McChord Air Force Base Noxious Weed Control and Restoration
April-June 2006 Quarterly Activity Report

July 2006

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. Progress on each of the six contracts is reported below. Of the six active contracts during the past quarter, three expired at the end of September. Work continues for the following contracts: Aquatic Species Control, Restore 2005 and Mammal Survey.

McChord Noxious Weed Control (TNC Budget #3886)

There were several tasks completed under this contract in the past quarter. Late spring and summer is the primary window for control of noxious weeds, and this is where much of our effort was focused. Figure 1 presents a map of areas where noxious weeds were treated during summer. This contract expires September 30, 2006, but will need to be extended.

Most of the effort under this contract focused on controlling spotted knapweed. Access was excellent this year and the new spray rig mounted in the back of the Kubota has worked impressively. Altogether, we were able to treat approximately 245 acres of knapweed and a few other noxious weeds.

The table below describes treatment activities conducted during spring quarter. Figure 1 provides a map of treatment areas. Additional noxious weed work will continue through the summer.

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**	

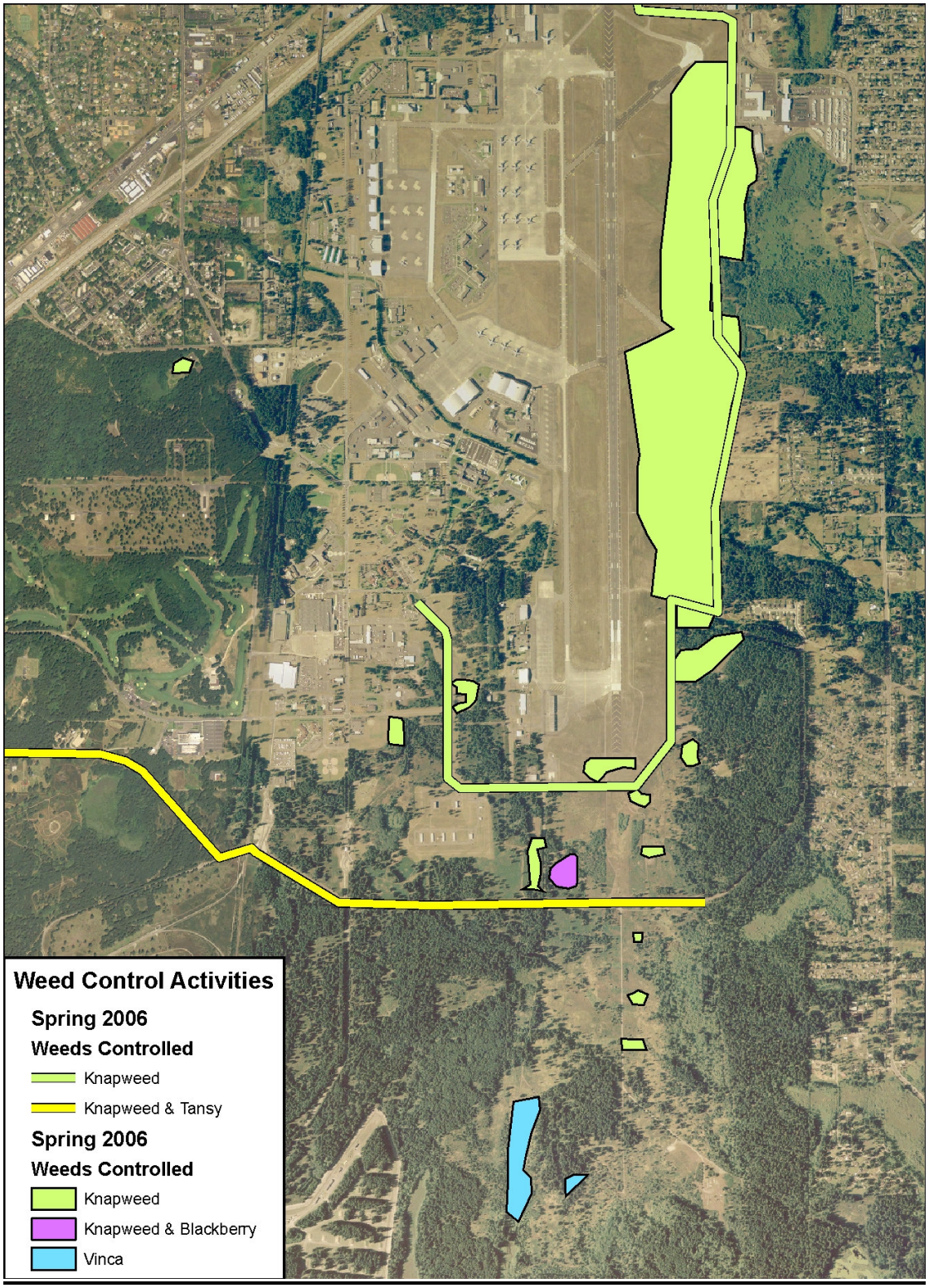

Figure 1: Map of spring 2006 weed control activities at McChord AFB funded under Noxious Weed Control contract

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.

This project's end date has been extended until November 31, 2006.

It has been agreed that funds will be used to conduct riparian enhancement along Clover Creek on the west side of the runway. This includes a massive and intensive control effort of all blackberry in preparation for future planting of woody shrubs and possibly trees. The contract term was extended through September 30, 2006. If the contract can be further extended through November, it is hoped that the treated areas can be planted in fall with woody plant species.

Significant progress was made on the blackberry control effort under this contract during 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. Altogether, we sprayed 225 gallons of Garlon 3A @ 3% with 0.25% Nufilm at Clover Creek and Morey Pond. This includes new sprouts in the areas along the north end of Clover Creek that were treated in past years.

In total, 10,100 linear feet were treated 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 side 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 2 below for a map of all treated areas.

During late summer/early fall, any surviving blackberry will be treated with Rodeo, an aquatic formulation of glyphosate. Approximately 3000 woody plants will be established along the treated stream edges and sufficient irrigation supplies will be purchased for watering in summer 2007. Grass will be seeded between plantings to act as a green mulch cover for suppression of further weed germination.

