AQUATIC PEST MANAGEMENT PROGRAM

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

Implementation Instructions

U.S. Army Corps of Engineers
Walla Walla District

Date: August 22, 2017

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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
ESA	Endangered Species Act
GIS	Geographic Information System
GPS	Global Positioning System
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
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). 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 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.

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), and the District's compliance with it. 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) 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 "effects 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.

The consultation ends with the Services either concurring with the determination of the agency, which was the case for the terrestrial portion of the IPMP, and issue letters to the agency concurring, or they issue 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 agency, and by those operating under it, 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 could be civil and criminal penalties, which could apply down to the applicator in this case.

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 found a need to issue BOs, both of which came 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.

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.
- 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 the following table (Table 1) for reference purposes.

The following table 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.

Table 1. Plants targeted for control in riparian and aquatic habitats by the APMP 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
Eurasian Watermilfoil	*Myriophyllum spicatum*	B	B	B
Curly-leaf Pondweed	*Potamogeton crispus*	C		C
False Indigo	*Amorpha fruticose*	B	B	
Flowering Rush	*Butomus umbellatus*	A	A	C
Hairy Willow-Herb	*Epilobium hirsutum*	B		
Japanese Knotweed	*Polygonum cuspidatum*	B	B	B
Narrowleaf Cattail	*Typha angustifolia*	C		
Parrotfeather	*Myriophyllum aquaticum*	B	B	B
Perennial Pepperweed	*Lepidium latifolium*	B	B	C
Phragmites (common reed)	*Phragmites australis*	B	B	B
Poison Hemlock	*Conium maculatum*	B	B	C
Purple Loosestrife	*Lythrum salicaria*	B	B	C
Reed Canarygrass	*Phalaris arundinacea*	C		
Russian Olive	*Elaeagnus angustifolia*	C		
Saltcedar	*Tamarix ramosissima*	B	B	C
Tree-of-Heaven	*Ailanthus altissima*	C	B	
Yellow-flag Iris	*Iris pseudacorus*	C	B	C
Algae	*Various species*			

[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

5.2.Early Detection Rapid Response (EDRR)

It is reasonable to assume not all invasive plants sites have been located and that new sites will emerge throughout Corps lands in the District. New detections in all areas of the District shall be subject to the EDRR process described in this section. 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, early detection and rapid response (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 surrounding treatment sites and use selective herbicides as appropriate. Consider soil 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.
2. Do the size, density, and/or distribution of invasive plants warrant the broadcast application method?
   - **Yes**: Is the treatment site within the riparian zone and/or on a road that has high potential to deliver herbicide to surface waters? 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 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.

Chemical and Mechanical aquatic vegetation control shall only occur from **July 1 through September 15**. Manual treatments or physical removal using hand tools may occur **year-round**.

6.2. Mill Creek

Because of requirements in the USFWS BO, APMP activities (chemical, mechanical, and manual) at Mill Creek are only allowed from **July 1 through August 15**. There are also specific terms and conditions required prior to APMP activities at Mill Creek:

- 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: (**document in comment section of PDF application form**)
    - Water temperatures below 18 Celsius
    - Flows (see below)
    - Weather (see below)
    - Bull trout detection and distribution information

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). **Document this information in the comment section of the PDF application form.**

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

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:

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

7.2.Spot

Chemical applications are made by either ground-based sprayers (mounted to small all-terrain vehicles (ATVs), vessel (boat), fullsize 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

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

8. Herbicides & Chemicals Controls

Chemical applications can take place from **July 1 through September 15**, except for Mill Creek Project area. Applications at Mill Creek are allowed from **July 1 through August 15.**

The following table (Table 2) lists the active ingredients allowed for use in the District[5] and 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.

Table 2. Active ingredients allowed for use in the District, with some example trade names.

Chemical	Example Trade Names
2,4-D (amine only)	AquaKleen
	Navigate
Imazapyr	Habitat
Sodium Carbonate Peroxyhydrate	GreenClean
	EcoBlast
Modified Vegetable Oil (surfactant/adjuvant)	Competitor

[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.

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

- Aquatic registered labeled products only.
- The adjuvant competitor is currently the only surfactant allowed for use in the District and only with imazapyr.
- Only aquatic labeled herbicides and surfactants shall be used.
- The surfactant/adjuvant (modified vegetable oil) can only be used with Imazapyr
- Only amine formulas of 2,4-D 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.

Table 3 provides the maximum annual acreages allowed per herbicide and chemical control methods and per chemical/active ingredient. The annual acreage information will be tracked by the anticipated and actual usage required reporting (PDF) data submitted by applicators, lessees, contractors, and all that perform applications.

Table 3. Maximum annual chemical, mechanical, and manual treatments allowed in the APMP.

Treatment	Application Rate (pint/acre)	Area (acres)	Annual Application (lbs a.i.)*
2,4-D (amine only)	2	78	75
Imazapyr	6	200	300
Competitor (surfactant)	2	**	200
Sodium carbonate peroxyhydrate	94	10	0.03
TOTAL CHEMICAL		**288**	**575**
Mowing, burning (riparian only)		20	
Chopping (aquatic only)		5	
Substrate screen (aquatic only)		40	
Rakes, blades (simple, hand or boat-pulled); digging and pulling (with hand tools)		100	

*Total application is measured in pounds (lbs) of active ingredient (a.i.).

**Adjuvant may be mixed with imazapyr (200 ac), but will not be mixed with 2,4-D or used alone.

9. Manual Controls

Manual methods can take place **year-round**, except for Mill Creek Project area. Applications at Mill Creek are allowed from **July 1 through August 15.**

Manual controls include:

- Physical removal by hand pulling
- Manual digging with hand tools
- Non-mechanical cutting and raking
- Laying semi-permanent material/barrier (substrate screen)
- Diver Assisted Suction Harvesting (DASH)
- Prescribed Fire (riparian areas only)

Table 4 provides the maximum annual acreages allowed per manual control methods. The annual acreage information will be tracked by the anticipated and actual usage required reporting (PDF) data submitted by applicators, lessees, contractors, and all that perform applications.

Table 4. Maximum manual treatments allowed in the APMP.

Treatment	Area (acres)
Mowing & Burning (riparian only)	20
Substrate screen (aquatic only)	40
Rakes, blades (simple, hand or boat-pulled); digging and pulling (with hand tools),	100
Diver Assisted Suction Harvesting (DASH)	No limit

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. Techniques include manual digging with hand tools or pulling entire plants by hand. These are particularly important in eradication efforts for small quantities and under EDRR.

Entire plants (leaves, stems, and roots) will be removed from the area of concern and disposed of away from water. In water less than 3 feet deep, specialized equipment is required, although a spade, trowel, or long knife may be needed if the sediment is packed or heavy. In deeper water, hand pulling is best accomplished by divers. The divers use mesh bags for the collection of plant fragments. In special cases (e.g. flowering rush) divers or technicians may use suction pumps to lift plant material to the surface for proper disposal away from water to prevent viable plant fragments from spreading.

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. Heavy hand-rakes and specially designed aquatic plant rakes are an

effective way of removing aquatic plants. Attaching a rope and floats to rakes allows removal of a greater area of vegetation and easier plant and fragment collection. Raking often tears plants from sediments, breaking some plants off and removing some roots as well.

Cutting may also include removal of roots obstructing levee toe drains. This will be accomplished using pipe-clearing cutters employed by contractors specialized in clearing tree roots and other obstructions from sewer lines.

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. 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.
- The water's edge along banks and shorelines will not be covered with substrate screens.
- The maximum coverage of a screen will be 1/8 acre in a block shape or ½ acre in a strip (*e.g.*, a boat lane 8 feet wide by 0.5-mile long).
- The density of deployed substrate screens will not exceed 2.5% of any square quarter mile, and other protective measures listed below in the Best Management Practices (BMPs) may apply.
- Individual treatments will be reported by location, need, area, and duration for monitoring purposes (through pdf actual submitted documents).

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

10. Mechanical Controls

Mechanical treatments can take place from **July 1 through September 15**, except for Mill Creek Project area. Applications at Mill Creek are allowed from **July 1 through August 15.** Mechanical controls include:

- Mechanical Flail Chopper[6]
    - **Not Permitted at Mill Creek Project Area**
- Chopping

Table 5 provides the maximum annual acreages allowed mechanically. The annual acreage information will be tracked by the anticipated and actual usage required reporting (PDF) data submitted by applicators, lessees, contractors, and all that perform applications.

Table 5. Maximum annual mechanical treatments allowed in the APMP.

Treatment	Area (acres)
Mowing & Burning (riparian only)	20
Chopping (aquatic only)	5

Mechanical methods may be used to control 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 boat lanes to ramps and marinas.

11. Biological Controls

No Biological controls are allowed under the APMP at this time.

12. Treatment Area Limits

Through consultation, there currently are areal limits and intensity of control parameters. These areal limits apply to all methods of aquatic pest management in Walla Walla District.

- Chemical treatments will be limited to **hand-held, low-pressure applicators**, from tanks typically transported by boat, vehicle, or backpack.

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

- Treatments will **not be contiguous or adjacent to other treatments**. The cumulative area of these spot treatments and their patterns of application will be used to measure and limit impact (Table 3).
- No more than **500 lineal feet per mile of shoreline** will be chemically, manually, or mechanical treated in any year.

For all treatments, refer to the facilities listed in Table 6 (below) for acreage limits. These apply to areas listed in Appendix A (BA Tables 3 through 5), spot and patch treatments may be expanded into blocks because of safety, operational, or access needs may require increased control. **For this APMP the spot, patch, and block treatments need to be tracked precisely, to not exceed the limited acreage allowed per site and the limit of 500 linear feet per mile of shoreline.**

Table 6. Maximum area, intensity, and pattern of chemical applications per treatment facility or situation.

Situation	Area (acres)	Shape	Need and Control Intensity
Rivers Edge	0.25	Thread/spots	Noncontiguous, patches
Civil Works			
Boat Ramp	0.25	Block	Sparse, safety, access
Swim Beach	0.25	Block	Contiguous, sparse, safety
Marina	0.25	Block	Sparse, safety, access
COE Dock	0.1	Block	Sparse, safety, access
Pump/Screen	0.1	Block	Sparse, operations
Facility	0.5	Thread/Spots	Sparse, safety, operations
HMUs/Rec	2	Thread/Spots	Sparse, safety, operations
Rovers	4	Blocks/Thread/Spots	Non-contiguous

Chemical retreatments may occur after a period of at least 14 days, if needed to meet performance requirements in Corps contracts pertaining to vegetation management.

Table 7: Summary

TREATMENT CONTROL	TREATMENT CONTROL TOOL	TREATMENT WINDOW	Acreage Limit	ACTIVE INGREDIENT (a.i.) IN RELATION TO TREATMENT TOOLS			
				2,4-D amine	Imazapyr	Sodium Carbonate Peroxyhydrate	Modified Vegetable Oil (surfactant/adjuvant)
Chemical	Hand select	July 1 through September 15	288	X	X	X	X
	Wicking and wiping			X	X	X	X
	Basal bark			X	X	X	X
	Frill or hack and squirt			X	X	X	X
	Stem injection			X	X	X	X
	Cut Stump			X	X	X	X
	Spot (hand-held, low-pressure applicators)			X	X	X	X
	Broadcast (hand-held, low-pressure applicators)			X	X	X	X
	Adjuvant: Competitor			Can't mix	X (up to 200 ac)	Can't mix	Can't mix
	Rate (pt/ac)			2	6	2	94
	Max Acres per a.i.			78	200	10	NO LIMIT
Manual	Physical removal by hand pulling	Year-Round	100				
	Manual digging with hand tools						
	Non-mechanical cutting and raking						
	Laying semi-permanent material/barrier		40				

	Diver Assisted Suction Harvesting		NO LIMIT	[redacted]
Mechanical	Mechanical flail chopper	July 1 through September 15	5	
	Mowing		20	
	Prescribed fire			

13. Rover Treatments

The Corps also has the option of five rover treatments per year (Table 3) to gain control of large areas of invasive species and some invasive pest outbreaks in unexpected or new locations, in accordance with the EDRR described in the above[7]. Rover treatments would be limited to five treatments across the entire Walla Walla District per year. The size for each rover treatment would **not exceed 2,400 feet in length or 4 acres**. These treatments will not be adjacent to each other and will only be used in the main stem of the Snake and Columbia Rivers **(not permitted at Mill Creek)**.

