

Yakama Nation Wetlands and Riparian Restoration Project



Annual Report 2005 - 2006

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Fiscal Year 2005 Annual Report

Yakama Nation Wetlands and Riparian Restoration Project

**Project Number 1992-062-00
Contract Number 96-BI-93554**

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Executive Summary

The Yakama Nation's Wetlands and Riparian Restoration Project experienced another successful year in FY05. This report outlines many of the activities which occurred. The year's highlights included the following:

- 1) 1,338 acres were secured for restoration and management (Fig. 1). Several additions occurred along Toppenish Creek upstream from the Pumphouse Unit. A large acquisition also occurred at the confluence of Mule Dry Creek and Satus Creek. The Property-Specific Reports provide further information.
- 2) A wetland restoration project was completed in FY2005. The North Satus Wildlife Area project was assisted with funding from the BOR (\$64,000). Planning for a large USDA-funded riparian/wetland restoration effort on Toppenish Creek is nearly completed. Implementation is scheduled for late summer 2006. A proposal for funding under the North American Wetlands Conservation Act was submitted in March. This proposal is included as Appendix A.
- 3) HEP monitoring field activities occurred on 6 properties during FY05. An average of 2.35 HU's per acre were documented. Paul Ashley and the HEP crew assisted in these efforts.
- 4) Monitoring activities included population monitoring of waterfowl and upland game bird surveys, summer duck banding and harvest information. Photomonitoring points were established at vegetation restoration sites.
- 5) Over 1,000 acres of wetlands and uplands infested with Russian olive were treated. Treatments included mature tree removal via excavator or bulldozer, chemical application, burning, mowing and disking. This activity was funded by the Bureau of Indian Affairs
- 6) On 736 acres, vegetation restoration was conducted, including weed control, removal of debris and internal fences, improvement of property boundary fences, and native grass planting. Weed treatments included mowing, disking and herbicide spray (see annual herbicide report) on 450 acres. Native grasses were planted on 46 acres, including basin wild rye and Sandberg's bluegrass. Pheasants Forever provided funding for the native grass seed. Additional acres will be treated for weeds and planted each year.
- 7) Conducted cultural resources restoration and protection. Cultural resources investigations were conducted at several properties. Tule fields were burned to promote growth of desirable plants for traditional harvest and use. An Indian hemp population, which provides twine for traditional arts, was salvaged and transplanted to the South lateral A property.
- 8) Education, public use and publicity:
Numerous tours, articles and presentations were conducted in 2005. Information is provided in the Education and, public use, and publicity section of this report and in the appendices.

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Summary of General Activities

Land Securing Activities

Two general areas were targeted this year for inclusion into the project. New areas totaled 1,338 acres for a total project area of over 20,000 acres. The Toppenish Creek area from Simcoe confluence to Island Road Units (703 acres) comprised over half of the acreage this year. The remaining property was added to the Lower Satus Unit, with the exception of an 80 acre addition to the North White Swan Property. Information pertaining to each individual parcel is provided in the property-specific reports.