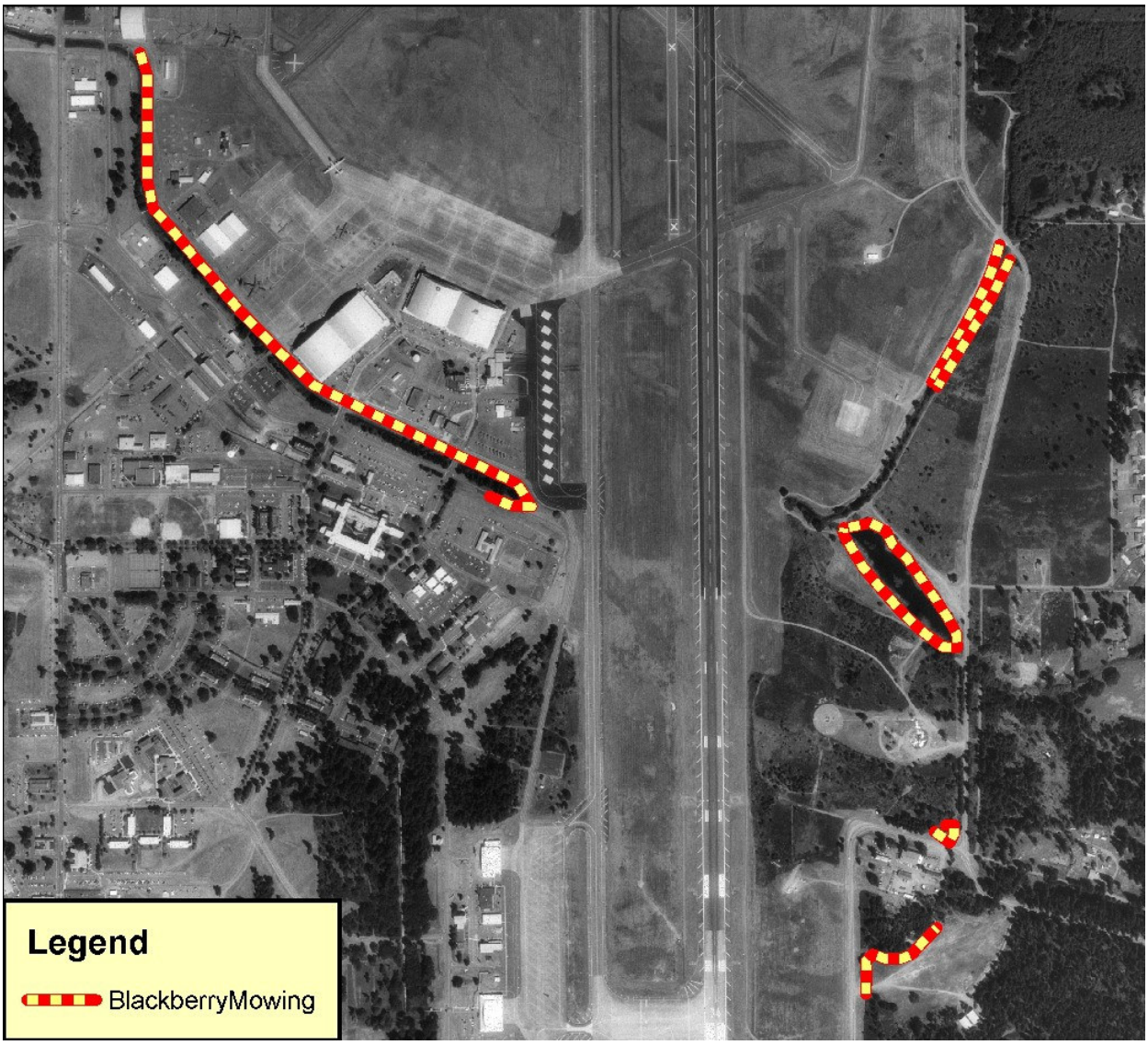

Figure 2: Map of blackberry herbicide treatment completed in spring quarter 2006.

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.

This project's end date has been extended until November 31, 2006.

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 quarter.

Approximately $25,000 remain in this budget for direct conservation related activities. These funds will be used to conduct habitat enhancement around aquatic areas and to post limited access notices on the McChord side of Bensten wetland, which is the one location of water howellia. Supplies have been ordered and enhancement work is expected to being in September.

McChord Aquatic Survey (TNC Budget #4812)

The purpose of this contract was to develop a quantitative and qualitative description of the habitat types and aquatic species assemblages at McChord AFB. Clover Creek, Morey Pond and Carter Lake were surveyed for physical and chemical habitat conditions.

This contract was sub-awarded to Entrix and the project was completed during summer quarter. The final report was submitted on September 29, 2005. McChord reviewed report and requested resubmittal with modifications.

The contract was scheduled to close on September 30, 2005. However, the budget was under spent by $5,000 and the contract was extended through June 30, 2006. This funding was used for the Clover Creek restoration project described above.

McChord Mammal Survey (TNC Budget #4811)

The purpose of this contract is to inventory one of the remaining uninvestigated animal classes on McChord- Mammalia. Almost 60 species are possible occupants of McChord AFB, including multiple species of conservation concern. This contract has been extended to August 31, 2006.

