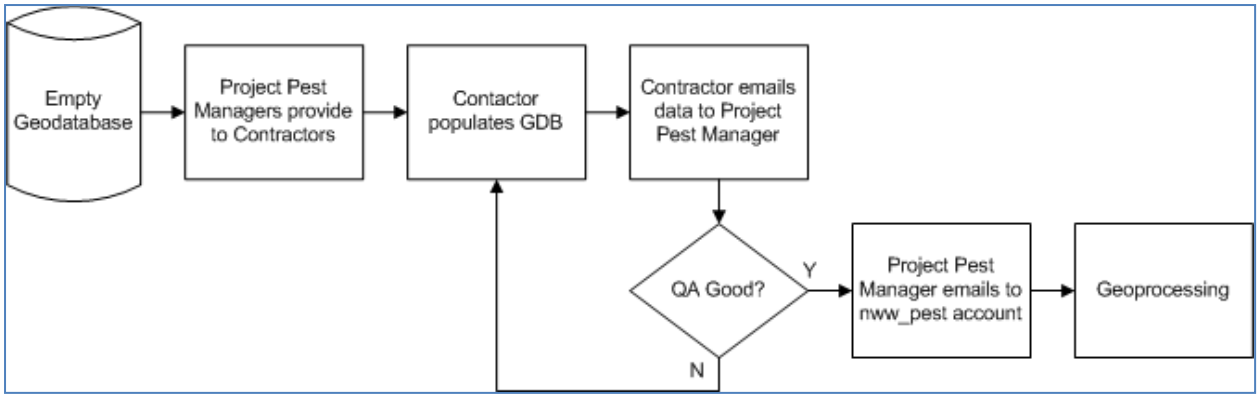


Figure 3. Flow of information for anticipated and actual pest control records via GIS-capable entities to populate the USACE geodatabase.

Instructions

Detailed instructions by functional area are presented in this section.

Instructions for Realty Specialists:

Pest Control Anticipated Application Record (Real Estate / Construction): Grantees are required to provide information about their anticipated use of pest controls to the Corps of Engineers by **February 15th** of the application year. Because the report is an estimate of total pest control use for a year, detailed geographic information about application locations is not required. Instead, anticipated use data in the record is matched by the contents of the 'Outgrant No' field to the 'SDSFEATURENAME' field of the Outgrant_A featureclass in the NWW enterprise geodatabase. It is therefore vital that these fields match.

The Grantee returns the data to the District Pest Manager. Upon a successful QA review, it will be ingested into the enterprise geodatabase. The assigned Realty Specialist will query the geodatabase and record compliance by the Grantee with the requirement to provide anticipated pest control information.

Pest Control Application Record (Real Estate / Construction): Grantees are required to provide detailed information about a pest control application within 7 days of an application. This is accomplished by completing the Pest Control Application Record PDF record.

Instructions for Applicators (Grantees/Construction Contractors) - PDF Records:

Pest Control Anticipated Application Record (Real Estate / Construction): This record must be completed and returned by February 15th of the application year. A separate record must be completed for each pest control category or change in chemical formulation. Once completed, data is sent to the District Pest Manager (). The preferred format for the data is an xml attachment. If this is not possible, the data may be returned saved in a PDF file. For instructions on how email data as an xml file from a PDF record using the record's 'Email Data' button, see Attachment 1.

- Pesticide Application Sponsor block: This block of fields contains information about the person or agency for which the pesticide was applied; the beneficiary of the pest management action. The fields 'Grantee', 'Outgrant No', and 'For year' should be filled out when you receive the record. If not, contact the assigned Realty Specialist.

- Pesticide Control Medium: This block contains information on the type of application, is it Terrestrial application (Above OHWM or Water's edge to OHWM) or an Aquatic application. Walla Walla District has two separate ESA consultation covering the type of application and these consultations dictate the types of chemicals, biological, and mechanical methods that can be used. Walla Walla District has to track these applications separately to meet reporting requirements under the district's Environmental Protection Agency (EPA) National Pollution Discharge Elimination System Pest General Permit and for Endangered Species Act annual reporting.

- Treatment Control: This block of fields contains information about the type of pest control proposed, categorized into one of four options: Chemical, Biological, Manual, and Mechanical

    - Chemical: Enter the **aquatic registered** product's label name in the 'Trade Name' field. The chemical must have an Active Ingredient from the approved list in the 'Active Ingredient (AI)' field. Enter the amount of Active Ingredient, in pounds in the 'Pounds of AI' field. Note that this is not the amount of chemical product as sold, but only the weight of the active ingredient. Add additional lines to the Pest Control Category Chemical table as needed to report each Active Ingredient proposed.

    - Biological: Select the Biological control from the approved list. If a selection of Other is made, enter additional information in the 'Comments' block. Add additional lines to the Pest Control Category Biological table as needed to report each Biological control proposed.

    - Mechanical: Select the Mechanical control from the approved list. If a selection of Other is made, enter additional information in the 'Comments' block. Add additional lines to the Pest Control Category Mechanical table as needed to report each Mechanical control proposed.

    - Manual: Select the Manual control from the approved list. If a selection of Other is made, enter additional information in the "Comments" Block. Add additional lines to the Pest Control Category Manual table as needed to report each Manual control proposed.

- Target Species block: First select from the 'Pest Category' field the class of pest to be controlled per the entry in the Pest Control Category block. Then select from the options in the 'Pest Name' field. Add additional lines to the Target Species table as needed to

report each Target Species to be controlled. If a selection of Other is made, enter additional information in the 'Comments' block.

Pest Control Application Record (Real Estate / Construction): This record must be completed and returned by email within 7 days of a pest control application to the assigned District Pest Manager. The preferred format for the data is an xml attachment. If this is not possible, the data may be returned saved in a PDF file. For instructions on how email data as an xml file from a PDF record using the record's 'Email Data' button, see Attachment 1.

- Pesticide Application Sponsor block: This block of fields contains information about the person or agency for which the pesticide was applied; the beneficiary of the pest management action. For Construction projects the Grantee and Outgrant No. can be populated with "NA".
- Licensed Pest Applicator block: This block of fields contains information about the person who performed pesticide application, if different from the Application Sponsor. Also includes an alternate applicator, if applicable.
- Pesticide Control Medium: This block contains information on the type of application, is it Terrestrial application (Above OHWM or Water's edge to OHWM) or an Aquatic application. Walla Walla District has two separate ESA consultation covering the type of application and these consultations dictate the types of chemicals, biological, and mechanical methods that can be used. Walla Walla District has to track these applications separately to meet reporting requirements under the district's Environmental Protection Agency (EPA) National Pollution Discharge Elimination System Pest General Permit and for Endangered Species Act annual reporting.
- Treatment Control: This block of fields contains information about the type of pest control proposed, categorized into one of four options: Chemical, Biological, Manual, and Mechanical.
    - Chemical: Enter the aquatic registered product's label name in the 'Trade Name' field. The chemical must have an Active Ingredient from the aquatic approved list in the 'Active Ingredient (AI)' field. Enter the amount of Active Ingredient, in pounds in the 'Pounds of AI' field. Note that this is not the amount of chemical product as sold, but only the weight of the active ingredient. In the 'Pesticide Classification' field, show if the Active Ingredient is designated for General or Restricted-use by either the Environmental Protection Agency or state. Add additional lines to the Pest Control Category Chemical table as needed to report each Active Ingredient proposed.
    - Biological: Select the Biological control from the approved list. If a selection of Other is made, enter additional information in the 'Comments' block. Add additional lines to the Pest Control Category Biological table as needed to report

each Biological control proposed. Currently Biological controls are approved in the Walla Walla District Aquatic applications for milfoil and purple loosestrife.

- Mechanical: Select the Mechanical control from the approved list**. If a selection of Other is made, enter additional information in the 'Comments' block.** Add additional lines to the Pest Control Category Mechanical table as needed to report each mechanical control proposed.
- Manual: Select the Manual control from the approved list. If a selection of Other is made, enter additional information in the "Comments" Block. Add additional lines to the Pest Control Category Manual table as needed to report each Manual control proposed.

- When choosing Mechanical or Manual a block for National Historic Preservation Act/Cultural (Section 106) Compliance Completed appears. Only certain mechanical and manual treatment methods are covered, see above instructions as to which ones have coverage/approval.
- Pest Management Application block: This block of fields contains information about the environmental conditions during the application, and the method of application. Date of Application, Start Time and Stop Time, Acres treated, Wind direction and speed (mph), Temperature at time of application, Application Method, Platform used, Medium applied to, and Comments. Use comments to provide additional description of the location of the site and why performing the application (Ex: parking lot on west side of Charbonneau park to treat weeds growing through asphalt and around vegetation islands). This box can help the QA process if GPS etc. are off.
- GPS Coordinates (WGS84, Decimal Degrees) of Application block: This block of fields contains information about the location of the application. All areas reported with the Pest Control Application Record are described as a point with a single longitude and latitude pair. The longitude and latitude must be in the WGS84 coordinate system, and recorded as decimal degrees. Enter position information to at least the fourth decimal place (46.0001). From this point, a radius is estimated in feet that will result in a circular area approximately equal to the application area. See Attachment 4 for additional information about this method. Add additional lines to the GPS Coordinates table as needed to report each application area.
- Target Species block: First select from the 'Pest Category' field the class of pest to be controlled per the entry in the Pest Control Category block. Then select from the options in the 'Pest Name' field. Add additional lines to the Target Species table as needed to report each Target Species to be controlled. If a selection of Other is made, enter additional information in the 'Comments' block.

Instructions for Applicators (Operations) - PDF Records:

Pest Control Anticipated Application Record (OPS): The instructions are the same as for Grantee use of the Pest Control Anticipated Application Record (Real Estate / Construction), with the following exceptions: that there is no 'Grantee' field , no 'Outgrant No' field and there is a 'Pest Mgmt AOR'. The 'Pest Mgmt AOR' field is populated with the name of one of the following six Pest Manager Areas of Responsibility: McNary (McNary Dam to Wallula Gap), Snake River West (Wallula Gap to Richland WA; up Snake River to Joso Bridge), Snake River East (Joso Bridge up Snake River to Lewiston, ID), Dworshak, Lucky Peak, and Mill Creek (including the district HQ and airport annex buildings). This is determined by the predominant area of the anticipated application. For example, if 90% of reported anticipated applications occur in the Snake River West area, enter Snake River West into the 'Pest Mgmt AOR' field. See Figures 4 – 9.

Pest Control Application Record: The instructions are the same as for Grantee use of the Pest Control Application Record with the same exceptions noted in the preceding paragraph.

