McChord Air Force Base Noxious Weed Control and Restoration January - December 2006 Quarterly Activity Report

January 2007

The Nature Conservancy
SAVING THE LAST GREAT PLACES ON EARTH

McChord Air Force Base is a key military installation and an important conservation area in the Puget Trough region. The Nature Conservancy strives to assist McChord AFB in the conservation of its natural resources within the framework of the Base's military mandate. McChord AFB and The Nature Conservancy have shared interests because:

- ***Rare species recovery throughout the region reduces the burden of recovery on any single landowner or site.***
- ***Pest plants harm natural areas and reduce their suitability for military objectives.***

Background

McChord Air Force Base contains a range of natural resources with conservation concerns; especially those associated with oak woodlands, grasslands, and wetlands. This includes the federal threatened species, *Howellia aquatilis,* an aquatic plant. Oak woodlands are priority habitat for neotropical birds, a variety of butterflies, and the state threatened western gray squirrel. An Endangered Species Act candidate bird species, the streaked horned lark, nests and reproduces on the airfield. Three Candidate Research Natural Areas have been identified which capture the most significant natural features present on McChord Air Force Base.

These areas have been the focus of land management and habitat restoration efforts for several years, and habitat quality has slowly started to improve. However, without continued attention they will degrade because of significant populations of habitat destroying non-native pest plants.

Funding for the actions detailed below was provided by McChord Air Force Base through a series of contracts. There were four active contracts during 2006: Aquatic Invasives (#3848), Noxious Weed Control (#3886), Water Howellia (#4810) and Mammal Survey (#4811).

McChord Noxious Weed Control (TNC Budget #3886)

The purpose of this contract is to conduct general restoration and enhancement work on McChord AFB. As with most prairie/oak mosaic habitat types, this primarily consists of invasive weed control. In addition, we also conducted some enhancement plantings of native prairie plants.

Invasive Weed Control

There were several tasks completed under this contract during 2006. Late spring and summer is the primary window for control of noxious weeds. In spring, intensive control efforts were made around the south and east portions of the base to control several invasive weeds. Summer provided an opportunity to spot treat surviving weeds in areas that were initially treated in the spring. Figure 1 presents a map of areas where noxious weeds were treated during both spring and summer. Figure 2 indicates fall activities. .

Knapweed. Most of the weed control effort focused on controlling spotted knapweed – by far the most abundant invasive weed on McChord. Limited access to the airfield has been a big hindrance in past years. The access issue was resolved this year. A new spray rig that we designed and mounted in the back of the Kubota has worked impressively. Altogether, we were able to treat approximately 245 acres of knapweed along with a few other noxious weeds.

Wetblade. We are conducting a new trial for scotch broom control. Using habitat enhancement funding from the mammal and water howellia survey contracts, we purchased a Wetblade. Initial work was conducted under the water howellia survey contract, but additional test strips have been and will continue to be made under this contract. The wetblade project is reported in detail in the howellia survey portion of this report.

Table 1 below describes treatment activities conducted during spring quarter. Figures 1 and 2 provide a map of all treatments made during the year.

This contract has been extended until July 31, 2007

Table 1: Description of initial weed control treatments conducted at McChord AFB in 2007

Timing	Est. Acres	Treatment
April	7.5	Treated roadside tansy ragwort and spotted knapweed along Perimeter Road (outside fence between the riding stable and the SAZ gate. While this is outside the fence it is still McChord's jurisdiction.) Used about 7.5 gal of Roundup Plus at 1.5%.
April	1	Treated small infestation of knapweed in the South Approach Zone with about 5 gallons of Transline at 1%.
April	7.5	Treated knapweed in the same stretch of Perimeter Road as above, using about 15 gal more of the Transline mixture.
April	1	Treated periwinkle in the South Approach Zone with 25 gal. of 1.5% Garlon 4 and 0.25% NuFilm IR.
April	1	Treated spotted knapweed in the vacant field across Outer Drive from the Chemical Engineering compound using about 15 gal. 1% Transline.
April	3	Treated knapweed inside the south fence line (north side of Perimeter road) and in an abandoned landfill site near that fence line behind WADS. 1% Transline
April	2	Treated knapweed along roadsides of Outer Drive from Lincoln Blvd to Holiday Park Entrance. 1% Transline
April	6	Treated blackberries and knapweed at the gravel pit south of the environmental office, using 35 gal. of 1.5% Roundup.
May	85.5	Treated 85.4 acres of spotted knapweed on and around east side of airfield, Morey Pond, and Clover Creek. Used 225 gallons of Transline @ 1%.
June	135	Sprayed 200 gallons of 1.5% Transline along the east side of the airfield from EOD blast pit to north end of Foxtrot Row.
TOTAL	**246**	