Rover treatments will be a primary tool to regain control of large infestations of aquatic vegetation at areas such as marinas, recreational beaches, and habitat management units (HMUs). **Rover treatments will be allocated by, and cannot occur without written approval by, the Walla Walla District Pest Manager.** The allocations will be based on the District's prioritized needs to meet mission and management goals.

Those interested in using a rover treatment must submit an official written request to the District Pest Manager **no later than February 15** each year for potential treatment in the same year's treatment window. This is the same date that anticipated application reports are due to the District.

14. 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:

Administrative Practices:

1. All applicators shall be state licensed or certified for aquatic pest control applications.
2. All applications shall be recorded on Corps Pest Control Application Record in accordance with the instructions in this document. Annual reports for grantees shall be generated by the Corps using data collected in the GIS database from actual use records.

Treatment Planning and Prohibitions:

[7] Rover treatments are not allowed at Mill Creek.

3. Applications shall not be made 24 hours prior to, a predicted precipitation event sufficient to cause runoff (using NOAA's National Weather Service[8] to determine probability of a major precipitation event).
4. Herbicide treatments to foliage of weed species shall be according to the chemical manufacturer's recommendations for best results, unless this document identifies more stringent requirements that must be followed. Applicators shall use caution to minimize the application of herbicides to non-target species and structures within the application areas.
5. Aerial applications are not allowed or permitted.
6. Only aquatic labeled herbicides and surfactants shall be used.
7. The only approved surfactant/adjuvant is aquatic registered and labeled modified vegetable.
8. Surfactant/adjuvant can only be used with imazapyr.
9. Only amine formulas of 2,4-D shall be used (no use of 2,4-D ester formulations shall be used).
10. Motorized herbicide application equipment shall not be operated on slopes greater than 25 percent (if not on existing roads) in order to minimize risk of soil erosion, spills, or chemical runoff, as well as for safety reasons.
11. Applicators shall not spray if snow or ice covers the target foliage.
12. Nozzles and pressures which create droplet sizes of 176 microns or less shall not be used.
13. Chemical methods will not be used to control offshore, submersed aquatic vegetation outside those situations listed in Table 3.
14. The function of riparian or aquatic habitats will not be substantially changed by treatments, and replacement or regrowth of proximate native or non-target vegetation is expected.
15. Refueling of equipment in areas not designed for refueling (i.e. in HMUs) shall not occur within 100 feet of open water. This includes ATVs, trucks, tractors, etc.
16. 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
17. The water's edge along banks and shorelines will not be covered with substrate screens.
18. The maximum coverage of a screen will be 1/8 acre in a block shape or ½ acre in a strip (*e.g.*, a boat lane 8 feet wide by 0.5-mile long).
19. The density of deployed substrate screens will not exceed 2.5% of any square quarter mile.
20. Individual treatments will be reported by location, need, area, and duration for monitoring purposes (through pdf actual submitted documents).

Calibration and Inspection Practices:

21. All application equipment (e.g. booms, back packs, etc.) shall be properly calibrated according to the chemical manufacturer's suggested application rates printed on the chemical label prior to use.
22. Appropriate sized nozzles shall be used to maximize droplet size and reduce the potential for drift.

[8] http://www.weather.gov is suggested, but other similar sources may be used.

23. Equipment and settings shall be properly maintained for the duration of the application period.
24. Application equipment shall be maintained to ensure proper application rates, to minimize leakage potential, reduce the potential for drift, and ensure applicator safety.
25. Equipment shall be maintained, and visually inspected prior to each application includes, but is not limited to: hoses, nozzles, backpacks, and booms.
26. Equipment shall be inspected and cleaned prior to any application of herbicides within 150 feet of open water or crossing any stream. Any detected leaks shall be repaired before the equipment crosses the stream or near open water when not on an existing road.

Spill Prevention Practices:

27. All applicators shall comply with all applicable federal, state (OR, ID, and WA) and herbicide manufacturer's directions and requirements for handling herbicides and insecticides, including storage, transportation, application, container disposal, and cleanup of spills.
28. All applicators shall develop and carry a Spill Prevention and Control Plan, or detailed requirements shall be explicitly spelled out in contract specifications by the Corps prior to contractor personnel or equipment operation near any stream drainage or body of water. The Plan shall provide detailed descriptions for spill prevention, control, containment, clean up, and reporting procedures.
29. A spill kit shall be available to all persons making applications within 150 feet from the site of the application.
30. Each Contractor vehicle carrying herbicides shall be equipped with a spill cleanup kit. The cleanup kit shall be capable of containing and holding at least 125% of the total mixture and concentrate that are present on the work site.
31. Contractor vehicles equipped with secondary containment must also have a spill cleanup kit available within a 5-minute response time.
32. Equipment will have either an anti-back siphon valve or an air break on tank fill connections or openings to prevent contamination of on-site water sources.
33. The Contractor shall report all details of herbicide spills, exposure incidents, or accidents and/or worker health complaints, if any occur, to the Corps as soon as practicable.

Mixing Practices:

34. No herbicide mixing shall be authorized within 100 feet from any body of water or stream channels.
35. Mixing (other than that of equipment that mixes internally as applications are being made) shall be performed within a temporary structure made of impermeable material such as plastic that is capable of containing at least 125% of the capacity of the spray tank that is being used, or on appropriate absorbent materials of sufficient capacity to absorb the entirety of that volume of the tank being mixed. Examples of the temporary mixing structure shall be a wooden frame lined with plastic sheeting or a child's wading pool.
36. All mixing for spray bottles, and backpack sprayers shall be done within secondary containment of 125% capacity of the liquid.

Storage and Disposal Practices:

37. All concentrated or mixed solution pesticides shall be placed in locked storage in closed containers with watertight lids, placed in secondary containment vessels of 125% when not in use on site or on Corps federal property.
38. ATV storage tanks shall be limited to 30 gallons.
39. Disposal of waste materials shall be in accordance with the label and in accordance with all applicable federal, state, and county laws regulations, as well as label restrictions and instructions.

Monitoring Practices:

40. Dyes shall be used to reduce the potential for over-application on vegetation in the riparian zone.
41. Any ESA-listed plant that is found shall be inventoried, and its location captured either in GIS or by GPS, or both, and put into the District's inventory for future avoidance and planning purposes. Herbicides shall not be applied by broadcast within 100 feet, or spot sprayed within 15 feet of ESA-listed plant locations identified during applications.
42. All invasive, non-native riparian vegetation that is treated with herbicides shall be monitored for 2 years following treatment. If desirable vegetation does not reestablish itself naturally, the Corps may 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 listed fish and their habitat.

15. Reseeding/Site Restoration

If a site were to be completely cleared for some reason, replanting with desirable species would occur to enhance the native vegetation's ability to revegetate the site. Typically, native vegetation recolonizes treated areas.

1. All invasive, non-native riparian vegetation that is 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 listed fish and their habitat.

16. 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

Data collection occurs via one of two options. For applicators that are not-GIS capable, PDF records are used to collect both anticipated and actual pest control information. Applicators that possess GIS capabilities can populate a template geodatabase with pest control data. See Figure1.

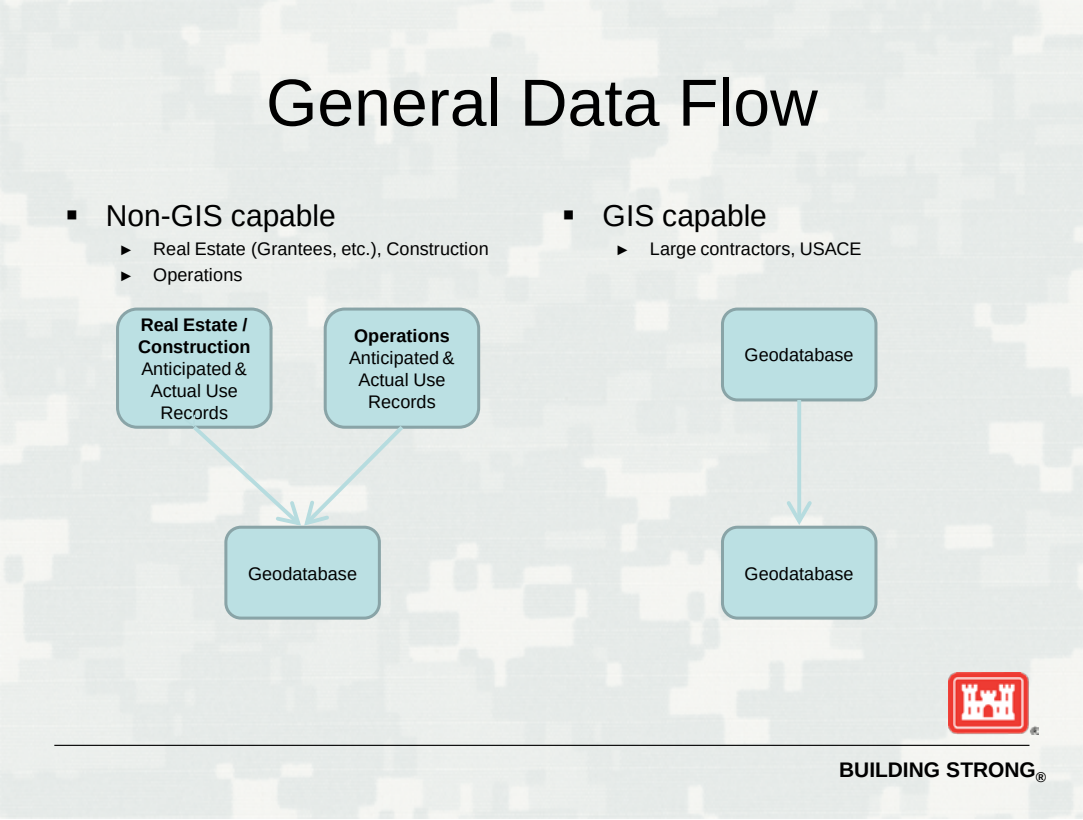


Figure 1

Two data collection forms are used a Pest Control Anticipated Application Record, and a Pest Control Application Record. Each record has four varieties: a Real Estate / Construction version, an Operations version, a USDA version, and Quality Assurance version. 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/ See Figure 2. Copies of a blank geodatabase and training materials will be provided to GIS-capable applicators by Project Pest Managers. See Figure 3.