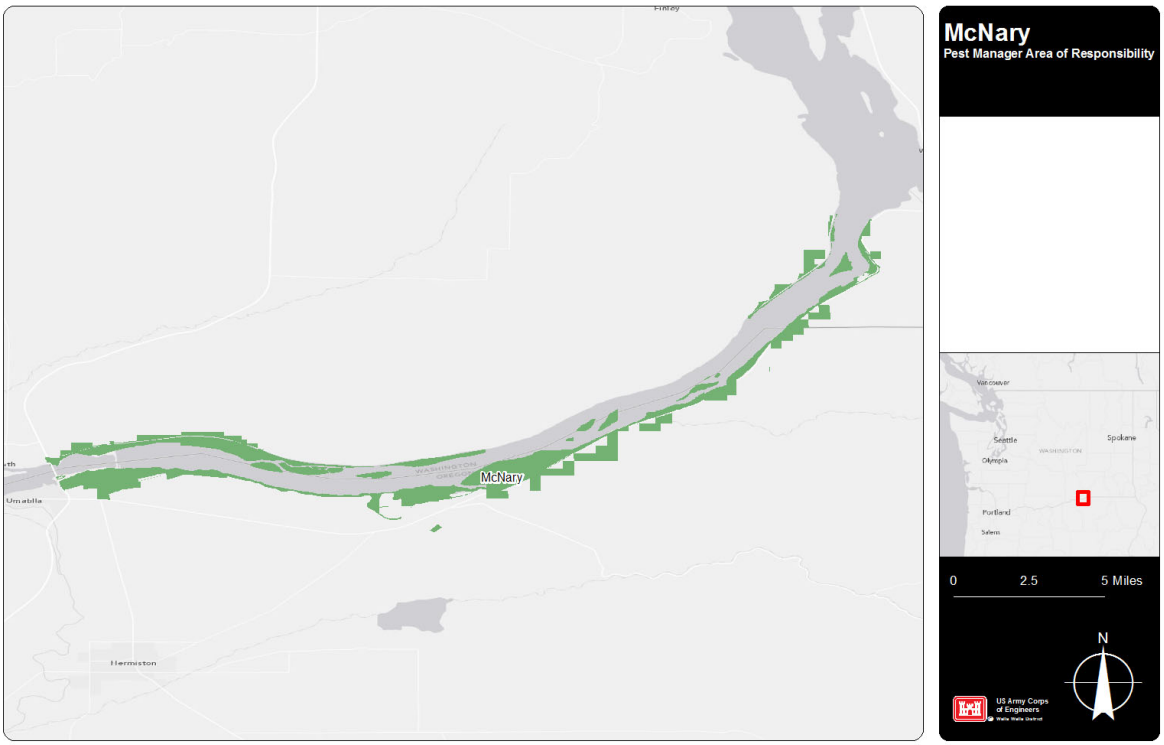


Figure 4

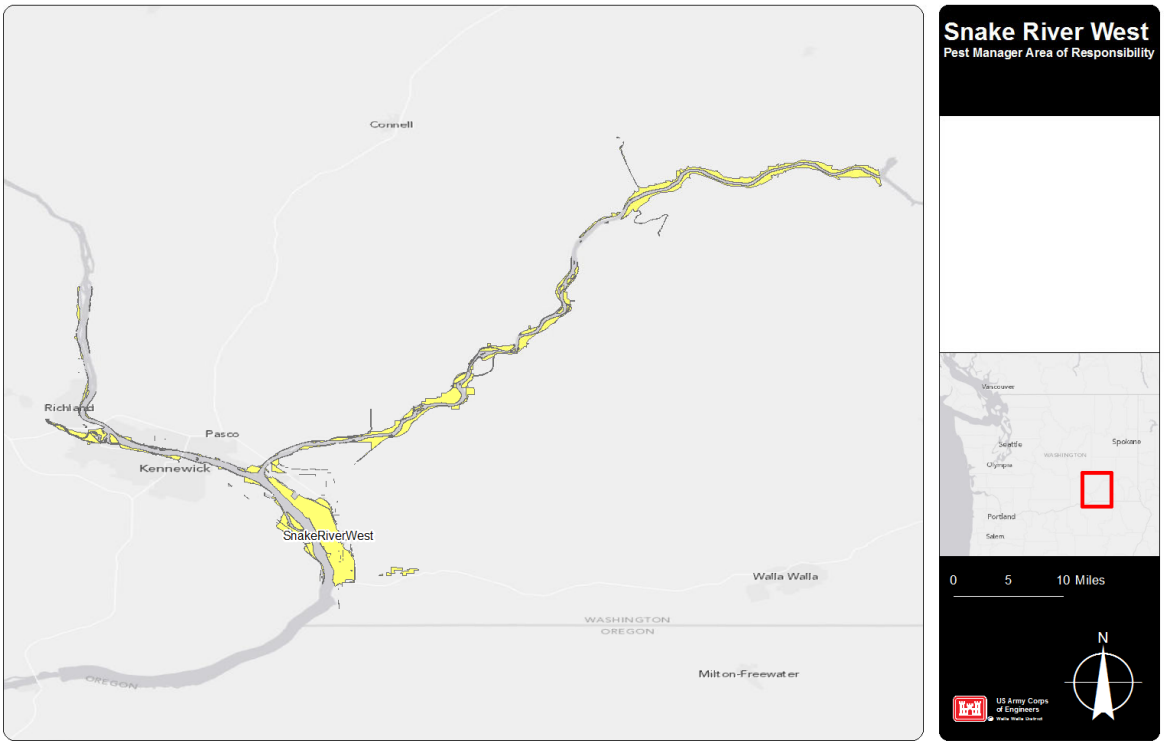


Figure 5

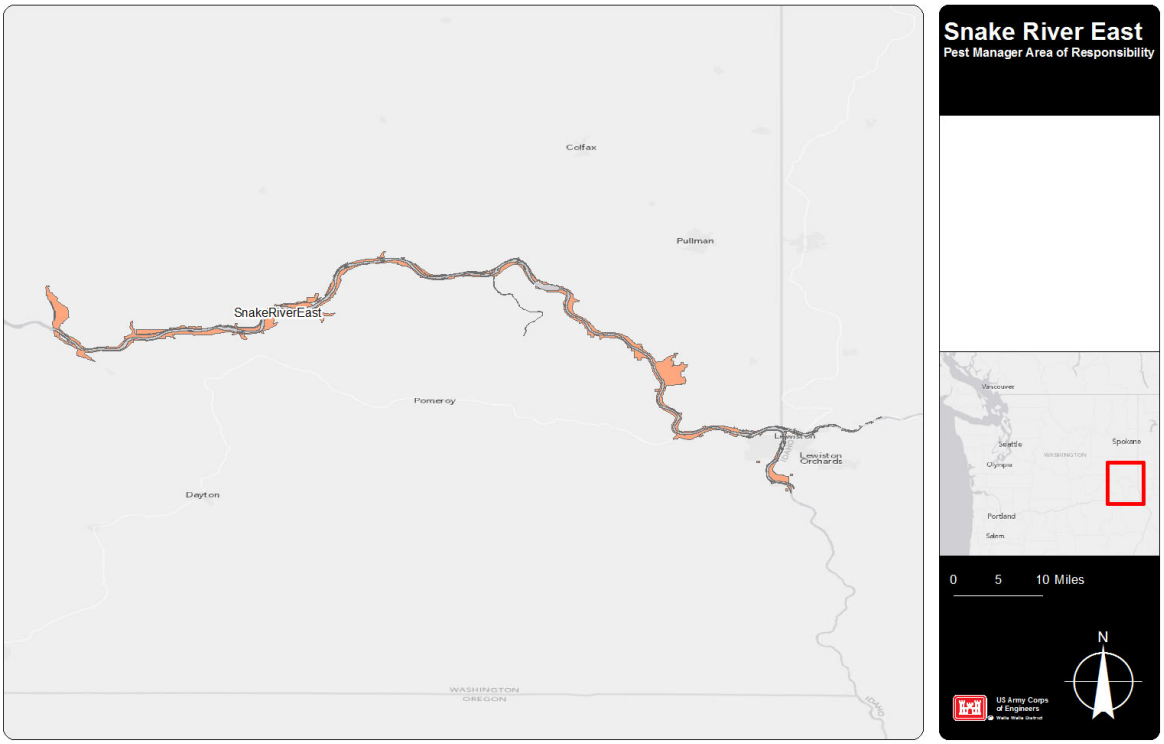


Figure 6

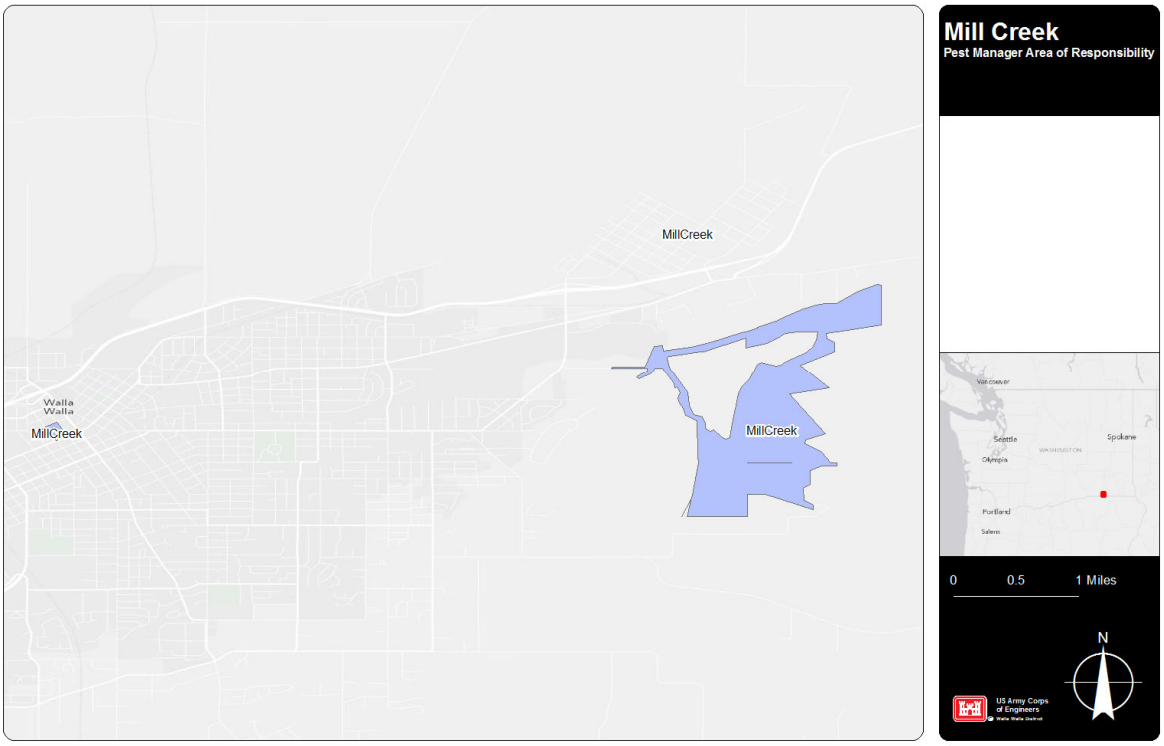


Figure 7

Instructions for Applicators (OPS) – Geodatabase:
File Geodatabase: The IPMP db is a relational database containing seven non-spatial and one spatial tables. See the IPMP Database Data Dictionary for a detailed explanation of all tables, fields, and domains used in the db. See the IPMP Database Schematic for a visual representation of the relationships between tables. Use the example 'featureclass' primary keys as a starting point, and submit the populated database to the assigned Project Pest Manager.

Instructions for Applicators (Grantees / Contractors) – Geodatabase:
File Geodatabase: The IPMP db is a relational database containing seven non-spatial and one spatial tables. See the IPMP Database Data Dictionary for a detailed explanation of all tables, fields, and domains used in the db. See the IPMP Database Schematic for a visual representation of the relationships between tables. Use the example 'featureclass' primary keys as a starting point, and submit the populated database to the District Pest Manager.

Instructions for Project and District Pest Managers:
Pest Control Application Record, Pest Control Anticipated Application Record and QA versions: When the Grantee or Contractor returns the data to the Project or District Pest Manager, it will arrive as an email attachment in one of two formats: an xml file, or a pdf file. The Project or District Pest Manager will perform a quality assurance check of the data for

completeness. If the data is not sufficient, coordinate with the applicator for revision. If the data is complete, only one format is permitted, transmit the data *as an xml attachment* to the NWW_pest_mgmt_reports@usace.army.mil inbox. For instructions on how to examine xml data using the QA record, see Attachment 2.

File Geodatabase: When an applicator submits a populated file geodatabase, the Project or District Pest Manager will perform a quality assurance check of the data for completeness. If the data is not sufficient, coordinate with applicator for revision. If the data is complete, transmit the data to the NWW_pest_mgmt_reports@usace.army.mil inbox as a zip file.