South Approach Zone Enhancement Plantings

During the fall of 2006, we planted 1625 plugs of native prairie plants in the South Approach Zone Bensten restoration area. This area was mowed prior to planting under water howellia funding. Additional plugs of native fescue will be planted in winter 2007 and it will be treated with Poast in spring to control invasive grasses. The table below is a list of the species planted in fall. Figure 2 is a map with the planting location identified.

Table 2: Fall 2006 Bensten planting.

Species	Plugs
Aqualegia formosa	25
Castileja hispida	100
Erigeron speciousus	100
Eriophyllum lanatum	400
Lomatium triternatum	100
Lomatium utriculatum	200
Mircoseris laciniata	200
Ranunculus occidentalis	200
Solidage canadensis	100
Solidago missouriensis	100
Viola adunca	100
	1625

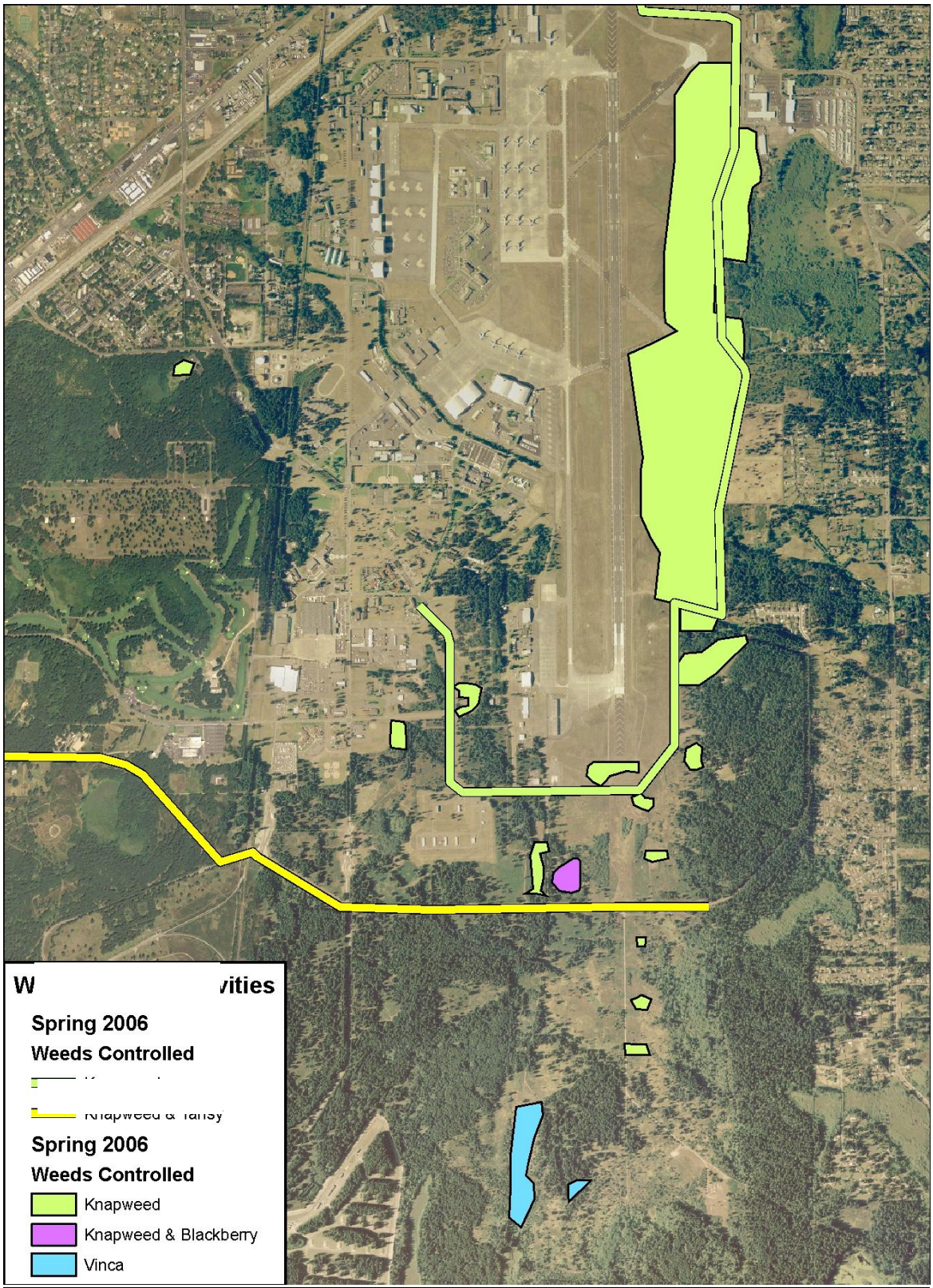

Figure 1: Map of spring and summer 2006 weed control activities at McChord AFB funded under Noxious Weed Control contract