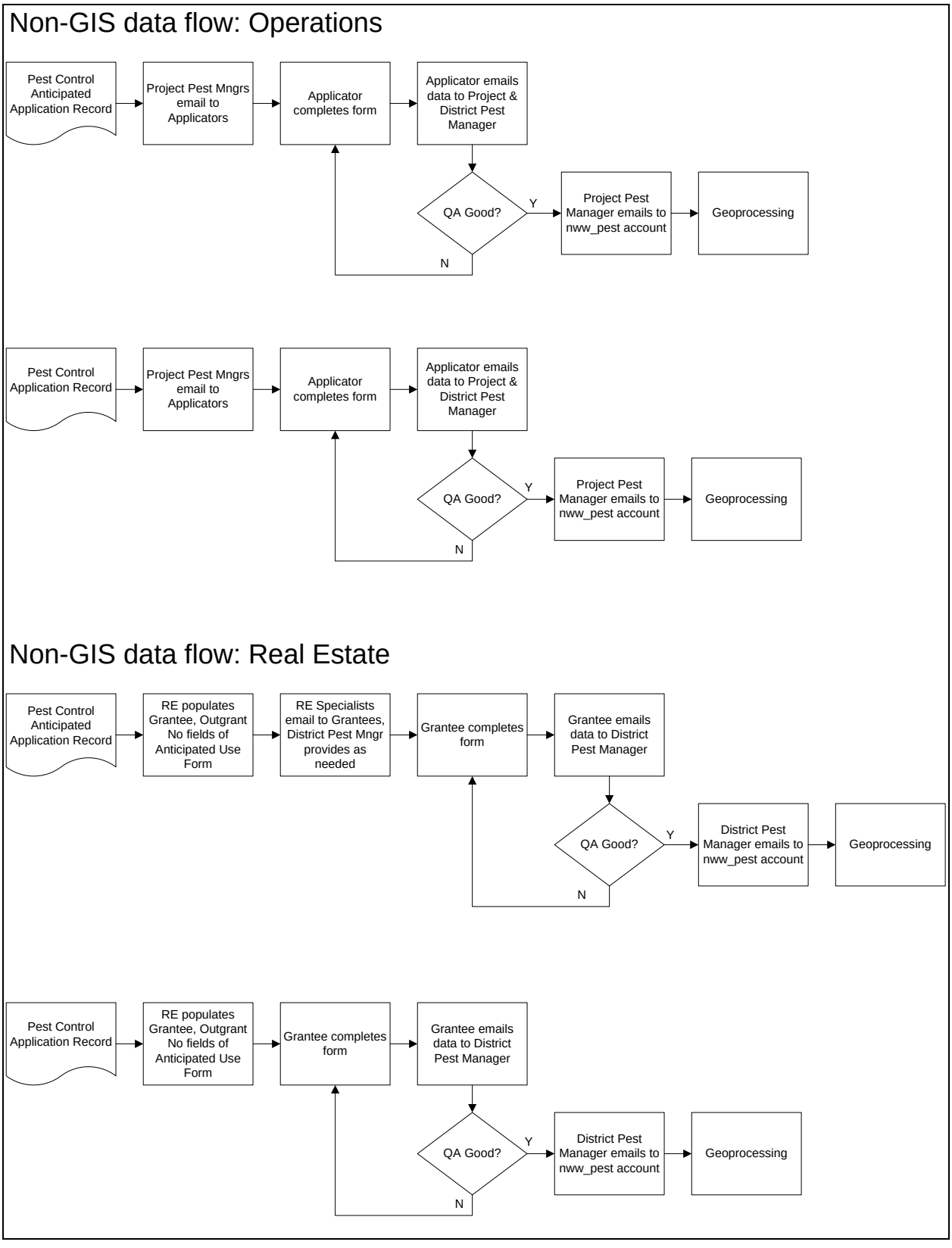

Non-GIS data flow: Operations
Pest Control Anticipated Application Record
Project Pest Mngrs email to Applicators
Applicator completes form
Applicator emails data to Project & District Pest Manager
QA Good?
Y
N
Project Pest Manager emails to nww_pest account
Geoprocessing
Pest Control Application Record
Project Pest Mngrs email to Applicators
Applicator completes form
Applicator emails data to Project & District Pest Manager
QA Good?
Y
N
Project Pest Manager emails to nww_pest account
Geoprocessing
Non-GIS data flow: Real Estate
Pest Control Anticipated Application Record
RE populates Grantee, Outgrant No fields of Anticipated Use Form
RE Specialists email to Grantees, District Pest Mngr provides as needed
Grantee completes form
Grantee emails data to District Pest Manager
QA Good?
Y
N
District Pest Manager emails to nww_pest account
Geoprocessing
Pest Control Application Record
RE populates Grantee, Outgrant No fields of Anticipated Use Form
Grantee completes form
Grantee emails data to District Pest Manager
QA Good?
Y
N
District Pest Manager emails to nww_pest account
Geoprocessing

Figure 2

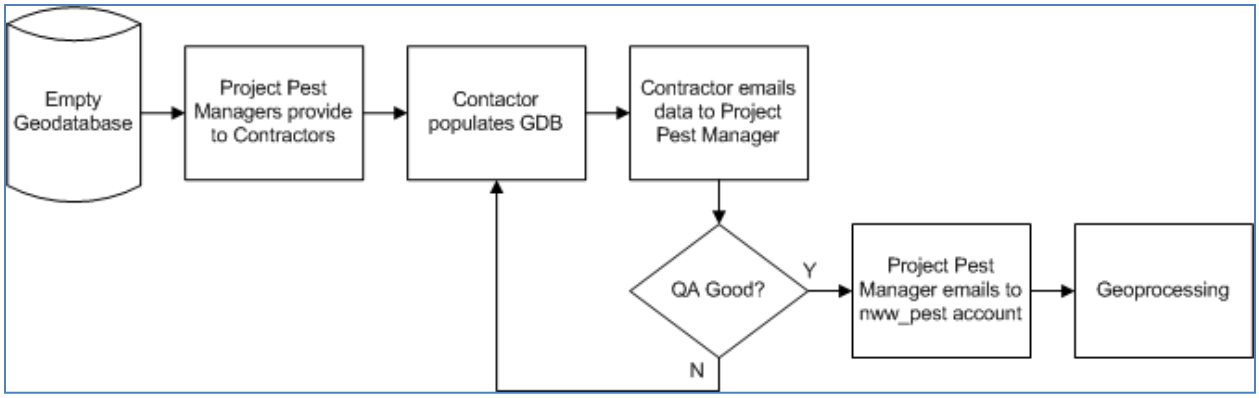


Figure 3

Instructions

Detailed instructions by functional area follow.

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. To reduce the burden on Grantees, Realty Specialists will populate the 'Grantee', 'Outgrant No', and 'For year' fields as appropriate prior to emailing the Pest Control Anticipated Application Record (Real Estate / Construction) to the Grantee. The Record will be provided by Real Estate to the grantee by December 15th, prior to the application year.

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. Realty Specialists will email this record to Grantees by November 15th, prior to the application year.

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 (NWW.DistrictPestManager@usace.army.mil). 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.

-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.

-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 no Biological controls are approved in the Walla Walla District Aquatic Pest Management program.

--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 Biological 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.

-Aquatic Application Situation: This box appears when an aquatic pest control medium is selected. Walla Walla District is limited in the amount of acres that can be treated per area type or situation. The pest control situations provided in Table 3 and the limits of acres allowed to be treated per year. See table 3 above on page 7 in section 6

-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 forth 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