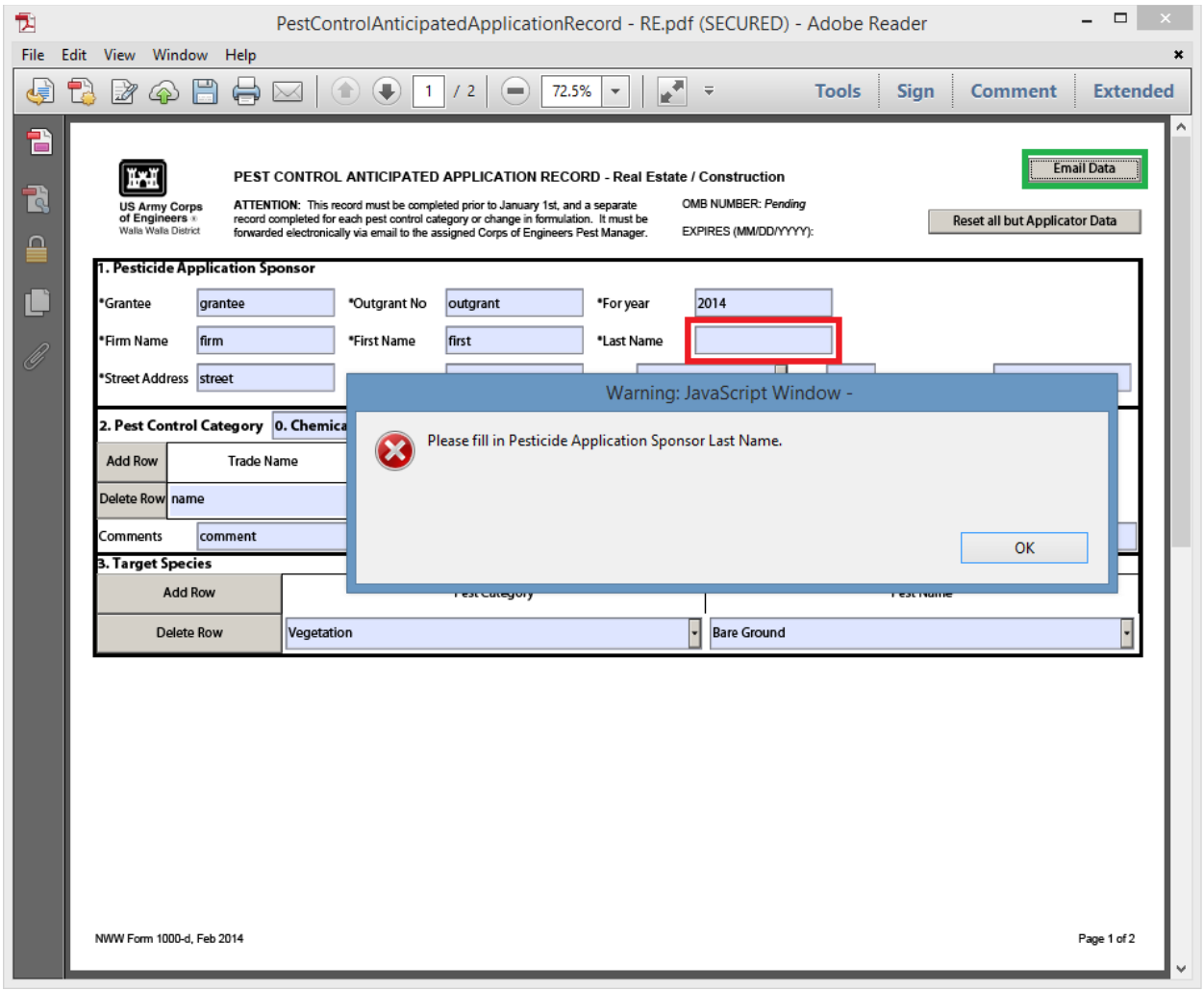
Instructions for NWW HQ GIS Staff:
Record Data (xml): Non-GIS capable applicators will submit data in xml via email to Project or District Pest Managers inbox for QA. After the data is verified, it will be forwarded to the NWW_pest_mgmt_reports@usace.army.mil inbox. Scripting copies xml attachments to the IPMP\Data\Incoming folder, and moves the email to the Processed folder of the inbox. Additional scripting processes the xml data in the IPMP\Data\Incoming folder, inserting it into the enterprise geodatabase. To read xml, this script requires the ElemenTree. ElementTree module to be installed in C:\Python27\ArcGIS10.1\Lib\site-packages. The source is available at http://effbot.org/zone/element-index.htm and a copy is on the network at \nww_egis\GeoTools\Software\Python\elementtree-1.2.7-20070827-preview.win32.exe.

File Geodatabase: Receive zip files of geodatabases from District or Project Pest Managers, and store in the egis folder structure under the appropriate year and project. The GIS-capable applicators will populate a template geodatabase that is empty except for a seed feature in each table and featureclass. The seed features will all have IDPK Project ID and Applicator ID equal to zero. GIS staff will de-conflict and assign Project ID and Applicator ID numbers, and communicate them to GIS users. Use the 'Update IDPKs In Applicator GDB' script tool to insert the required Project ID and Applicator ID into all IDPKs. Check for sequence number duplication in the IDPKs, reassign if required, then use the 'Append Applicator GDB to SDE' script tool to add the data to the enterprise database.

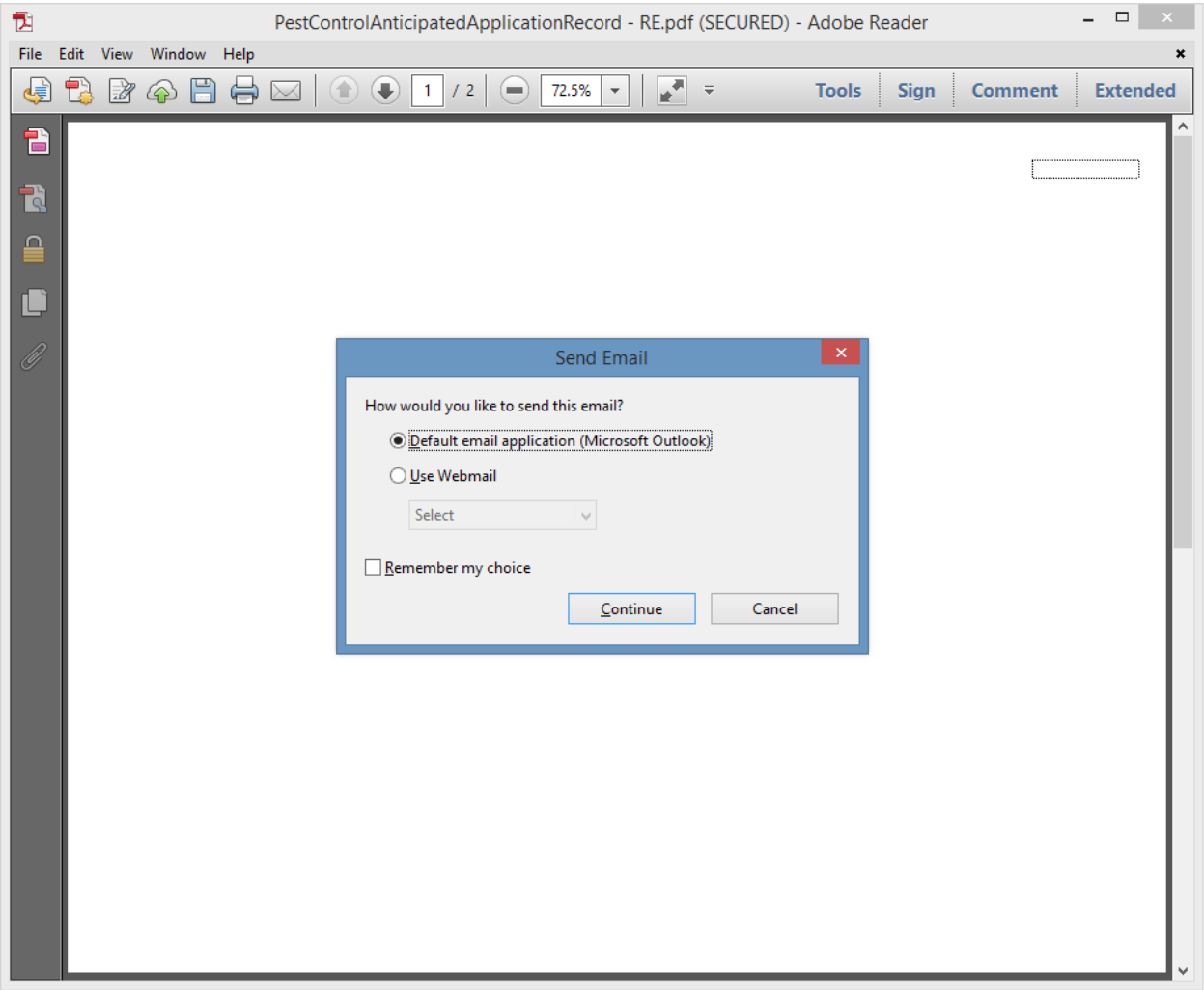
Attachment 1: Save and email data as an xml file from a PDF record using the record's 'Email Data' button (Acrobat XI Reader)

To save and email xml data using the 'Email Data' button (shown with green rectangle below):

1. Fill out the record, and then click the button. If a required field is not filled in, an announcement is made:


PestControlAnticipatedApplicationRecord - RE.pdf (SECURED) - Adobe Reader
File Edit View Window Help
Tools Sign Comment Extended
US Army Corps of Engineers
Walla Walla District
PEST CONTROL ANTICIPATED APPLICATION RECORD - Real Estate / Construction
ATTENTION: This record must be completed prior to January 1st, and a separate record completed for each pest control category or change in formulation. It must be forwarded electronically via email to the assigned Corps of Engineers Pest Manager.
OMB NUMBER: Pending
EXPIRES (MM/DD/YYYY):
Email Data
Reset all but Applicator Data
1. Pesticide Application Sponsor
*Grantee grantee
*Outgrant No outgrant
*For year 2014
*Firm Name firm
*First Name first
*Last Name
*Street Address street
Warning: JavaScript Window -
Please fill in Pesticide Application Sponsor Last Name.
OK
2. Pest Control Category 0. Chemica
Add Row
Trade Name
Delete Row
name
Comments comment
3. Target Species
Add Row
Delete Row
Vegetation
Bare Ground
NWW Form 1000-d, Feb 2014
Page 1 of 2

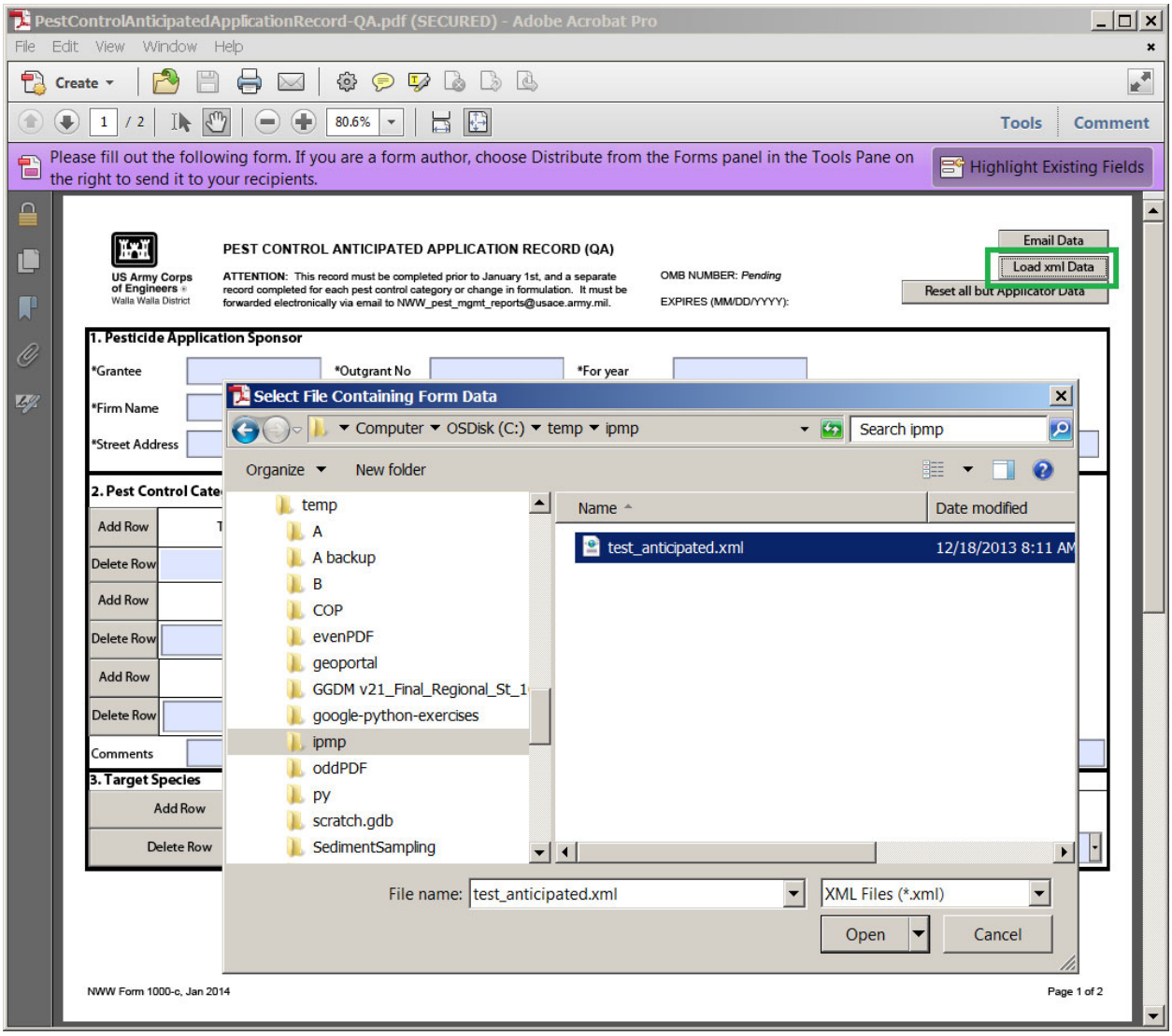
2. Once validation passes, the Select Email Client dialogue presents two options: Default Email Application or Webmail. Selecting Default Email Application will look for an email program such as Microsoft Outlook, open a new, preaddressed email, and attach the record data as an xml file. We Recommend adding to the xml file the date and site location, like 2-5-2017-HoodPark. The Webmail option will prompt for information about your webmail account. Do not chose remember my choice; because if you ever change email servers or webemail you will have problems with emailing the PDFs in the future.