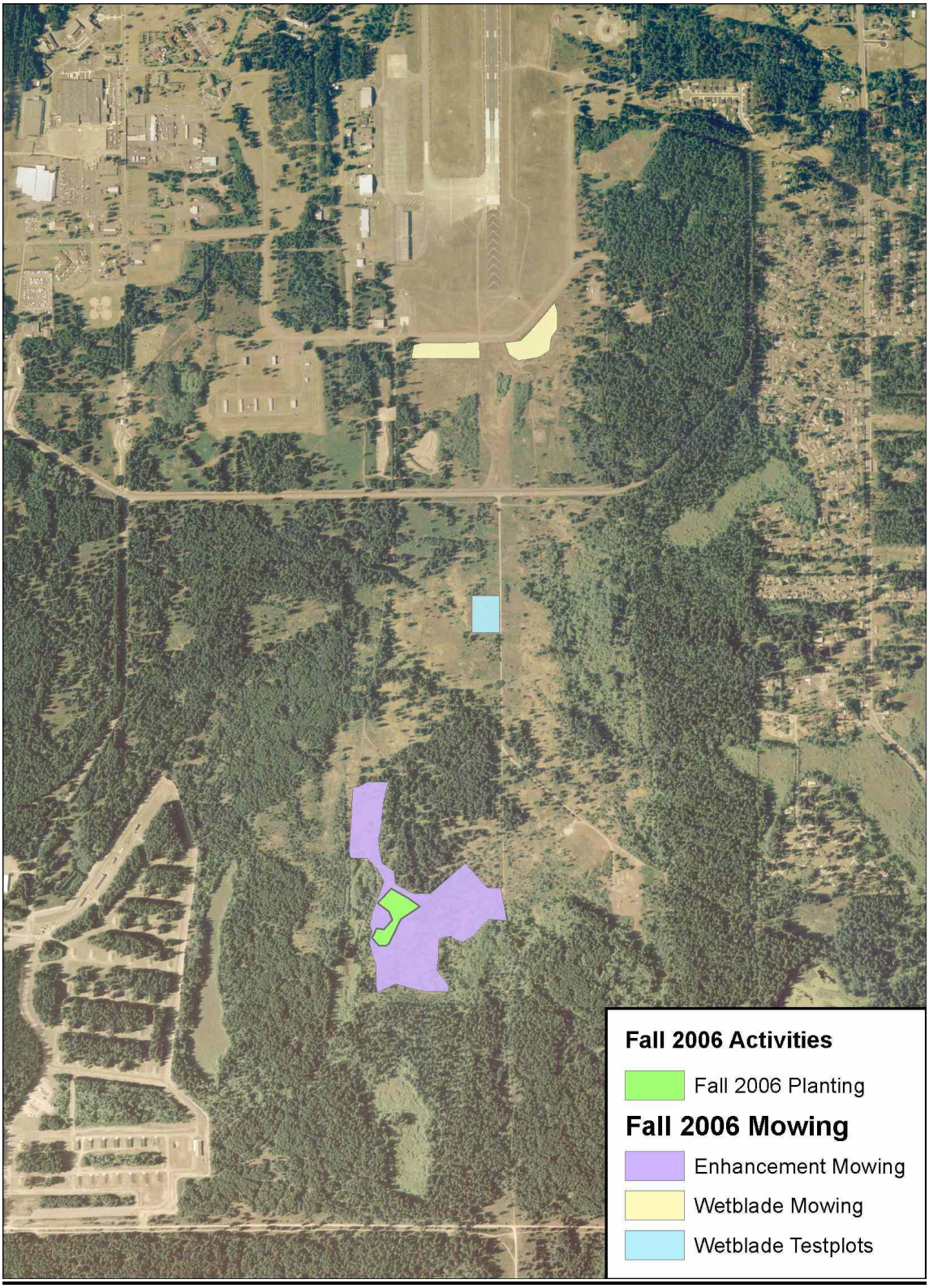

Figure 2: Map of fall 2006 mowing and planting activities at McChord AFB.

McChord Aquatic Species Control (TNC Budget #3848)

The initial goal of this project was to eliminate weeds within the main channel of Clover Creek in order to enhance flow and conditions for aquatic organisms. Entrix was contracted to provide an initial plan and facilitate the permitting of the action. Entrix supplied an initial plan, JARPA, no-effects letter and a letter outlining permit strategy. The Conservancy contacted three contractors with specialties in wetland construction and restoration and toured the site with personnel from McChord. Each of the contractors voiced concerns with the potential cost of the project and likelihood of obtaining permits in time for construction. The single formal bid received exceeded the budget of the project. At that point McChord requested that TNC stop work on creek enhancement so that alternatives to the initial project could be evaluated.

The funds are being used to conduct riparian enhancement along Clover Creek on the west side of the runway and in various areas east o0f the runway. This includes a massive and intensive control effort of all blackberry in preparation for fall planting of woody shrubs.

During the 2006 winter quarter, a side-mounted boom mower tractor with a five foot deck was used to cut back the majority of the blackberry infestations. Hand held brushcutters were then used to cut smaller areas that were missed by the boom mower.

During spring quarter, all previously mowed areas were spot treated with Garlon 3A (triclopyr). Although Garlon 3A is approved for aquatic applications, it was not directly sprayed into the creek. During summer quarter, surviving plants were retreated with 2.5% Garlon 3A and 0.25% Nufilm (non-toxic surfactant). Garlon 3A is approved for aquatic applications, and precautions were taken to keep spray from entering water.