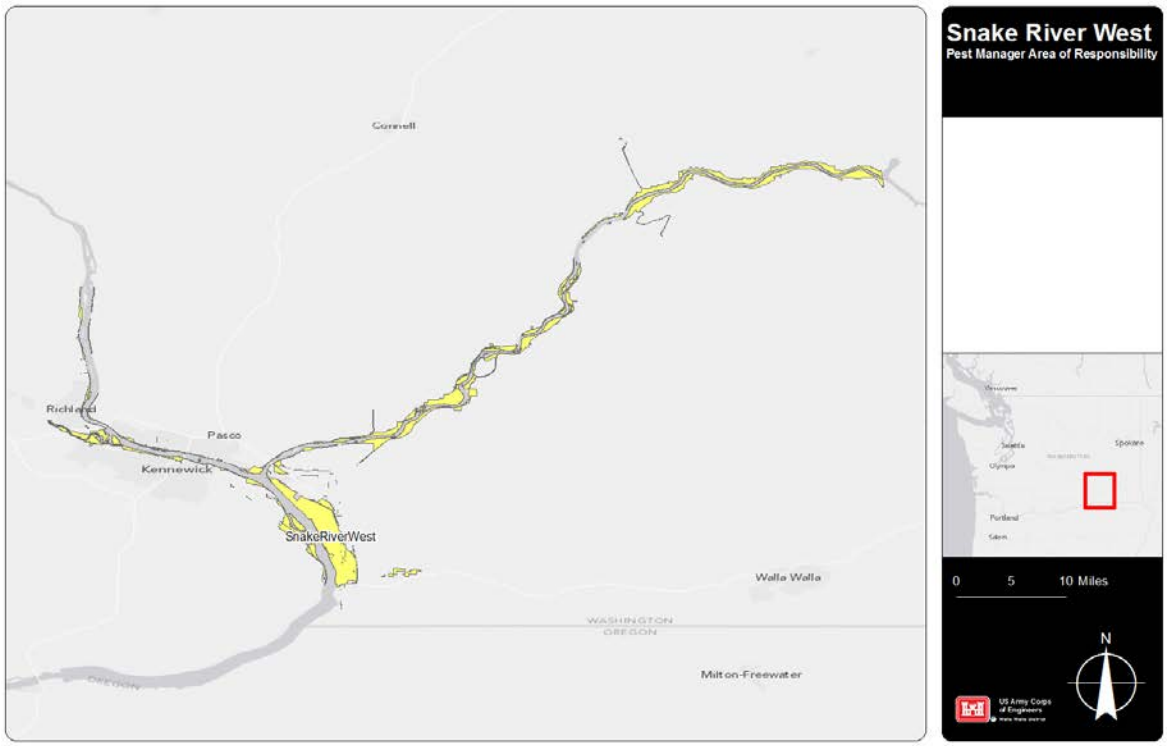


Figure 5

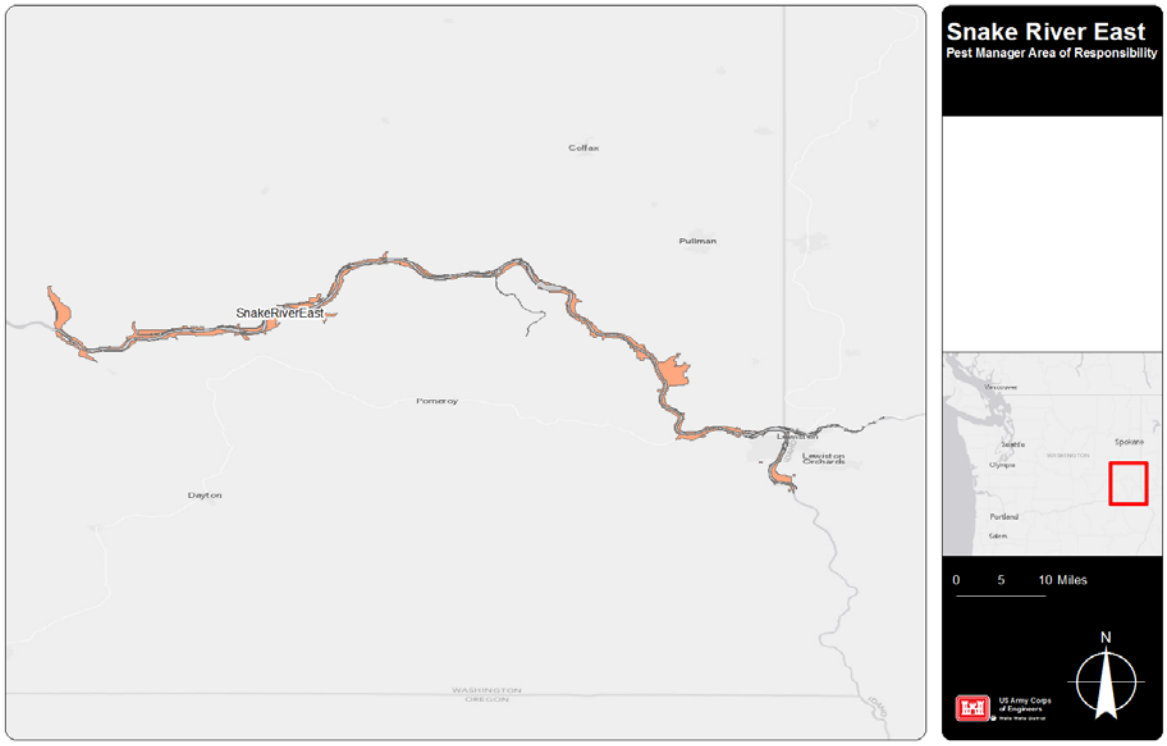


Figure 6

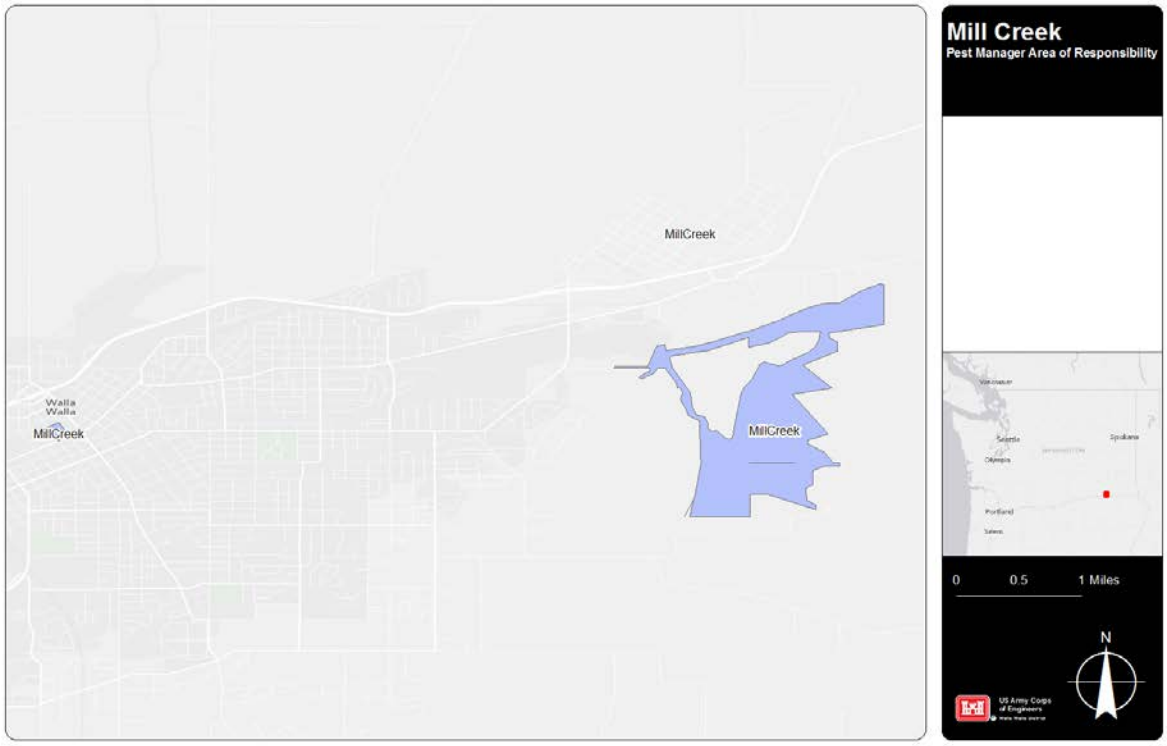


Figure 7

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

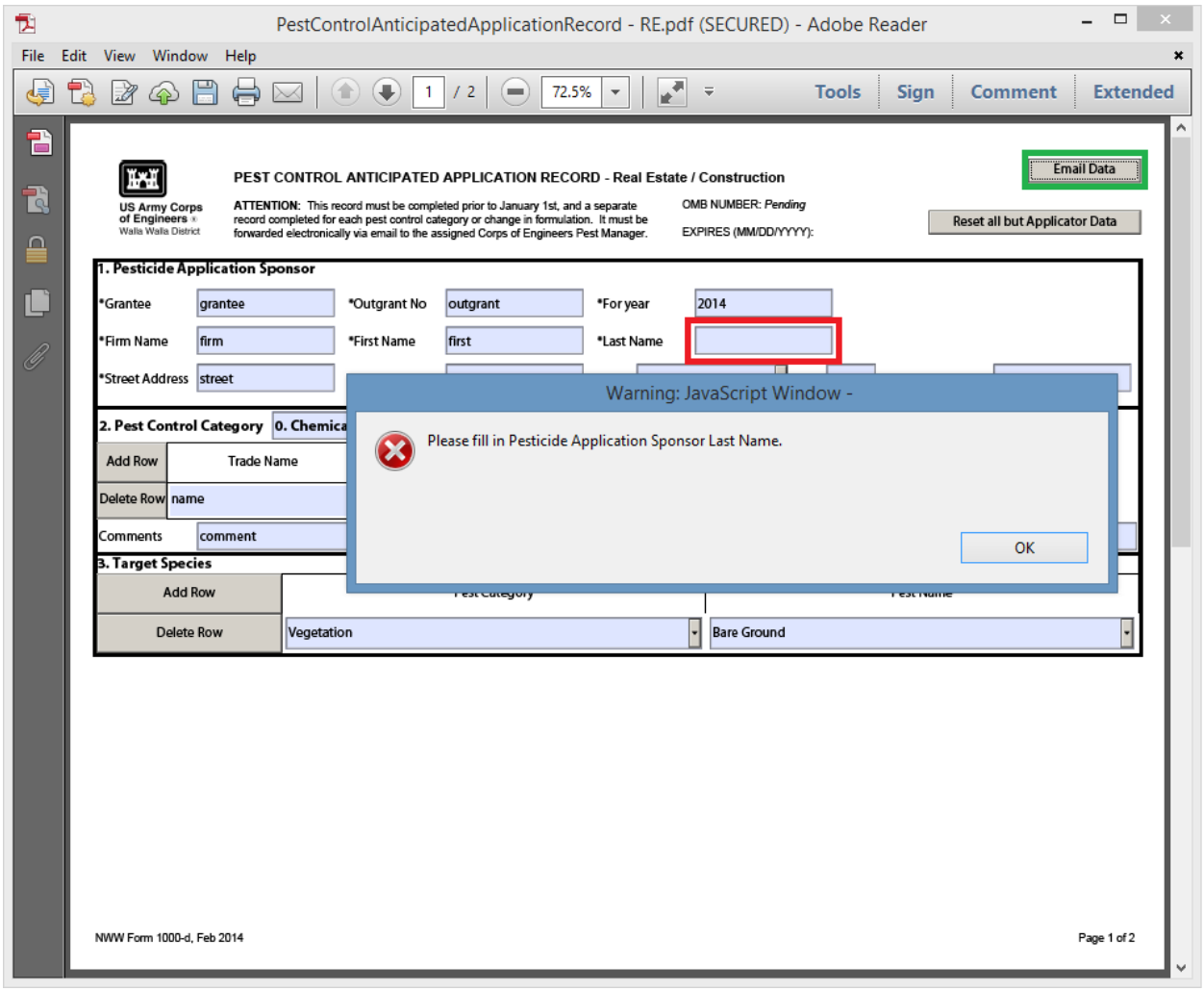
Record Data (xml): Non-GIS capable applicators will submit data in xml via email to Project or District Pest Managers inbox for QA. After the data is verified, it will be forwarded to the NWW_pest_mgmt_reports@usace.army.mil inbox. Scripting copies xml attachments to the IPMP\Data\Incoming folder, and 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.

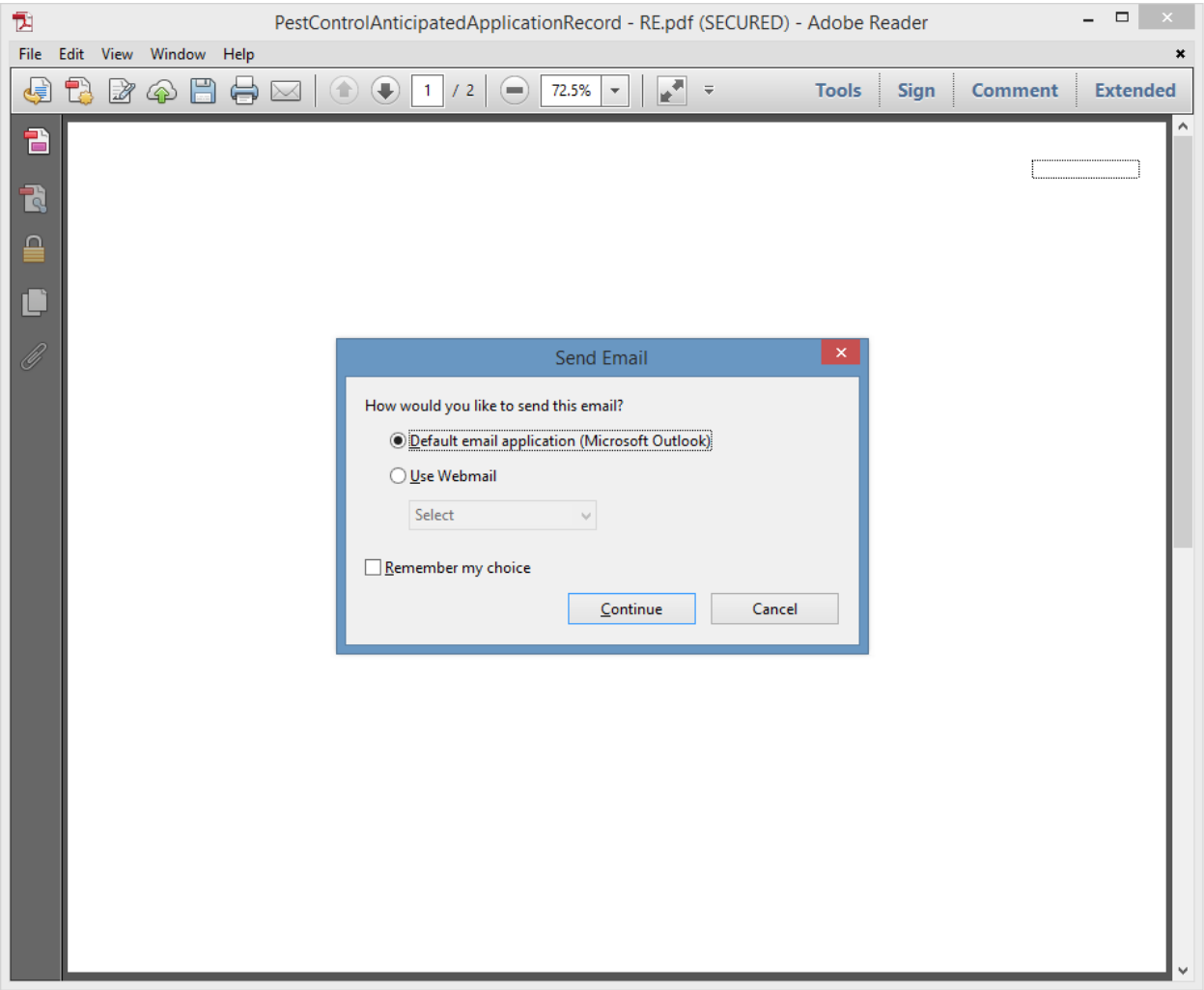
Attachment 1: Save and email data as an xml file from a PDF record using the record's 'Email Data' button (Acrobat XI Reader)

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
PEST CONTROL ANTICIPATED APPLICATION RECORD - Real Estate / Construction
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 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