Attachment 2: Performing QA of xml data (Acrobat X Pro)

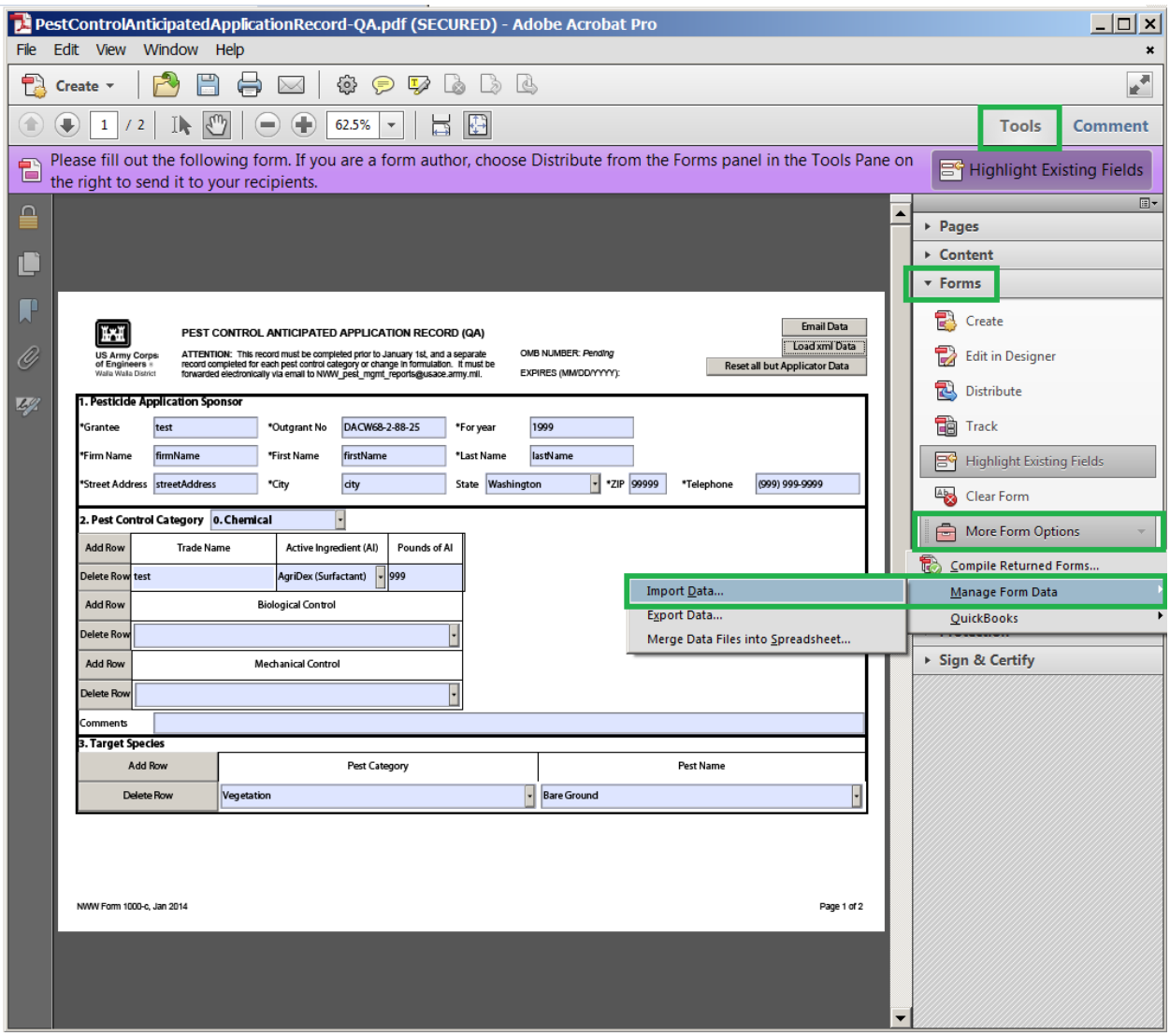
To load an xml file into a PDF record for viewing by using the QA form's "Load xml Data" button:

1. Click the "Load xml Data" button on the form, then navigate to the desired xml file.

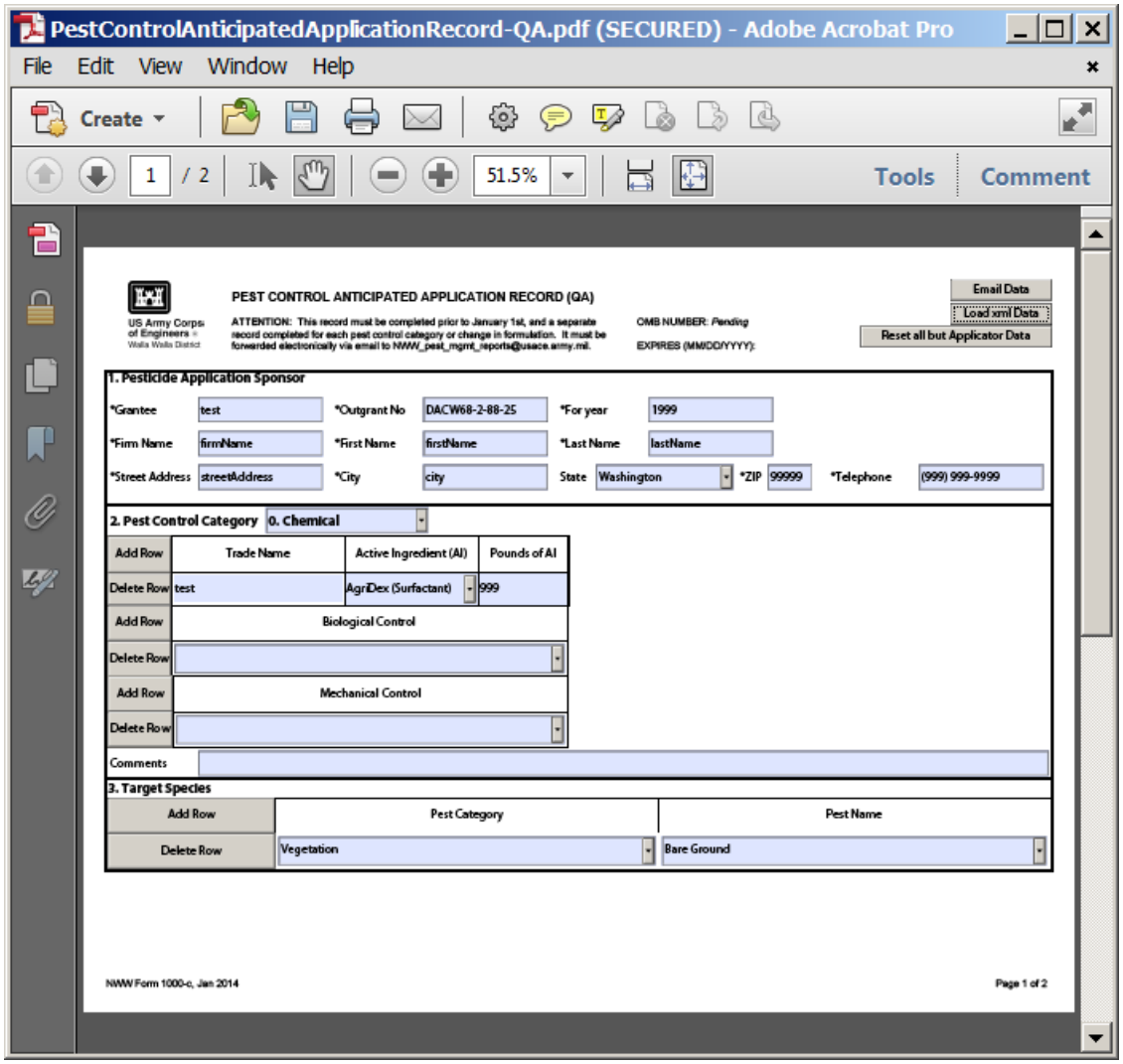


To load an xml file into a PDF record for viewing by using the toolbar:

1. Click "Tools" as shown in the green rectangle to open the toolbar, then Forms, More Form Options, Manage Form Data, Import Data, then navigate to the desired xml file.