Priority Area Map

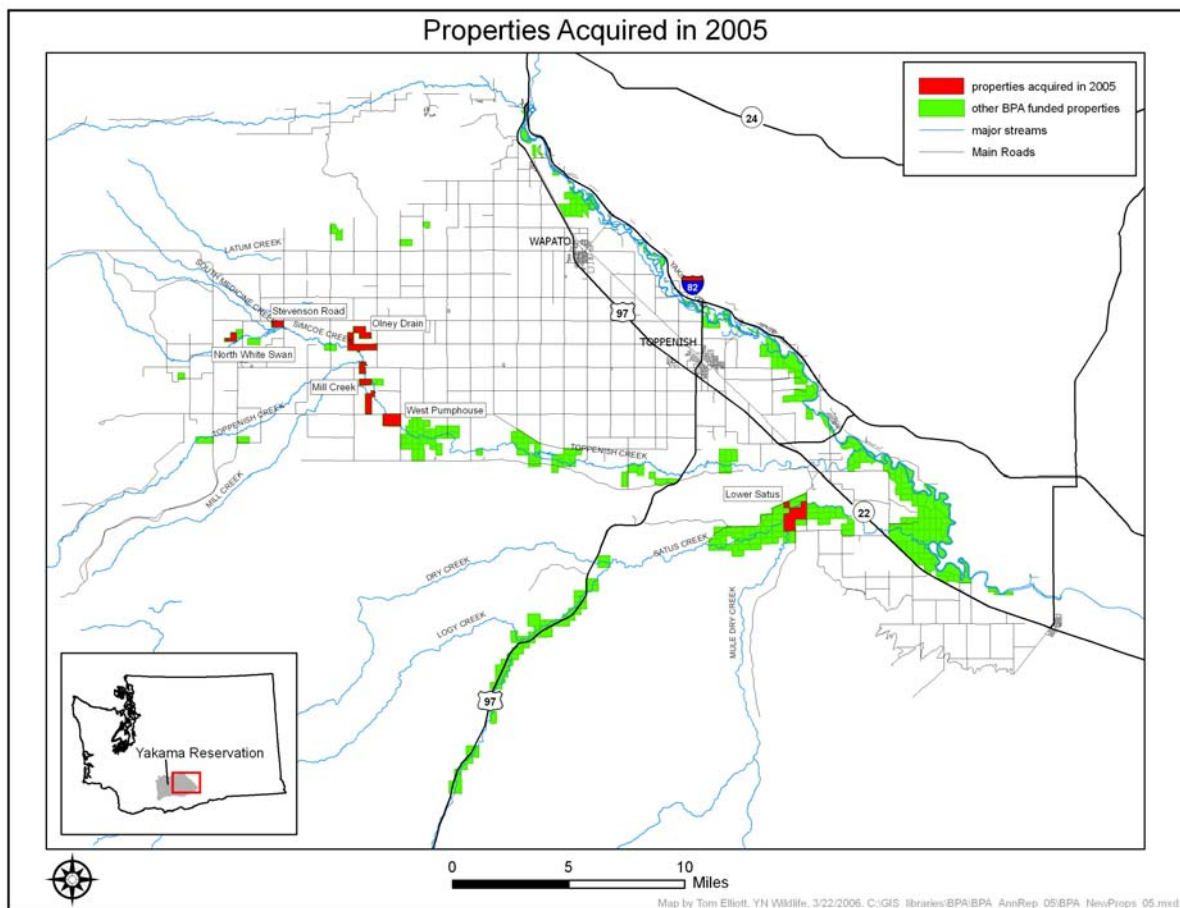


Figure 1. Properties secured in 2005. (Green lands west of Wapato are not included in this Project.)

Monitoring and Evaluation

Habitat Monitoring

Baseline HEP surveys were conducted in the summer of 2005 on the following properties:

YIN 2005 HEP RESULTS SYNOPSIS

Covertypes/HUs

Project Area	Acres	Riparian Forest					Riparian Shrub		
		Canada Goose	Mink	B.C. Chickadee	Downy Woodpecker	G.B. Heron	Cal. Quail	Mink	Yellow Warbler
Meninick	428	83.8	64.5	85.1	84.3	77.4	0.9	0.5	0.3
Meninick South	68	37.0	28.5	28.5	37.1	34.2	1.0	2.0	1.4
Zimmerman*	432						18.9	12.1	14.0
Island Road	243						7.1	4.1	6.2
E 80 Pumphouse	78	14.8	17.0	13.2	8.5	15.3	1.6	1.5	1.1
L. Satus Creek	409	20.3	14.5	19.8	22.0	13.8	16.4	0.0	19.8
Total	1658	156.0	124.5	146.6	151.8	140.7	45.9	20.2	42.9