In total, 10,100 linear feet are being restored in about a 30 foot swath. This equals approximately seven acres. More than 6600 feet of Clover Creek stream bank was treated on both the east and west sides of the airfield. To the west of the airfield, only the east bank of Clover Creek was treated. In addition, blackberry patches on the perimeter of Morey Pond were treated, as were a few nearby infestations. See Figure 3 below for a map of all treated areas.

3350 potted plants and willow live stakes were planted during fall quarter. Most of the plants were in 1 gallon pots. 300 live willow stakes were planted along the waterline prior to the heavy fall rains. Table 3 below is a list of the species and type of stock planted.

This coming spring, irrigation systems will be purchased and installed for future dry season watering of plants. In addition, any blackberry re-sprouts or seed sprouts will be treated.

This project's end date has been extended until September 30, 2007.

Table 3: Fall 2006 Clover Creek restoration planting.

Species	**Size**	**Quantity**
Salix hookeriana	1 gal	*100*
Salix sitchensis	1 gal	*200*
Salix lucida	1 gal	*650*
Salix scouleriana	1 gal	*550*
Cornus sericea	1 gal	500
Fraxinous latifolia	1 gal	100
Rosa nutkana	1 gal	300
Amelanchier alnifolia	1 gal	100
Symphoricarpos albus	1 gal	300
Rubus spectabilis	1 gal	300
Rubus parviflorus	1 gal	250
Oelmieria cerasiformis	1 gal	100
Salix hookeriana	3' livesticks	100
Salix sitchensis	3' livesticks	100
Salix lucida	3' livesticks	100
Total		**3350**

Figure 3: Photo of Clover Creek prior to treatments showing typical dense blackberry infestation.