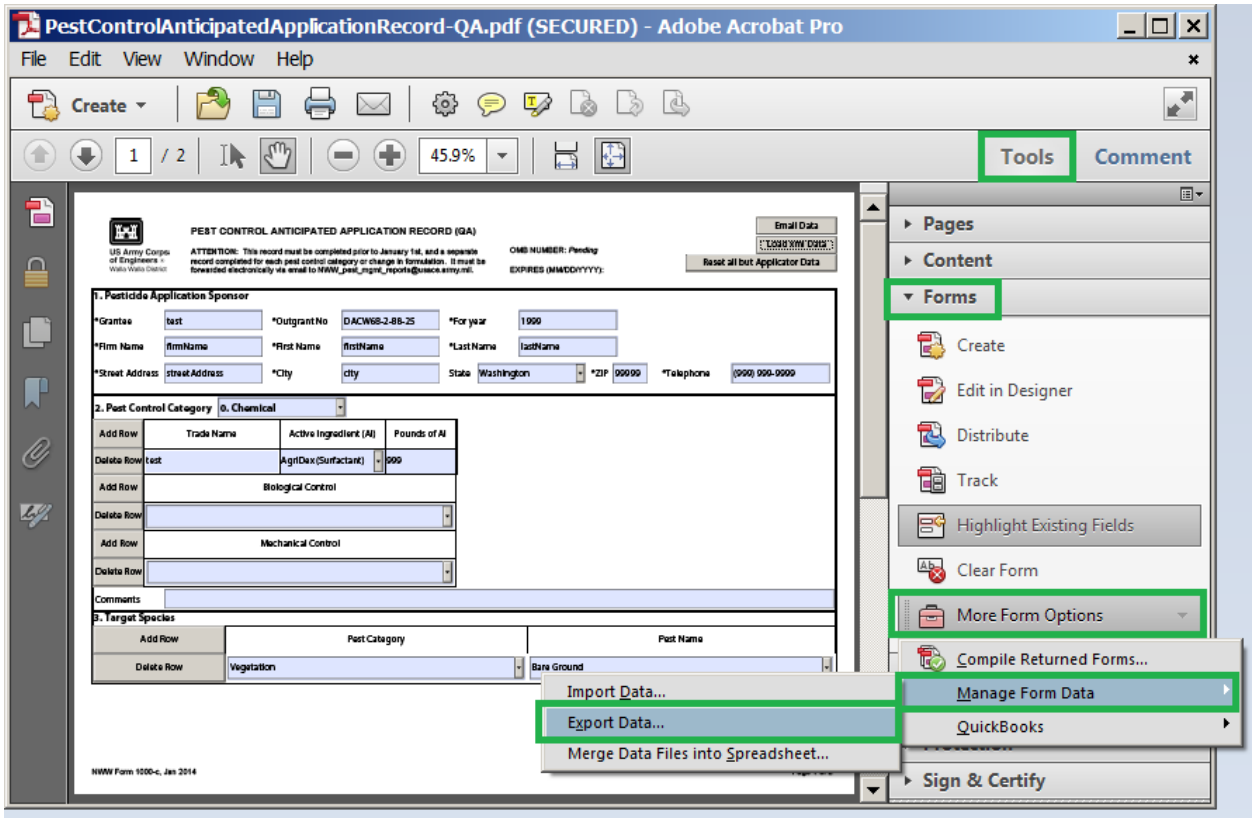

PestControlAnticipatedApplicationRecord-QA.pdf (SECURED) - Adobe Acrobat Pro
File Edit View Window Help
Create
1 / 2
62.5%
Tools
Comment
Please fill out the following form. If you are a form author, choose Distribute from the Forms panel in the Tools Pane on the right to send it to your recipients.
Highlight Existing Fields
PEST CONTROL ANTICIPATED APPLICATION RECORD (QA)
US Army Corps of Engineers
Walla Walla District
ATTENTION: This record must be completed prior to January 1st, and a separate record completed for each pest control category or change in formulation. It must be forwarded electronically via email to NWW_pest_mgmt_reports@usace.army.mil.
OMB NUMBER: Pending
EXPIRES (MM/DD/YYYY):
Email Data
Load xml Data
Reset all but Applicator Data
1. Pesticide Application Sponsor
*Grantee test
*Outgrant No DACW68-2-88-25
*For year 1999
*Firm Name firmName
*First Name firstName
*Last Name lastName
*Street Address streetAddress
*City city
State Washington
*ZIP 99999
*Telephone (999) 999-9999
2. Pest Control Category 0. Chemical
Add Row
Trade Name
Active Ingredient (AI)
Pounds of AI
Delete Row test
AgriDex (Surfactant)
999
Add Row
Biological Control
Delete Row
Add Row
Mechanical Control
Delete Row
Comments
3. Target Species
Add Row
Pest Category
Pest Name
Delete Row
Vegetation
Bare Ground
NWW Form 1000-c, Jan 2014
Page 1 of 2
Pages
Content
Forms
Create
Edit in Designer
Distribute
Track
Highlight Existing Fields
Clear Form
More Form Options
Compile Returned Forms...
Manage Form Data
QuickBooks
Import Data...
Export Data...
Merge Data Files into Spreadsheet...
Sign & Certify

2. The record populates with data from the xml file:

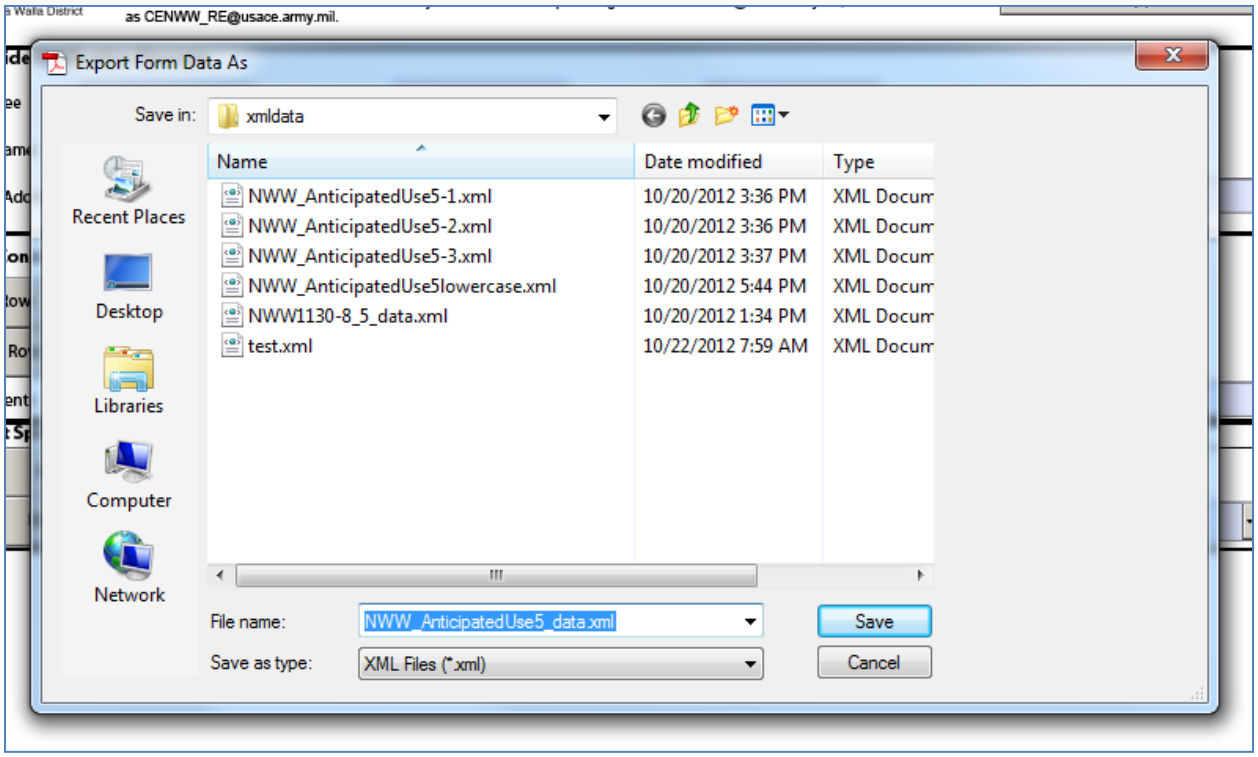


To save data from a PDF record to an xml file:

1. Open the matching PDF record. Open the Tools toolbar if required, then select Forms, More Form Options, Manage Form Data, Export Data, and navigate to the desired location.

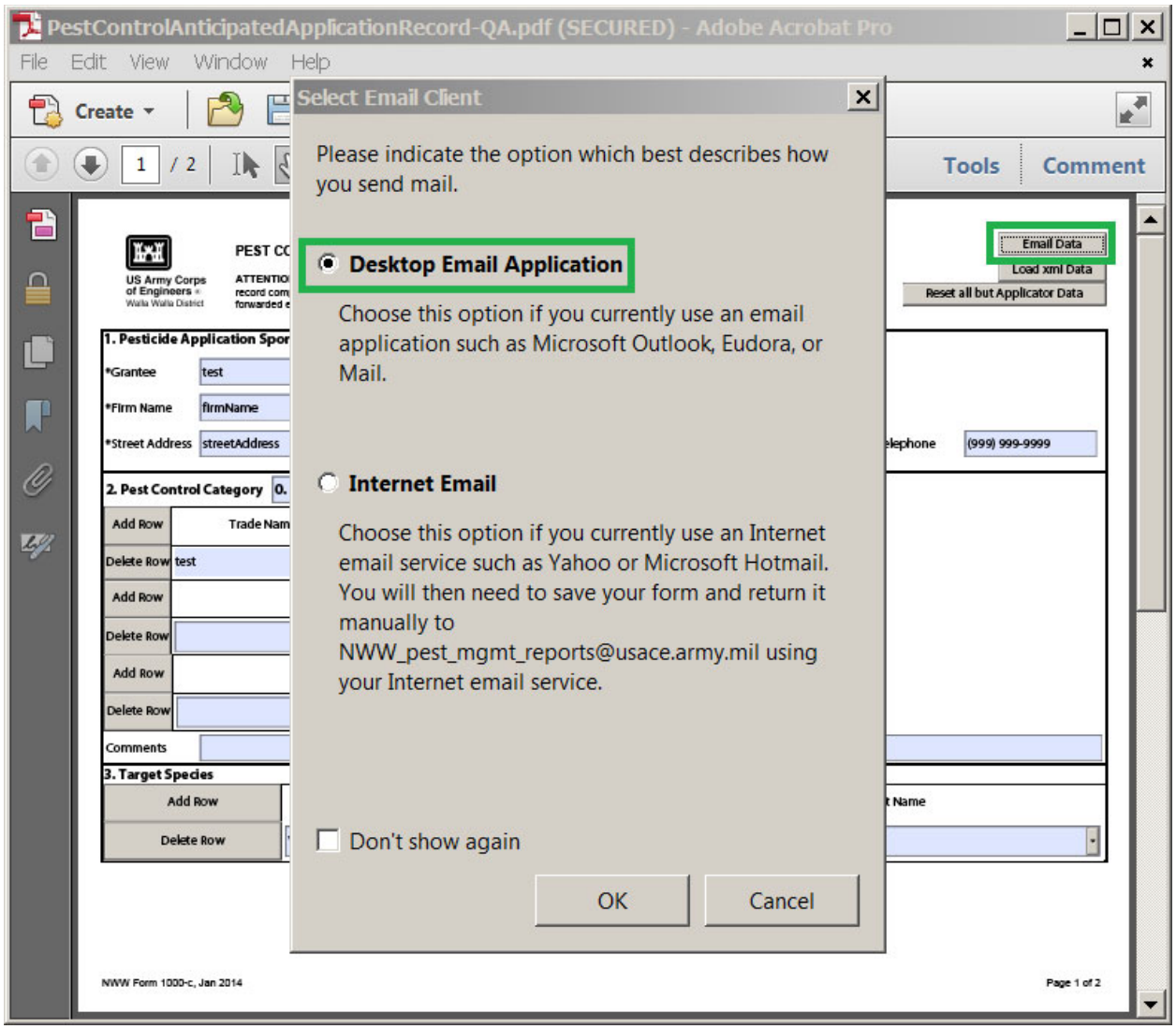


2. Ensure that the “Save as type:” option is set to “XML Files (*.xml)”:

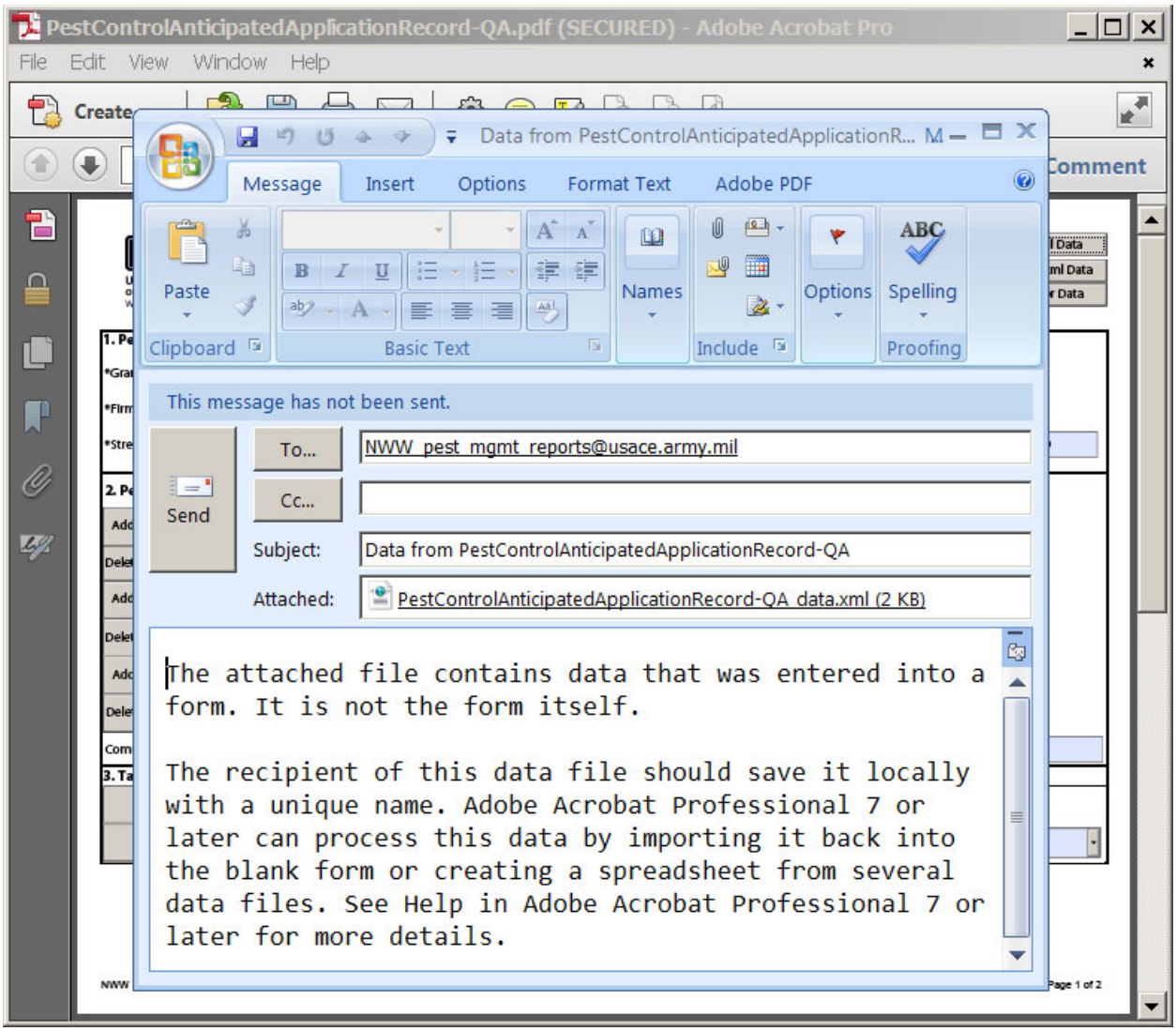


Forwarding data after QA:

1. Use the QA form’s “Email Data” button and select Desktop Email Application.



2. The program will open a new, preaddressed email, and attach the record data as an xml file.

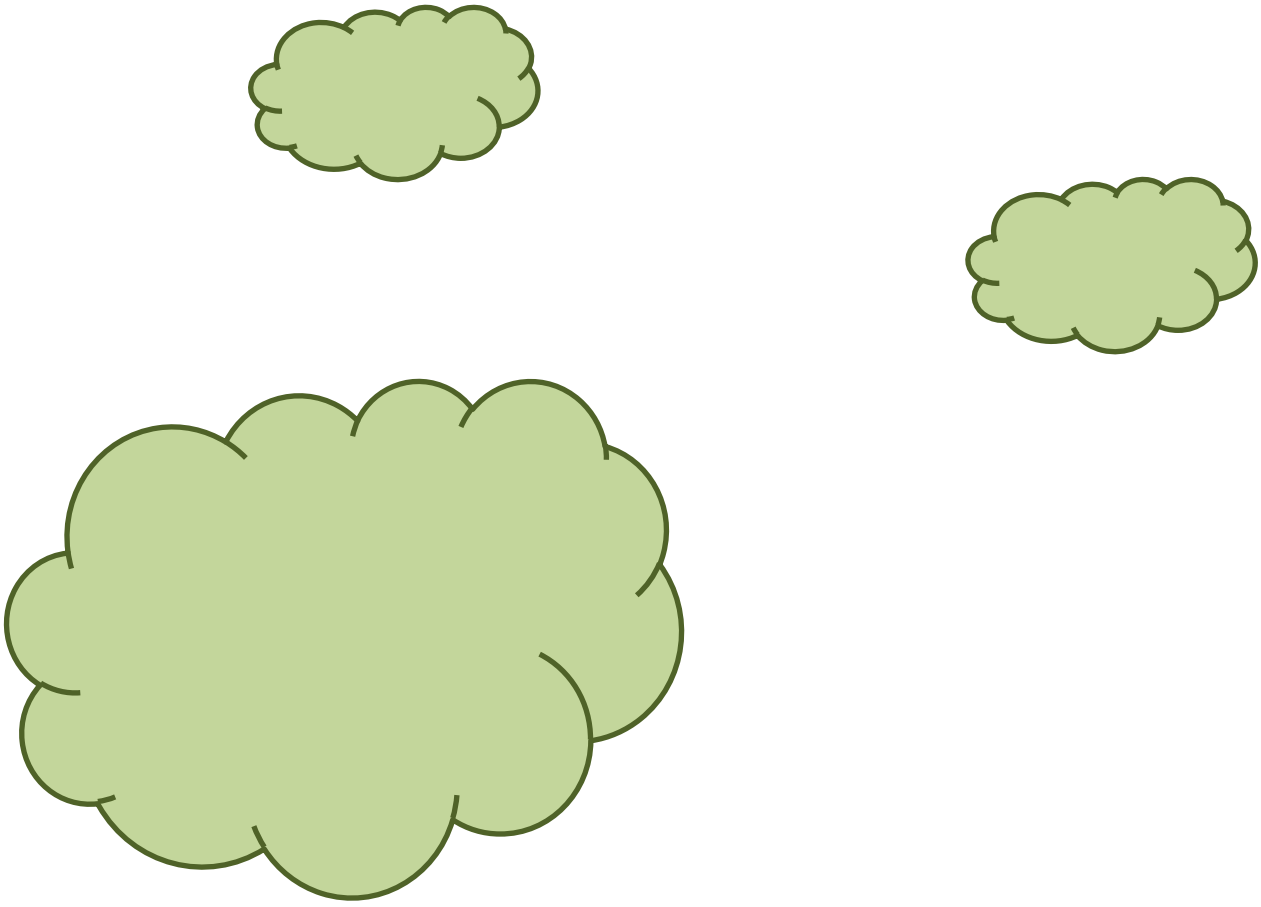

PestControlAnticipatedApplicationRecord-QA.pdf (SECURED) - Adobe Acrobat Pro
File Edit View Window Help
Data from PestControlAnticipatedApplicationR...
Message Insert Options Format Text Adobe PDF
Paste
Clipboard
Basic Text
Names
Include
Options
Spelling
Proofing
This message has not been sent.
Send
To...
NWW_pest_mgmt_reports@usace.army.mil
Cc...
Subject:
Data from PestControlAnticipatedApplicationRecord-QA
Attached:
PestControlAnticipatedApplicationRecord-QA_data.xml (2 KB)
The attached file contains data that was entered into a form. It is not the form itself.
The recipient of this data file should save it locally with a unique name. Adobe Acrobat Professional 7 or later can process this data by importing it back into the blank form or creating a spreadsheet from several data files. See Help in Adobe Acrobat Professional 7 or later for more details.

Attachment 3: GPS coordinate and radius data

The Pest Control Application Record provides a means to record the geographic location and estimated size of an application. **FOR THE APMP THESE NEED TO BE PRECISE, DUE TO THE LIMITED ACREAGE ALLOWED PER DAY AND PER SITE/LOCATION (Like boat lanes at launches and marinas).** Although an actual application may occur in a point, line, or polygon shape, applications will be reported only as points with a radius value. The radius should be estimated; but as precise as possible, so that when a circle is drawn around the point, the resulting area is approximately equal to the application area being reported.

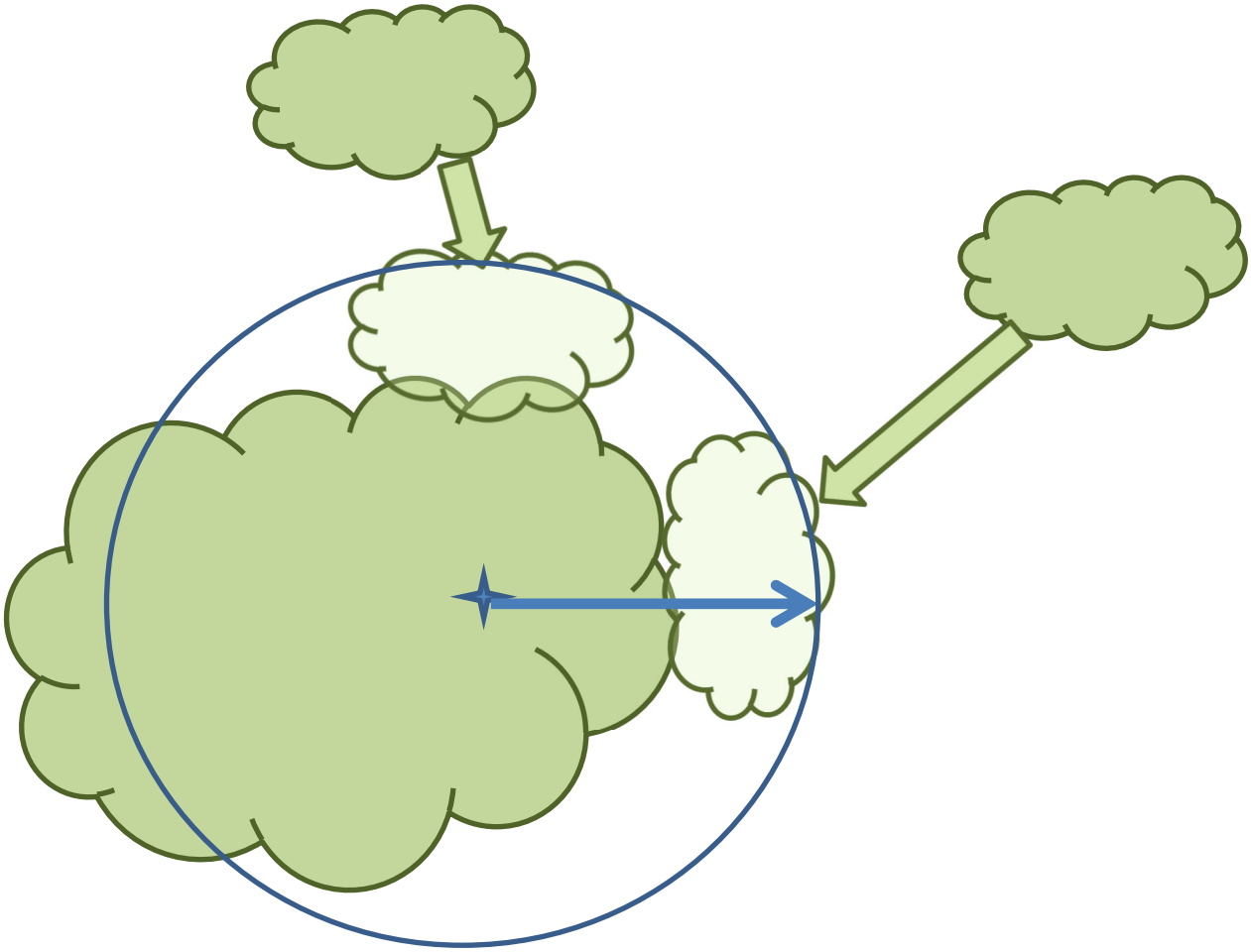
Point Features

Assume that a vegetation pest is to be controlled in points or patches as shown below.

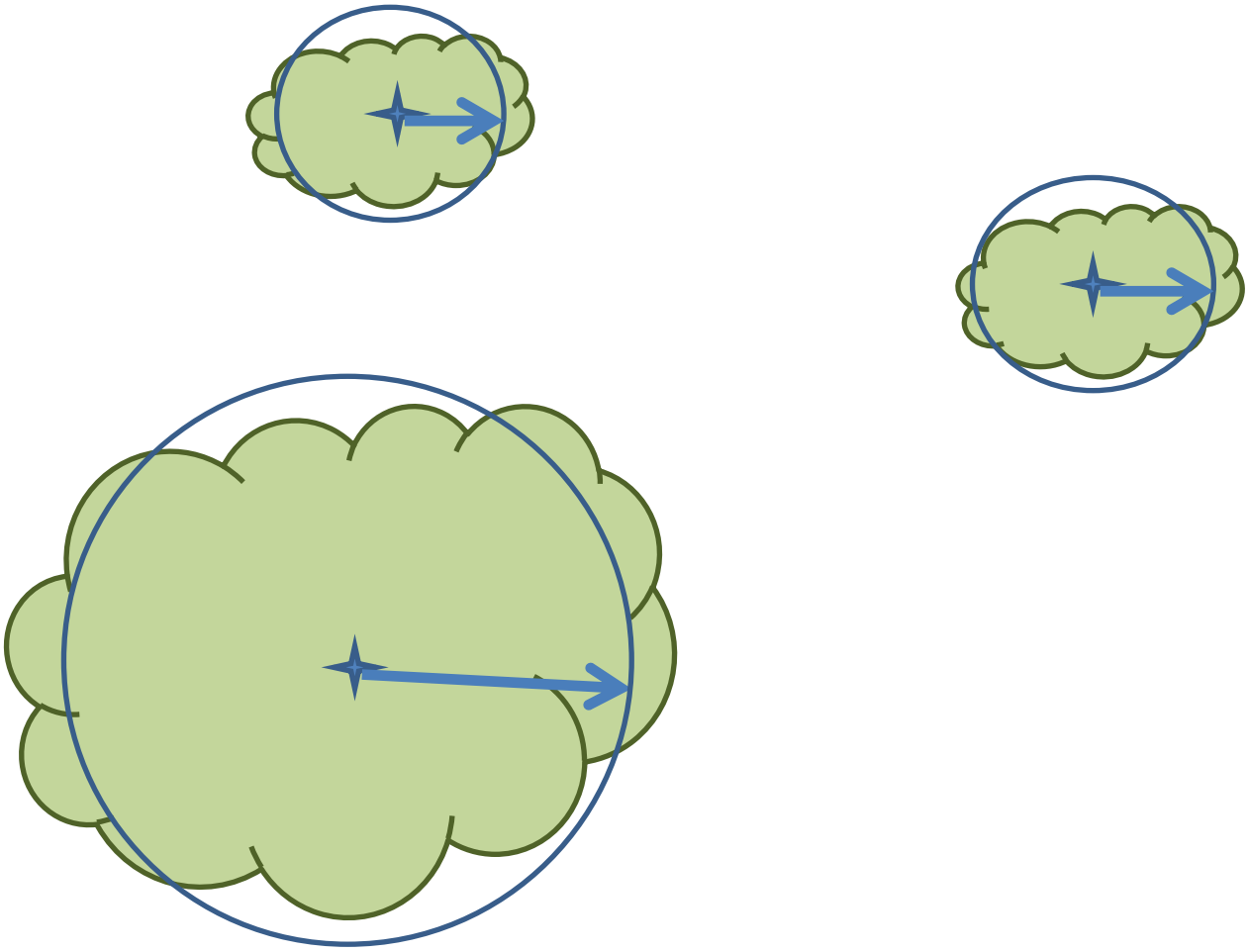


These would be considered spot treatments and you have the option to present close proximity spot treatments as one or as multiple locations.