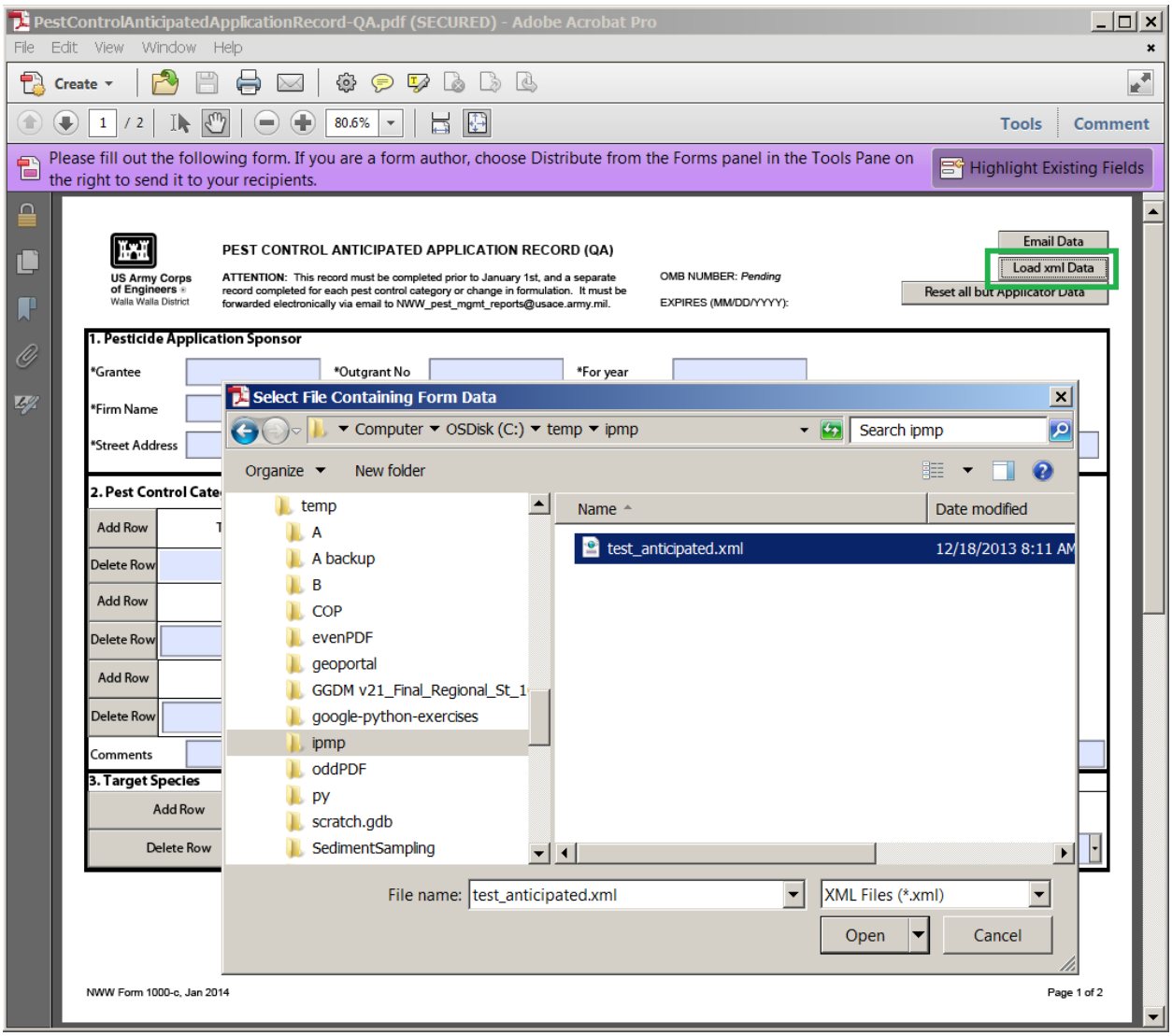
2. Once validation passes, the Select Email Client dialogue presents two options: Default Email Application or Webmail. Selecting Default Email Application will look for an email program such as Microsoft Outlook, open a new, preaddressed email, and attach the record data as an xml file. We Recommend 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)

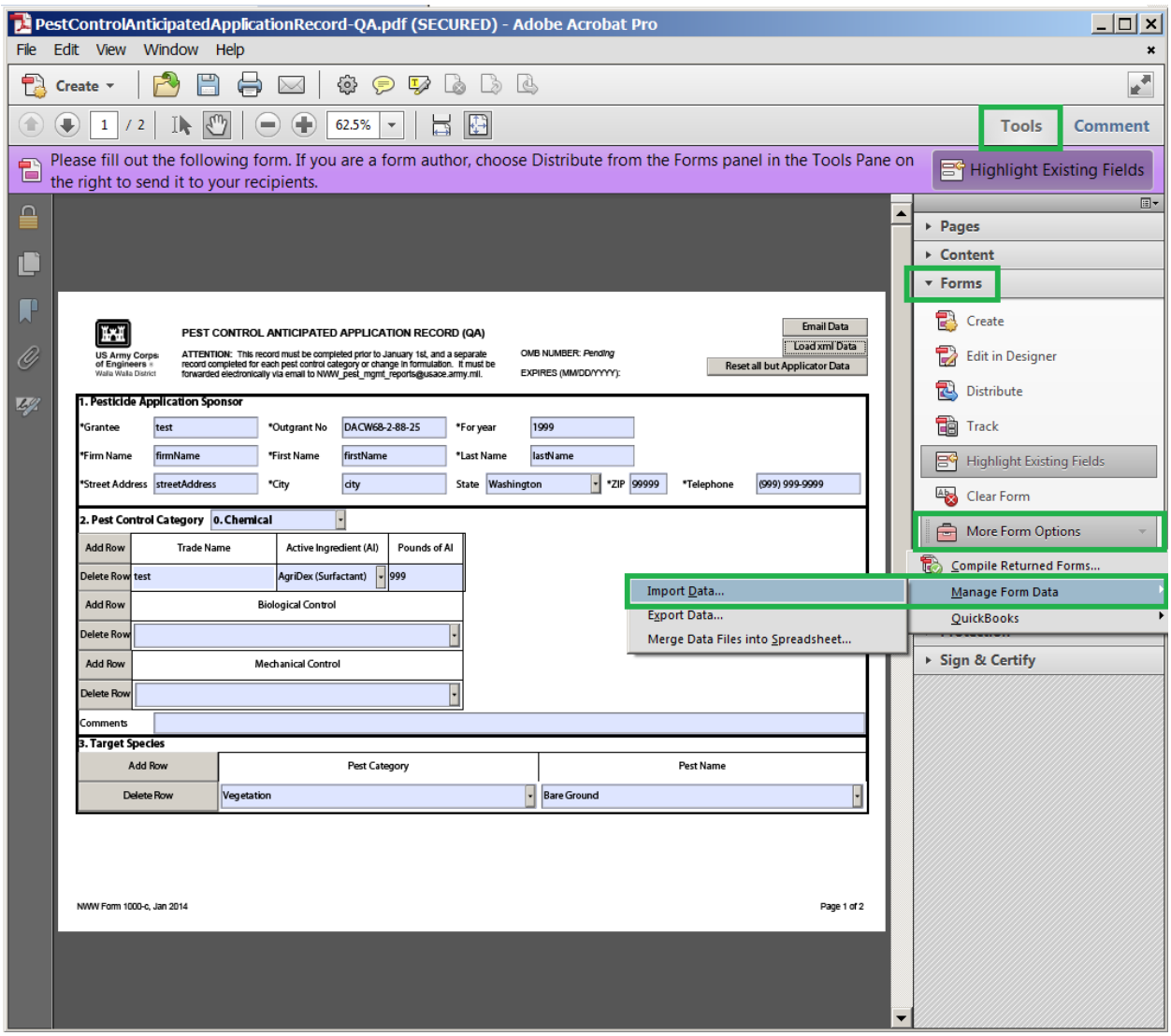
To load an xml file into a PDF record for viewing by using the QA form's "Load xml Data" button:

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

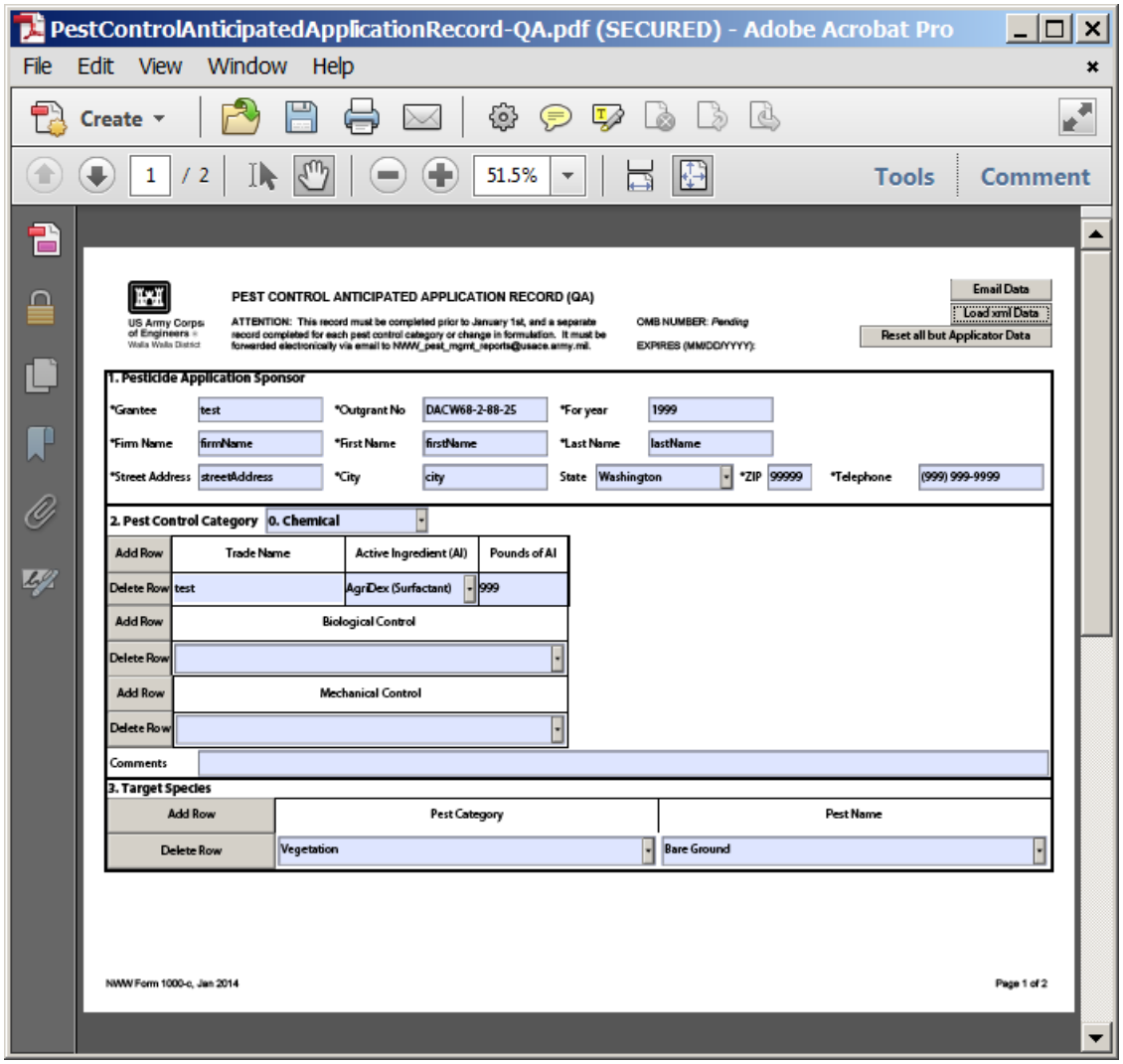


To load an xml file into a PDF record for viewing by using the toolbar:

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.