Following activities occurred during the spring quarter:

- Greg Falxa with the Cascadia Research Collective was contracted to lead a second bat survey session similar to the one he conducted last summer. This yielded useful results, and a bat species rare to the McChord area (*Myotis volans*) was positively identified.
- Kelly McAllister of the WDFW has provided assistance with technical planning and targeted trapping of fossorial mammals. His work is expected to continue through to the end of the contract.
- Targeted survey work was conducted for aquatic mammals and bobcats – with no additional results.

Thus far in the survey, the majority of species believed to be present have been identified. Of approximately 60 species, 37 have been verified on base. Eight of nine probable bat species were identified by Greg Falxa of Cascadia Research Collective, using acoustic sampling and mist netting. Other species were identified using

numerous techniques including live trapping, spotlighting, pitfall trapping, and remote camera detection.

Upcoming Tasks: Targeted trapping efforts will continue for species that have a reasonable likelihood of occurrence on McChord but have yet to be confirmed. Kelly McCalister will continue his work with fossorial mammals and other aspects of the project. The final report will be delivered in August.

Funds will be available in excess to the survey needs of this project. These funds will be used for mammal habitat enhancement, specifically the purchase of a wet blade mowing system that has the potential to revolutionize future Scotch broom control. In addition, supplies to operate this equipment will be purchased.