Figure 4: Planting along Clover Creek, also showing controlled blackberries.

Figure 5: Map of blackberry herbicide treatment completed in spring quarter 2006.

McChord Water Howellia (TNC Budget #4810)

The purpose of this contract was to do a complete baseline survey of water howellia – a hydrophilic plant listed as threatened under the federal Endangered Species Act. There are 34 identified wetlands on McChord AFB with differing suitability for water howellia. Each of the 34 wetlands were ranked for suitability, surveyed, catalogued and monitored for howellia presence. An additional wetland was added to the survey in fall 2005. This wetland was evaluated and added to the report. A draft copy of the report was submitted and reviewed by McChord and a final report was submitted during winter 2006.

Approximately $25,000 remained in this budget for direct conservation related activities after survey work had been completed. This project's end date was extended until November 31, 2006.

Funds surplus to the howellia survey work were largely used to purchase an experimental weed control system (Wetblade) that promises to be effective against Scotch broom. Funds from the mammal survey contract were combined to purchase a wet blade mowing/herbicide application implement, a suitable tractor and herbicide. The equipment was delivered at the end of September 2006. The remainder of the funding was used to conduct broom control with the Wetblade and with conventional mowing.

Wetblade Mower. The Wetblade is a weed control system that simultaneously cuts and applies herbicide to the cut surface. Herbicides are reportedly contained on the bottoms of the cutting blades and to the cut plant surfaces, with very little "overspray". It is supposedly effective throughout the year, rain-or-shine. Cutting can be done at heights above native vegetation.

We are conducting a trial to determine how the Wetblade actually performs on Scotch broom at McChord. There is very little guidance available to indicate application rates. The trail will run throughout the year, using multiple application rates. Approximately each month, single strips will be cut through dense broom patches. Strips will be cut with no, low, medium and high herbicide application rates.

In late spring or early summer, we will be able to evaluate the effectiveness of the treatments which have been conducted since October 2006. At that point, we should be able to develop recommendations for effective techniques that minimize herbicide use.

Treatment strips will be continued through the spring and summer, but we will not be able to determine effectiveness of broom treated after the growing season until spring 2008.

Additional broom mowing with the Wetblade was conducted in fall larger regular broom control polygons. These areas are indicated in the Figure 2 map. Figure 6 shows photos of the Wetblade trial.

Broom Mowing. Bensten wetland is one of the highest quality wetlands on McChord. By controlling broom around this habitat, we are restoring some of the function the wetland contributes to the landscape. In all, 41 acres were mowed. Portions of this will be sprayed to kill invasive grasses and broadleaves and facilitate future enhancement plantings. See Figure 2 for a map of the mowing area.

Figure 6: Photos of the Wetblade trial. Top left: test strip. Top right: cut and applied broom stem. Bottom: Wetblade in action.

McChord Mammal Survey (TNC Budget #4811)

The purpose of this contract was to inventory one of the remaining uninvestigated animal classes on McChord- Mammalia. Almost 60 species were possible occupants of McChord AFB, including multiple species of conservation concern. This contract was extended to September 30, 2006.

Following activities occurred during the spring quarter:

- Kelly McAllister of the WDFW provided assistance with technical planning and targeted trapping of fossorial mammals.
- Targeted survey work was conducted for aquatic mammals and bobcats.
- Hair snag tubes were activated in the South Approach Zone and a western gray squirrel occurrence was positively identified.
- Report was drafted and reviewed by TNC, WDFW and McChord staff. Final report was submitted at the end of September.

Surplus funds were available from this contract. It was decided by McChord that the funds would best be used for enhancement of mammal habitat. Scotch broom is one of the most significant threats to upland habitats. Surplus funds from this contract and the howellia survey contract (see section above) were used to purchase a wetblade mowing system, which will cut and apply herbicide simultaneously. This is an experimental project that holds considerable promise.