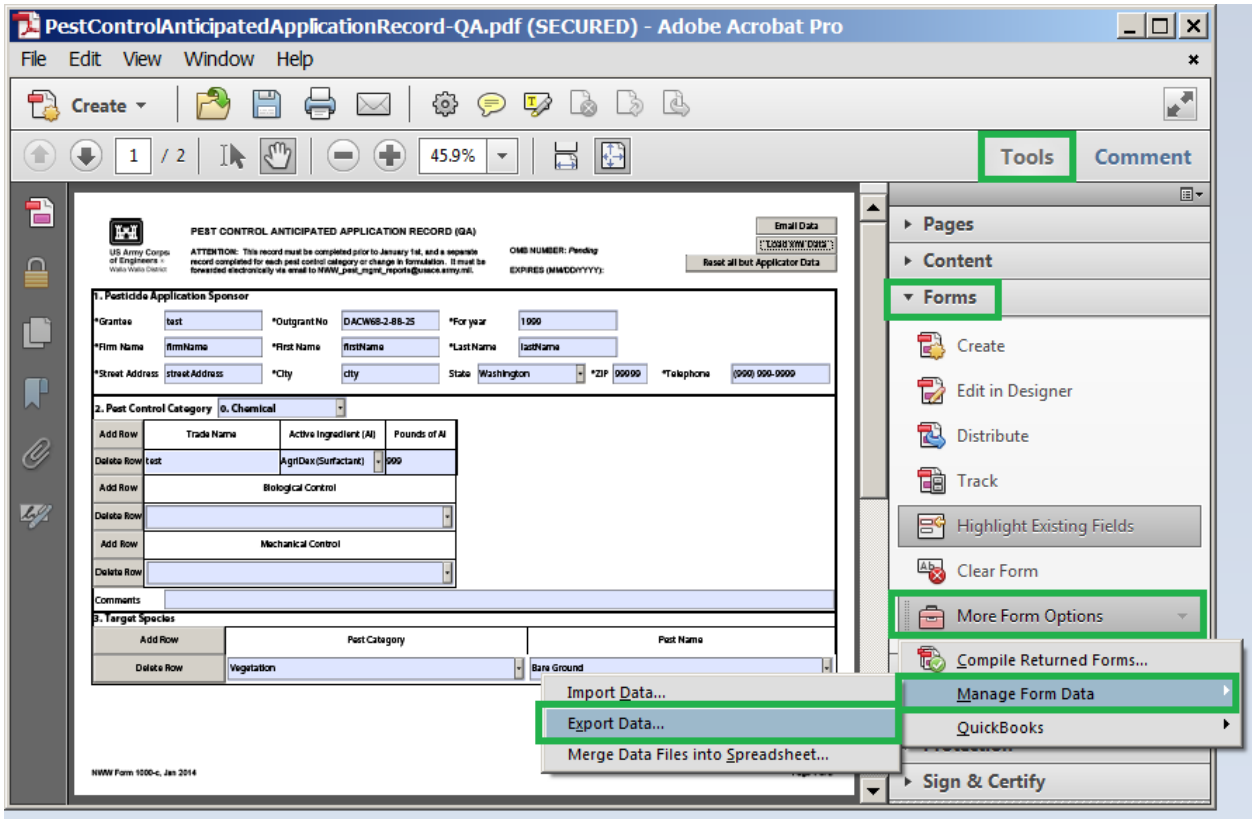

PestControlAnticipatedApplicationRecord-QA.pdf (SECURED) - Adobe Acrobat Pro
File Edit View Window Help
Create
Tools
Comment
Please fill out the following form. If you are a form author, choose Distribute from the Forms panel in the Tools Pane on the right to send it to your recipients.
Highlight Existing 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
Biological Control
Mechanical Control
Comments
3. Target Species
Pest Category
Pest Name
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:

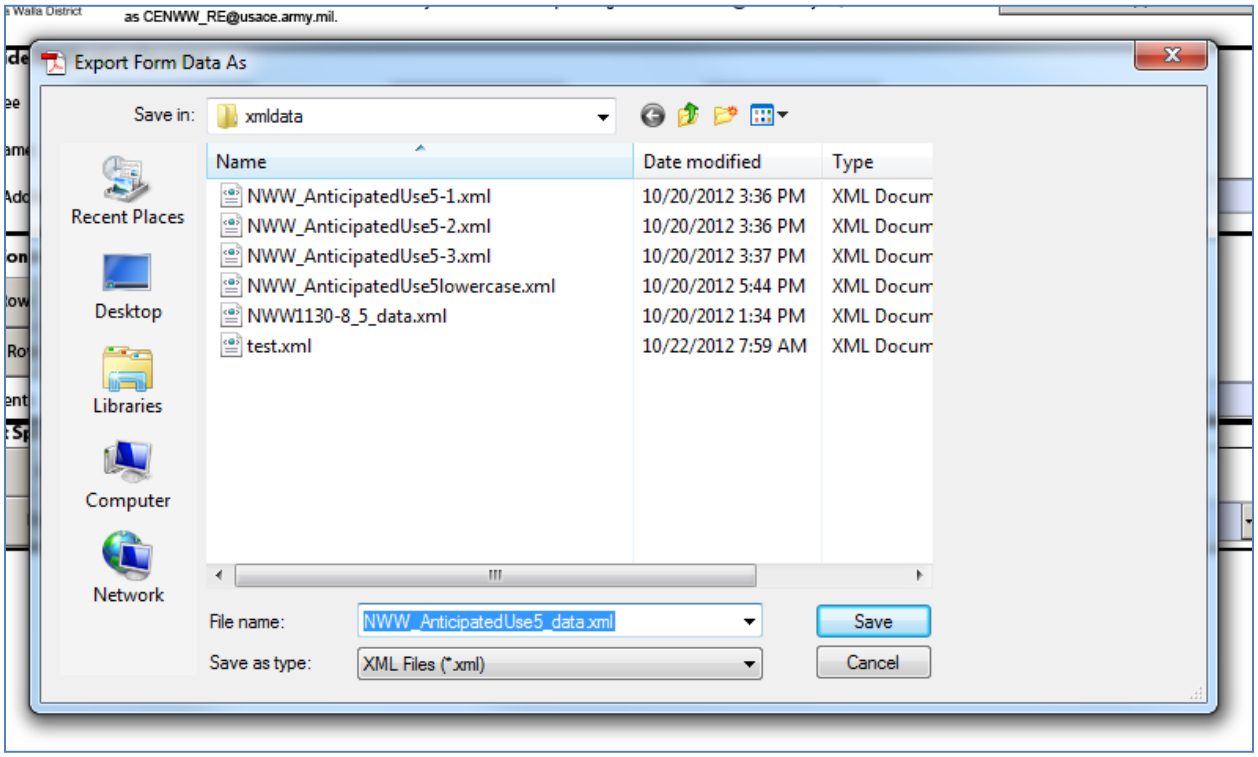


To save data from a PDF record to an xml file:

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.

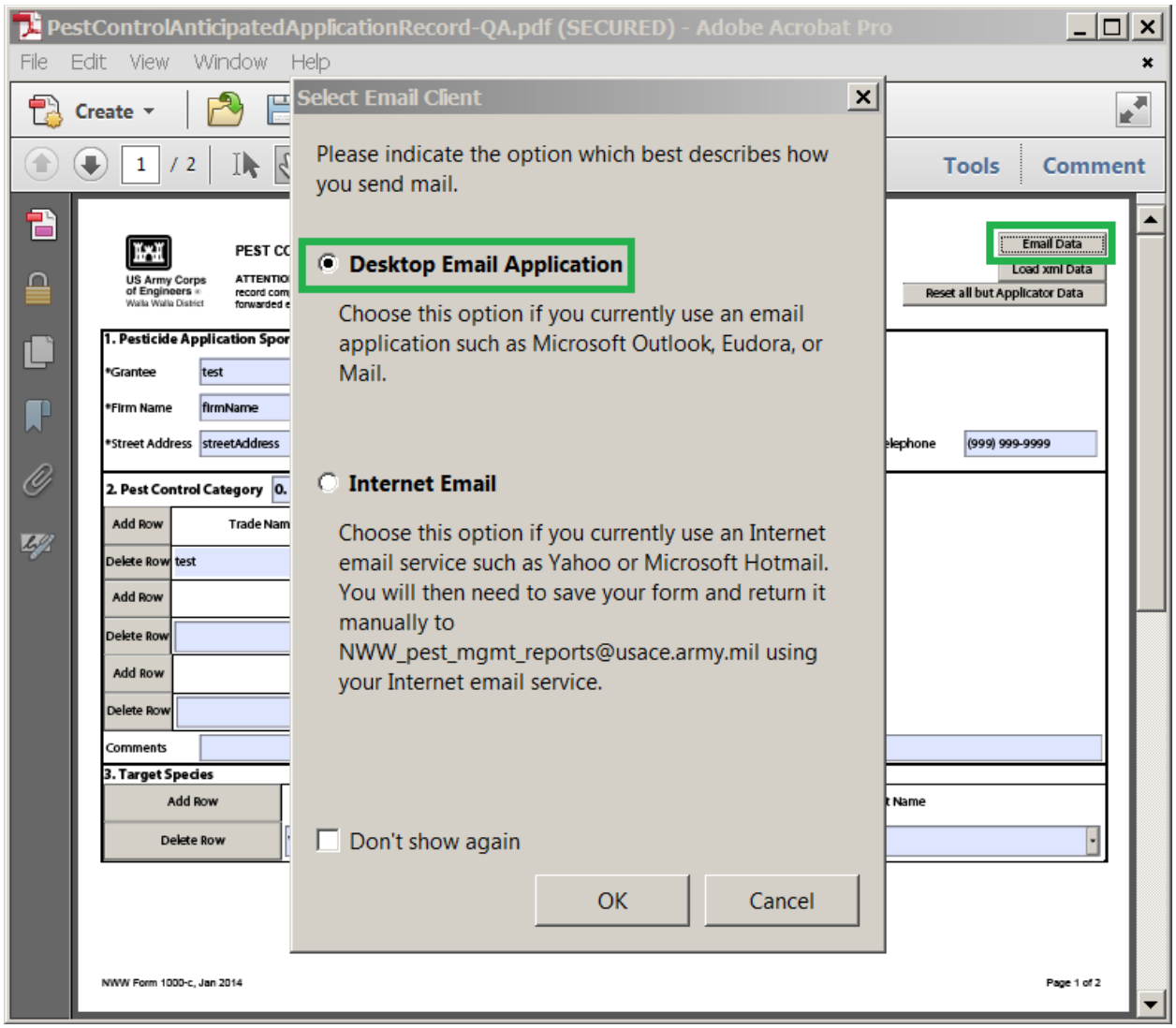


2. Ensure that the “Save as type:” option is set to “XML Files (*.xml)”:

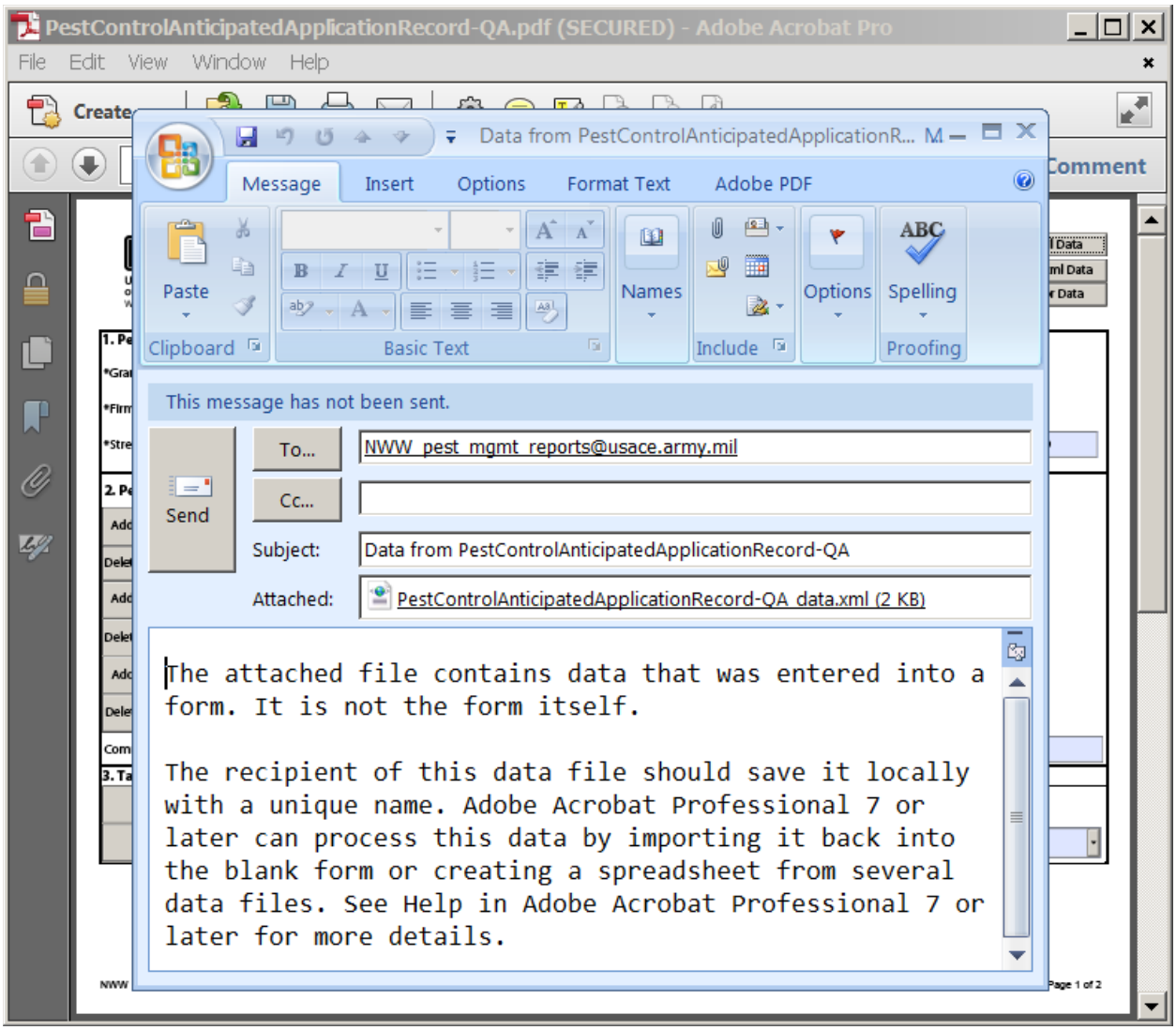


Forwarding data after QA:

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



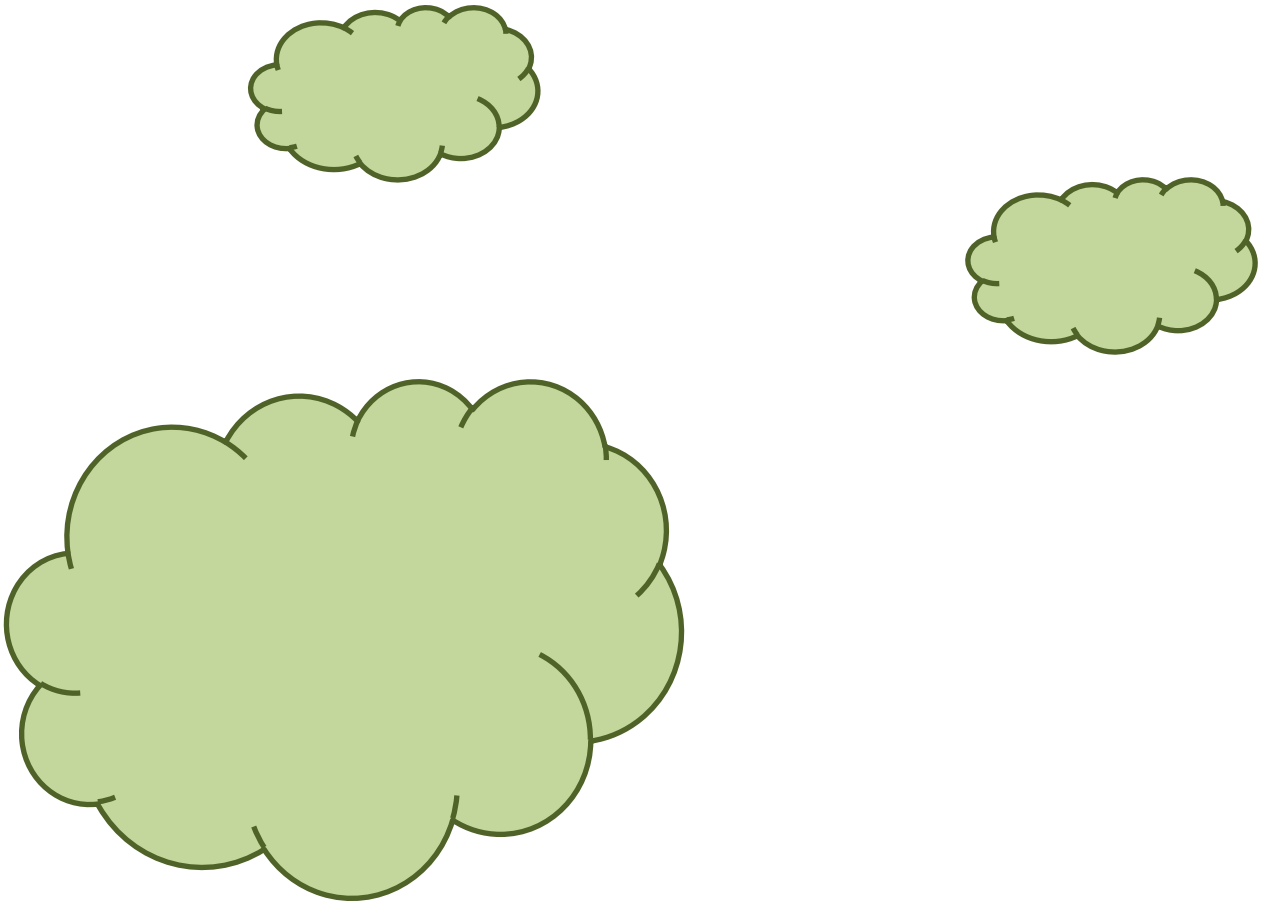
2. The program will open a new, preaddressed email, and attach the record data as an xml file.


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.

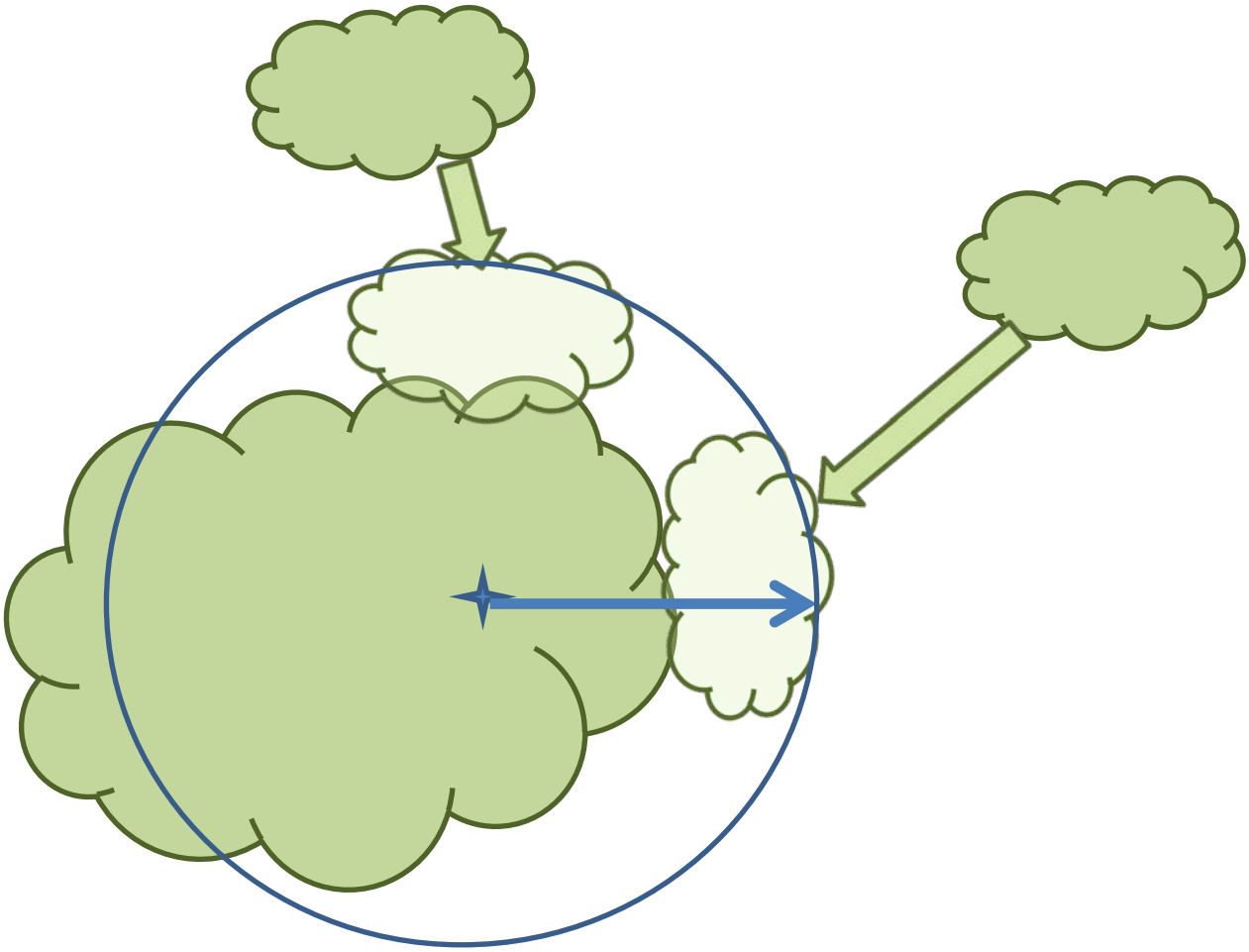
Attachment 3: GPS coordinate and radius data

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 SITE AND THE LIMIT OF 500 LINEAR FEET PER MILE OF SHORELINE.** 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.

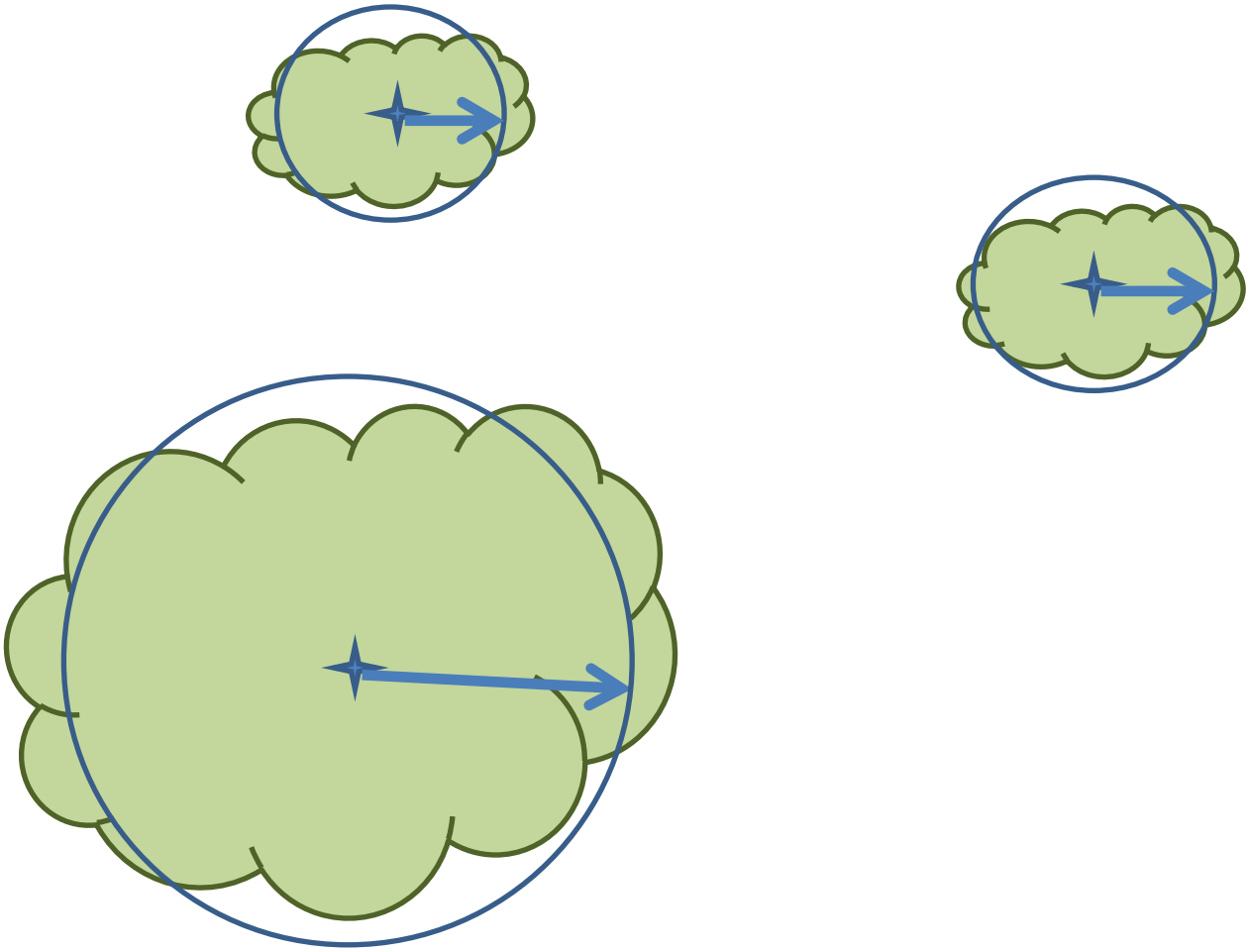
Assume that a vegetation pest is to be controlled as shown below.