One option for reporting would be to record a point at the center of the application. Estimate the total area of the application and a radius that would approximate a circular area of equal area.



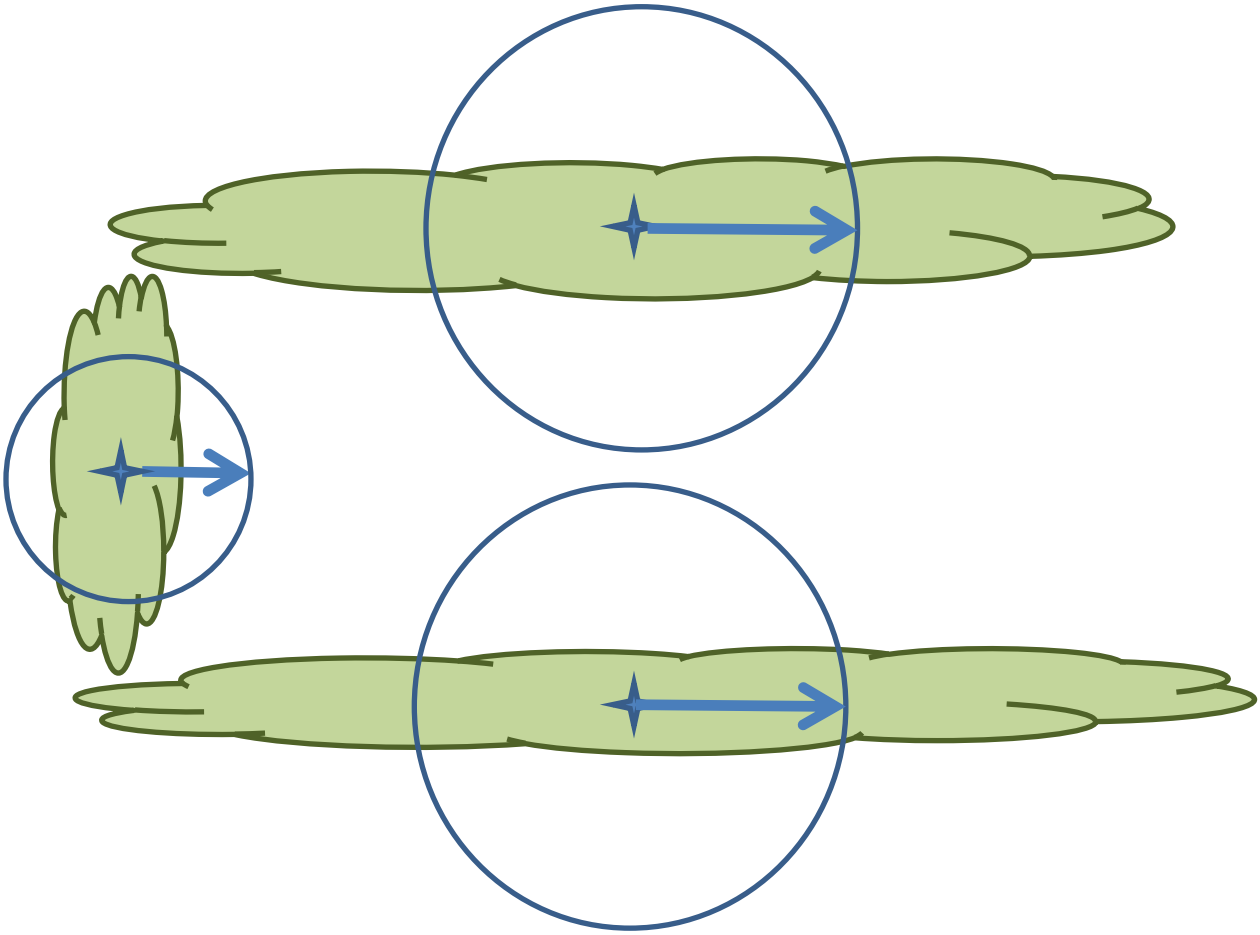
Another option is to record a point and radius for each application, which would provide the most accurate record.



Linear Features

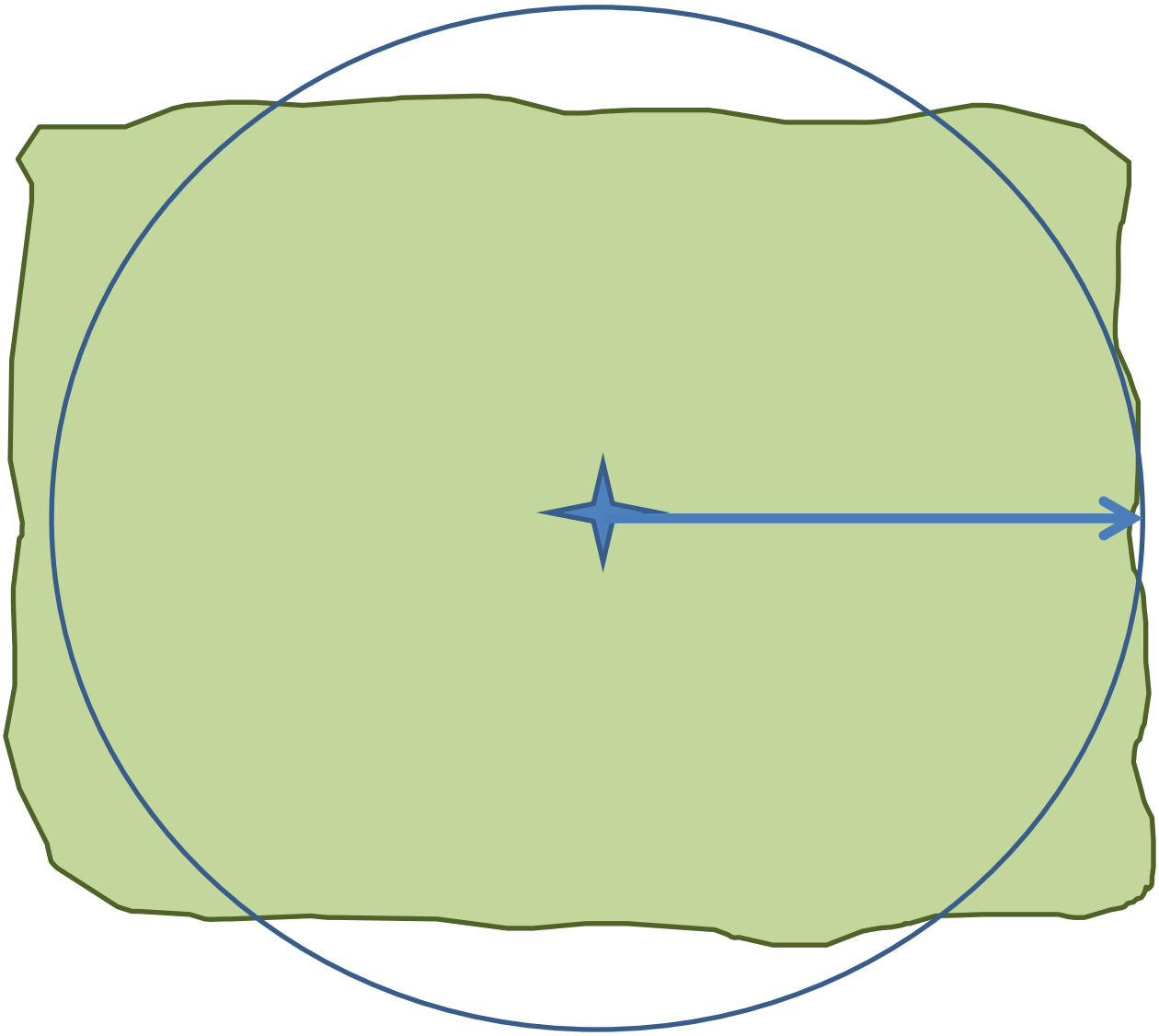
This same concept cannot be applied to linear applications. Assume that the next picture represents an application around the edge of native aquatic vegetation.

Linear applications must be reported individually, to be most accurate.



Polygon Features

Polygon features require the least amount of estimation. Remember daily treatment limits of 2 acres emergent and 5 acres submerged, reporting can not exceed these or they are and ESA violation.



16. ESA Listed Plants and Animals in the District

The following table shows the plant and animals species that are listed under the ESA by county in the District and potentially affected by aquatic pest management actions.

	Idaho					Washington							Oregon
	Ada	Boise	Elmore	Clearwater	Nez Perce	Asotin	Garfield	Whitman	Columbia	Franklin	Walla Walla	Benton	Umatilla
	Lucky Peak			Dworshak	Lower Granite				Lower Monumental				
							Little Goose		McNary				
											Mill Creek		
Species													
Water Howellia					X			X					
Bull Trout	X	X	X	X	X	X	X	X	X	X	X	X	X
Steelhead				X	X	X	X	X	X	X	X	X	X
Chinook Salmon				X	X	X	X	X	X	X	X	X	X
Sockeye Salmon					X	X	X	X	X	X	X	X	X
Bliss Rapids Snail			X										
Snake River Physa Snail	X		X										
Yellow-billed Cuckoo	X	X	X			X	X	X	X	X	X	X	X
Marbled Murrelet												X	

Appendix A: AORs, HMUs, and Outgranted Areas

Table 1 Snake River West HMU and Outgrant Areas.