Table 1- McChord Mammal Inventory Results

Species (Bold Indicates Presence)		**Detection Method**						
		Trapped						
Common Name	**Scientific Name**	**Small**	**Med**	**Large**	**Pitfall**	**Camera**	**Spotlight**	**Other**
Eastern cottontail	***Sylvilagus floridanus***			**X**		**X**		
European rabbit	*Oryctolagus cuniculus*							
Snowshoe hare	*Lepus americanus*							
Mountain beaver	*Aplodontia rufa*							
Townsend's chipmunk	***Tamias townsendii***	**X**	**X**			**X**		**X (visual)**
Northern flying squirrel	***Glaucomys sabrinus***	**X**	**X**				**X**	
Mazama (Western) pocket gopher	*Thomomys mazama*							
Nutria	*Myocastor coypus*							
Virginia opossum	***Didelphis virginiana***			**X**				
Dusky shrew	***Sorex obscurus***				**X**			
Montane shrew	***Sorex monticolus***				**X**			
Vagrant shrew	***Sorex vagrans***				**X**			
Water shrew	*Sorex palustris*							
Pacific water shrew	*Sorex bendirii*							
Trowbridge's shrew	***Sorex trowbridgii***				**X**			
Shrew-mole	***Neurotrichus gibbsii***	**X**			**X**			
Townsend's mole	***Scapanus townsendii***							**X (golf course)**
Coast mole	*Scapanus orarius*							
Deer mouse	***Peromyscus maniculatus***	**X**						
Northwestern deer mouse	*Peromyscus keeni*							
Bushy-tailed woodrat	*Neotoma cinerea*							
Southern red-backed vole	*Clethrionomys gapperi*							
Townsend's vole	***Microtus townsendii***	**X**						
Long-tailed vole	***Microtus longicaudus***	**X**						
Creeping vole	***Microtus oregoni***	**X**			**X**			

Muskrat	***Ondatra zibethicus***							**X (visual)**
Black rat	***Rattus rattus***		**X**					
Norway rat	*Rattus norvegicus*							
House mouse	*Mus musculus*							
Pacific jumping mouse	*Zapus trinotatus*							
Beaver	***Castor canadensis***							**X(signs on Clover Creek/Morey Pond)**
River otter	*Lutra canadensis*							**Roadkill**
Mountain lion	*Felis concolor*							
Bobcat	*Lynx rufus*							
Porcupine	***Erethizon dorsatum***			**X**			**X**	**X (visual, reports)**
Coyote	***Canis latrans***					**X**	**X**	**X (heard, visual)**
Red fox	***Vulpes vulpes***							**X (report by Falxa)**
Black bear	***Ursus americanus***					**X**		**X (heard)**
Raccoon	***Procyon lotor***					**X**	**X**	**X (pest shop report)**
Ermine	***Mustela erminea***	**X**						
Long-tailed weasel	*Mustela frenata*							
Mink	***Mustela vison***					**X**		**X (video)**
Spotted skunk	*Spilogale gracilis*							
Striped skunk	***Mephitis mephitis***							**X (road kill; pest shop report)**
Eastern gray squirrel	***Sciurus carolinensis***			**X**		**X**		
Western gray squirrel	*Sciurus griseus*							
Douglas' squirrel	***Tamiasciurus douglasii***		**X**					**X (visual; heard)**
Elk	*Cervus elaphus*							
Columbian black-tailed deer	***Odocoileus hemionus columbianus***					**X**	**X**	**X (visual)**
Little brown myotis	***Myotis lucifugus***							**X(acoustic)**
Yuma myotis	***Myotis yumanensis***							**X(acoustic)**
Long-eared myotis	***Myotis evotis***							**X(acoustic)**
Long-legged myotis	*Myotis volans*							**X (mist net)**
California myotis	***Myotis californicus***							**X(acoustic)**
Silver-haired bat	***Lasionycteris noctivagans***							**X(acoustic)**
Big brown bat	***Eptesicus fuscus***							**X(acoustic)**
Red bat	*Lasiurus borealis*							
Hoary bat	***Lasiusus cinereus***							**X(acoustic)**