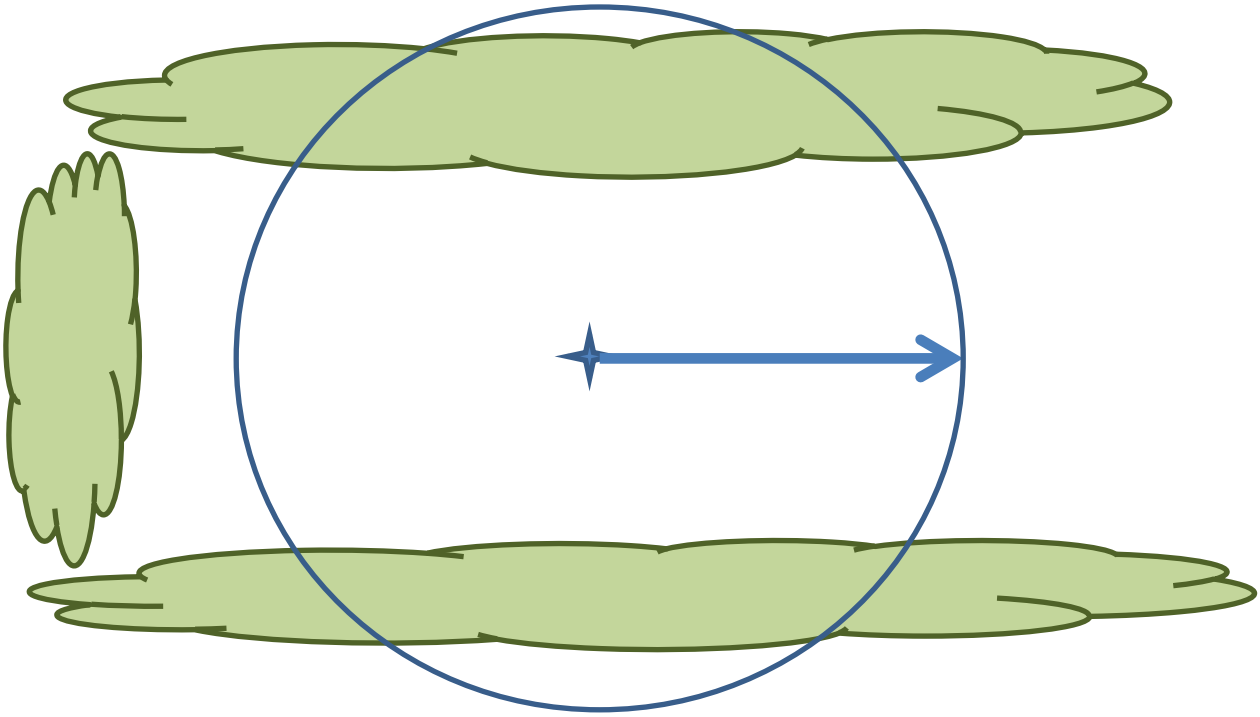
One option for reporting would be to record a point at the center of the application. Estimate the total area of the application and a radius that would approximate a circular area of equal area.



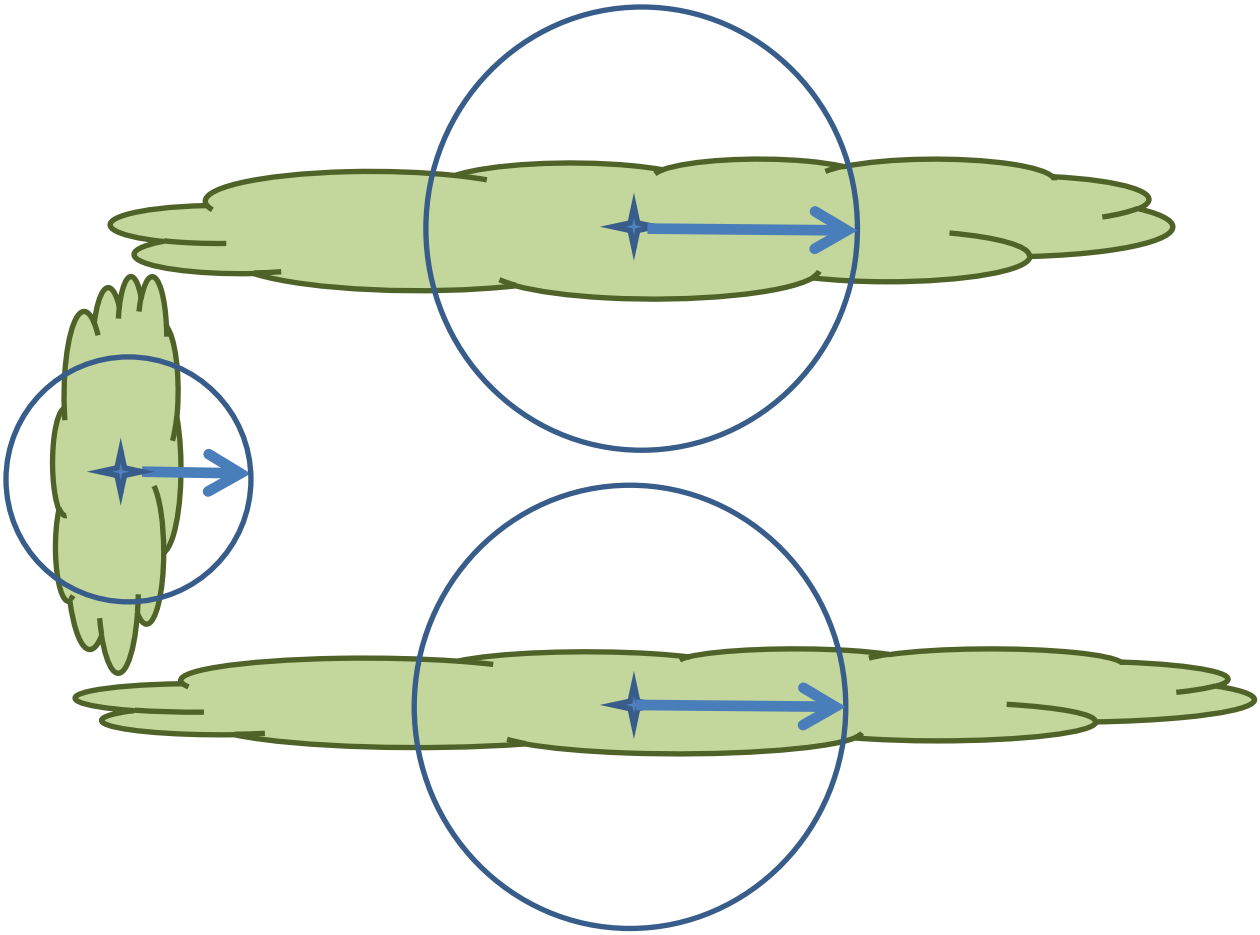
Another option is to record a point and radius for each application.



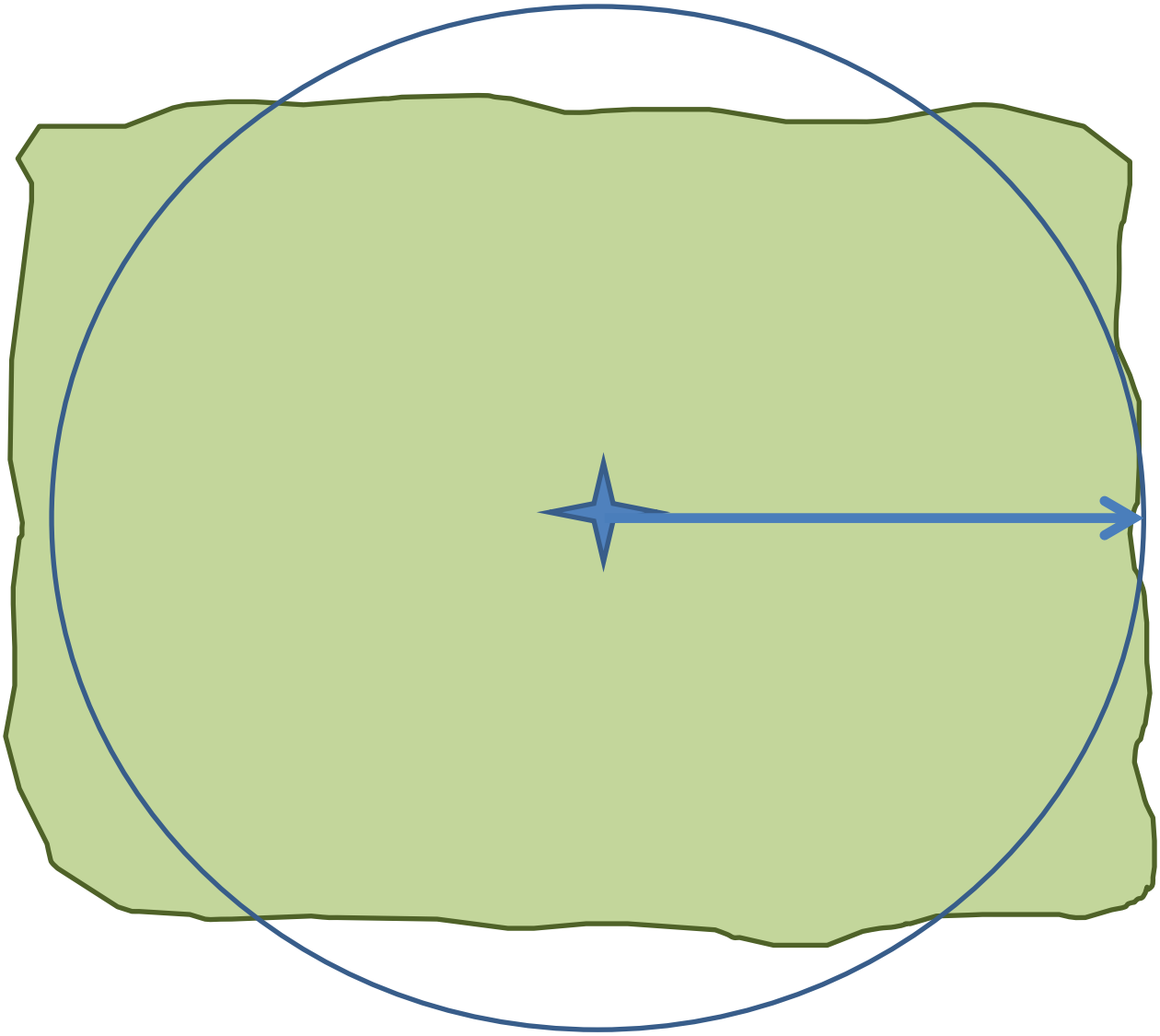
The same concept is applied to linear applications. Assume that the next picture represents an application around the edge of a parking lot being represented as a single feature.



The linear applications could also be reported individually.



Polygon features require the least amount of estimation.



17. 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. The list also shows where Washington ground squirrel may occur.

	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