Habitat/Recreation Area Name	AOR	Lake Name	Project Name	Recreation Area Type	River	River Mile
Walla Walla Yacht Club*	Snake River West	Lake Wallula	McNary Dam	Park	Columbia	312
Toothaker	Snake River West	Lake Wallula	McNary Dam	HMU	Columbia	319
Two Rivers	Snake River West	Lake Wallula	McNary Dam	Park	Columbia	324
Pasco Boat Basin*	Snake River West	Lake Wallula	McNary Dam	Park	Columbia	328
Columbia Park*	Snake River West	Lake Wallula	McNary Dam	Park	Columbia	331
Yakima Delta	Snake River West	Lake Wallula	McNary Dam	HMU	Columbia	334
Chiawana HMU	Snake River West	Lake Wallula	McNary Dam	HMU	Columbia	335
Chiawana Park and Road 54 Park*	Snake River West	Lake Wallula	McNary Dam	Park	Columbia	335
Wye Park*	Snake River West	Lake Wallula	McNary Dam	Park	Columbia	336
Richland Bend	Snake River West	Lake Wallula	McNary Dam	HMU	Columbia	337
Howard Amon Park*	Snake River West	Lake Wallula	McNary Dam	Park	Columbia	338
Leslie R. Grove Park*	Snake River West	Lake Wallula	McNary Dam	Park	Columbia	340
Taylor Flat	Snake River West	Lake Wallula	McNary Dam	HMU	Columbia	340
Sacajawea State Park	Snake River West	Lake Wallula	McNary Dam	Park	Snake	1
Yakima River Delta Wildlife Nature Area	Snake River West	Lake Wallula	McNary Dam	Park	Yakima	3
Hood Park	Snake River West	Lake Wallula	McNary Dam	Park	Snake	4
Martindale	Snake River West	Lake Wallula	Ice Harbor Dam	HMU	Snake	4
Burbank Heights	Snake River West	Lake Wallula	Ice Harbor Dam	HMU	Snake	5
Ice Harbor North Shore	Snake River West	Lake Wallula	Ice Harbor Dam	HMU	Snake	6
Locust Grove/Martindale	Snake River West	Lake Wallula	McNary Dam	Park	Snake	6
Ice Harbor	Snake River West	Lake Sacajawea	Ice Harbor Dam	HMU	Snake	9

Ice Harbor Dam	Snake River West	Lake Sacajawea	Ice Harbor Dam	Park	Snake	10
Ice Harbor Dam Visitor Center	Snake River West	Lake Sacajawea	Ice Harbor Dam	Park	Snake	10
Ice Harbor Marina*	Snake River West	Lake Sacajawea	Ice Harbor Dam	Park	Snake	11
Charbonneau	Snake River West	Lake Sacajawea	Ice Harbor Dam	HMU	Snake	11
Charbonneau Park*	Snake River West	Lake Sacajawea	Ice Harbor Dam	Park	Snake	11
No Name	Snake River West	Lake Sacajawea	Ice Harbor Dam	HMU	Snake	11
Lake Charlene	Snake River West	Lake Sacajawea	Ice Harbor Dam	HMU	Snake	12
Levey (Levy)	Snake River West	Lake Sacajawea	Ice Harbor Dam	HMU	Snake	13
Big Flat	Snake River West	Lake Sacajawea	Ice Harbor Dam	HMU	Snake	16
Quarter Circle	Snake River West	Lake Sacajawea	Ice Harbor Dam	HMU	Snake	16
Fishhook	Snake River West	Lake Sacajawea	Ice Harbor Dam	Park	Snake	17
Fishhook	Snake River West	Lake Sacajawea	Ice Harbor Dam	HMU	Snake	18
Lake Emma	Snake River West	Lake Sacajawea	Ice Harbor Dam	Park	Snake	19

Habitat/Recreation Area Name	AOR	Lake Name	Project Name	Recreation Area Type
Nineteen Mile	Snake River West	Lake Sacajawea	Ice Harbor Dam	HMU
Lost Island	Snake River West	Lake Sacajawea	Ice Harbor Dam	HMU
Lost Island (Votaw)	Snake River West	Lake Sacajawea	Ice Harbor Dam	HMU
Hollebeke	Snake River West	Lake Sacajawea	Ice Harbor Dam	HMU
Snake R. Junction	Snake River West	Lake Sacajawea	Ice Harbor Dam	HMU
Walker	Snake River West	Lake Sacajawea	Ice Harbor Dam	HMU
Couch Landing	Snake River West	Lake Sacajawea	Ice Harbor Dam	HMU
Burr Canyon	Snake River West	Lake Sacajawea	Ice Harbor Dam	HMU
Windust	Snake River West	Lake Sacajawea	Ice Harbor Dam	Park
Windust	Snake River West	Lake Sacajawea	Ice Harbor Dam	HMU
Matthews	Snake River West	Lake Sacajawea	Ice Harbor Dam	Park
Devils Bench	Snake River West	Lake West	Lower Monumental Dam	Park
Lower Monumental Dam	Snake River West	Lake West	Lower Monumental Dam	Park
Magellon	Snake River West	Lake West	Lower Monumental Dam	HMU
No Name	Snake River West	Lake West	Lower Monumental Dam	HMU
Skookum	Snake River West	Lake West	Lower Monumental Dam	HMU
Ayer Boat Basin	Snake River West	Lake West	Lower Monumental Dam	Park
Ayer	Snake River West	Lake West	Lower Monumental Dam	HMU
Fifty-Five Mile (55 Mile)	Snake River West	Lake West	Lower Monumental Dam	HMU
Joso	Snake River West	Lake West	Lower Monumental Dam	HMU
No Name 2	Snake River West	Lake West	Lower Monumental Dam	HMU
Lyons Ferry	Snake River West	Lake West	Lower Monumental Dam	HMU
Walker	Snake River West	Lake Sacajawea	Ice Harbor Dam	HMU
Sacajawea State Park	Snake River West	Lake Wallula	McNary Dam	Park

Yakima River Delta Wildlife Nature Area	Snake River West	Lake Wallula	McNary Dam	Park

Table 2 Snake River East HMU and Outgrant Areas.

Habitat/Recreation Area Name	AOR	Lake Name	Project Name	Recreation Area Type	River	River Mile
North Lewiston Ramp	Snake River East	Lower Granite Lake	Lower Granite Dam	Park	Clearwater	3
Lower Goose Pasture	Snake River East	Lower Granite Lake	Lower Granite Dam	HMU	Clearwater	6
Upper Goose Pasture	Snake River East	Lower Granite Lake	Lower Granite Dam	HMU	Clearwater	7
Lyons Ferry	Snake River East	Lake West	Lower Monumental Dam	HMU	Snake	58
Sixty Mile	Snake River East	Lake West	Lower Monumental Dam	HMU	Snake	60
Joso East	Snake River East	Lake West	Lower Monumental Dam	HMU	Snake	61
Sargent	Snake River East	Lake West	Lower Monumental Dam	HMU	Snake	62
Tucannon	Snake River East	Lake West	Lower Monumental Dam	HMU	Snake	62
Alkali Flat	Snake River East	Lake West	Lower Monumental Dam	HMU	Snake	66
Riparia	Snake River East	Lake West	Lower Monumental Dam	HMU	Snake	67
Riparia	Snake River East	Lake West	Lower Monumental Dam	Park	Snake	67
Texas Rapids	Snake River East	Lake West	Lower Monumental Dam	HMU	Snake	67
Texas Rapids	Snake River East	Lake West	Lower Monumental Dam	Park	Snake	67
John Henley	Snake River East	Lake Bryan	Little Goose Dam	HMU	Snake	68
Little Goose Dam	Snake River East	Lake Bryan	Little Goose Dam	Park	Snake	70
Little Goose Landing	Snake River East	Lake Bryan	Little Goose Dam	Park	Snake	70
Little Goose Recreation Area (Little Goose Landing)	Snake River East	Lake Bryan	Little Goose Dam	HMU	Snake	71
Flagpole Gulch	Snake River East	Lake Bryan	Little Goose Dam	HMU	Snake	72

Browns Gulch	Snake River East	Lake Bryan	Little Goose Dam	HMU	Snake	75
Hangar Dry Gulch	Snake River East	Lake Bryan	Little Goose Dam	HMU	Snake	75
Ridpath	Snake River East	Lake Bryan	Little Goose Dam	HMU	Snake	76
Phalen Gulch	Snake River East	Lake Bryan	Little Goose Dam	HMU	Snake	77
Central Ferry	Snake River East	Lake Bryan	Little Goose Dam	HMU	Snake	78
New York Island	Snake River East	Lake Bryan	Little Goose Dam	HMU	Snake	78
New York Bar	Snake River East	Lake Bryan	Little Goose Dam	HMU	Snake	81
Deadman Creek	Snake River East	Lake Bryan	Little Goose Dam	HMU	Snake	83
Lower Deadman	Snake River East	Lake Bryan	Little Goose Dam	HMU	Snake	83
Purrington	Snake River East	Lake Bryan	Little Goose Dam	HMU	Snake	85
Willow Bar	Snake River East	Lake Bryan	Little Goose Dam	HMU	Snake	86
Willow Landing	Snake River East	Lake Bryan	Little Goose Dam	Park	Snake	86
Penawawa	Snake River East	Lake Bryan	Little Goose Dam	HMU	Snake	92
Rice Bar	Snake River East	Lake Bryan	Little Goose Dam	HMU	Snake	93
Swift Island	Snake River East	Lake Bryan	Little Goose Dam	HMU	Snake	94

Habitat/Recreation Area Name	AOR	Lake Name	Project Name	Recreation Area Type	River	River Mile
Swift Bar	Snake River East	Lake Bryan	Little Goose Dam	HMU	Snake	95
Beckwith (Beckwith Bar)	Snake River East	Lake Bryan	Little Goose Dam	HMU	Snake	98
Schultz Bar	Snake River East	Lake Bryan	Little Goose Dam	HMU	Snake	100
Illia	Snake River East	Lake Bryan	Little Goose Dam	HMU	Snake	102
Illia Dunes	Snake River East	Lake Bryan	Little Goose Dam	Park	Snake	102
Illia Landing	Snake River East	Lake Bryan	Little Goose Dam	Park	Snake	102
Almota	Snake River East	Lower Granite Lake	Lower Granite Dam	HMU	Snake	104
Boyer Park and Marina*	Snake River East	Lake Bryan	Little Goose Dam	Park	Snake	105
Lower Granite Dam	Snake River East	Lower Granite Lake	Lower Granite Dam	Park	Snake	108

Offield Landing	Snake River East	Lower Granite Lake	Lower Granite Dam	Park	Snake	108
Transmission Line	Snake River East	Lower Granite Lake	Lower Granite Dam	HMU	Snake	110
WaWaWai (Wawawai)	Snake River East	Lower Granite Lake	Lower Granite Dam	HMU	Snake	111
Wawawai Landing	Snake River East	Lower Granite Lake	Lower Granite Dam	Park	Snake	111
Granite Point	Snake River East	Lower Granite Lake	Lower Granite Dam	HMU	Snake	114
Knoxway Canyon	Snake River East	Lower Granite Lake	Lower Granite Dam	HMU	Snake	116
Kelly Bar	Snake River East	Lower Granite Lake	Lower Granite Dam	HMU	Snake	118
Nisqually John	Snake River East	Lower Granite Lake	Lower Granite Dam	HMU	Snake	118
Nisqually John Landing	Snake River East	Lower Granite Lake	Lower Granite Dam	Park	Snake	118
Blyton Landing	Snake River East	Lower Granite Lake	Lower Granite Dam	Park	Snake	119
Centennial Island	Snake River East	Lower Granite Lake	Lower Granite Dam	HMU	Snake	120
No Name	Snake River East	Lower Granite Lake	Lower Granite Dam	HMU	Snake	124
Steptoe	Snake River East	Lower Granite Lake	Lower Granite Dam	HMU	Snake	127
No Name	Snake River East	Lower Granite Lake	Lower Granite Dam	HMU	Snake	128
Alpowa	Snake River East	Lower Granite Lake	Lower Granite Dam	HMU	Snake	129
Moses	Snake River East	Lower Granite Lake	Lower Granite Dam	HMU	Snake	130
Chief Timothy	Snake River East	Lower Granite Lake	Lower Granite Dam	HMU	Snake	132
Chief Timothy Habitat Management Unit	Snake River East	Lower Granite Lake	Lower Granite Dam	Park	Snake	132
Silcott	Snake River East	Lower Granite Lake	Lower Granite Dam	HMU	Snake	132
Evans Pond	Snake River East	Lower Granite Lake	Lower Granite Dam	HMU	Snake	134
Water Tank	Snake River East	Lower Granite Lake	Lower Granite Dam	HMU	Snake	135
Wilma-North Clarkston	Snake River East	Lower Granite Lake	Lower Granite Dam	HMU	Snake	135
Golfcourse Pond	Snake River East	Lower Granite Lake	Lower Granite Dam	HMU	Snake	136
Confluence Island	Snake River East	Lower Granite Lake	Lower Granite Dam	HMU	Snake	139
Hells Gate	Snake River East	Lower Granite Lake	Lower Granite Dam	HMU	Snake	144
Tammany Quarry	Snake River East	Lower Granite Lake	Lower Granite Dam	HMU	Snake	144
Asotin Slough	Snake River East	Lower Granite Lake	Lower Granite Dam	HMU	Snake	146

Table 3 Mill Creek HMU and Outgrant Areas.

Habitat/Recreation Area Name	AOR	Lake Name	Project Name	Recreation Area Type	River	River Mile
Bennington Lake	Mill Creek	Bennington Lake	Mill Creek	Park	Mill Creek	11
Mill Creek Recreation Trail	Mill Creek	Bennington Lake	Mill Creek	Park	Mill Creek	11
Rooks Park	Mill Creek	Bennington Lake	Mill Creek	Park	Mill Creek	11