* Zimmerman HU totals replace baseline Hus

Covertypes/HUs

Project Area	Acres	Riparian Herb			E. Wetland		Shrub-steppe/Grassland					TOTAL (HUs)
		Cal. Quail	Canada Goose	Mallard	Mallard	Mink	Cal. Quail	Canada Goose	Mallard	Western Meadowlark	G.B. Heron	
Meninick	428	0.4	1.0	0.0	0.2	0.7	154.0	165.1	182.9	196.2	158.4	396.8
Meninick South	68	0.9	1.2	1.8	2.0	3.3	10.3	18.4	16.2	6.5	12.5	169.7
Zimmerman*	432				0.0	71.8	136.4	120.7	199.4	198.3	179.8	45.0
Island Road	243	26.6	15.2	8.7	2.0	1.4	98.7	41.9	21.5	91.6	67.6	17.5
E 80 Pumphouse	78	26.0	46.8	42.8	4.4	8.3						73.0
L. Satus Creek	409						220.0	95.2	189.5	93.4	124.4	126.5
Total	1658	53.9	64.1	53.2	8.6	85.4	619.4	441.3	609.5	586.0	542.8	828.6

Wildlife Surveys

The Yakima Nation Wildlife Resource Management Program (YNWRMP) conducts several wildlife surveys in the valley portion of the Yakama Reservation. These surveys provide an index to wildlife populations. They also provide information on wildlife responses to our restoration efforts. Although most surveys are conducted through the whole valley, wildlife trends on or near properties managed by the YNYRMP program show a positive trend in wildlife numbers.

Waterfowl Breeding Pair Counts

We conduct waterfowl breeding pair annually during the second week of May. These counts are conducted at 15 different sites. These counts allow us to monitor duck responses to our restoration efforts and make proper management decisions. Results from these counts indicate that the total number of breeding pairs of dabbling ducks has increased since 1955 (Figure 1). This increase has been evident in mallard (Figure 2) Gadwall (Figure 3), and shoveler (Figure 5). Wood Ducks (Figure 6) and teal (Figure 4) numbers have remained relatively constant. In 1999, we added South Lateral A to the Breeding Pair Counts. Counts were initially high, but have remained relatively constant over the last 4 years. When adjusted for the area surveyed, the South Lateral A property produces 11 times as many mallards per acre as is produced on average throughout the valley.

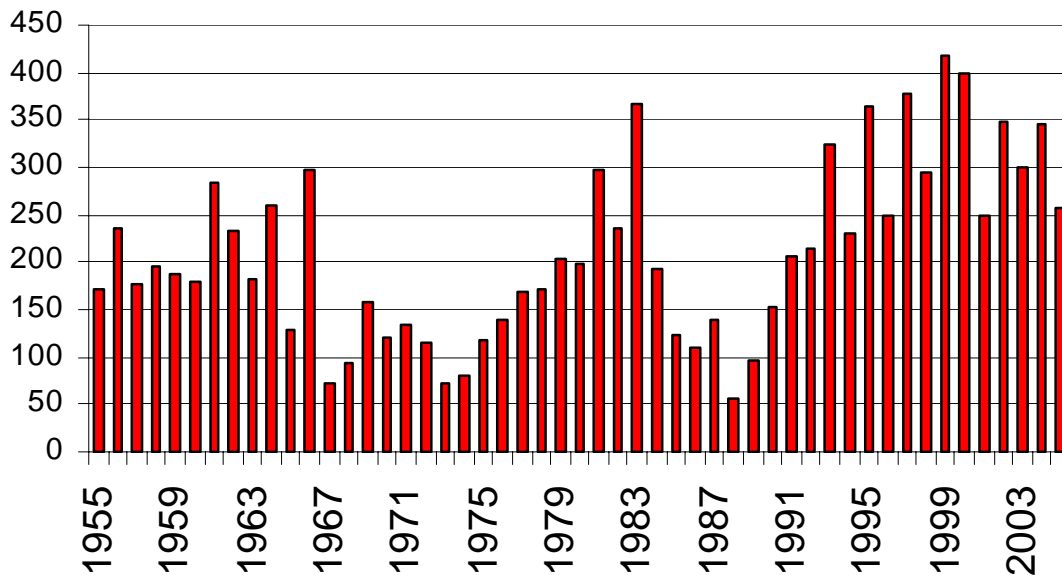


Figure 1: Number of breeding pairs of dabbling ducks observed during counts conducted from 1955-2005 on the Yakama Reservation

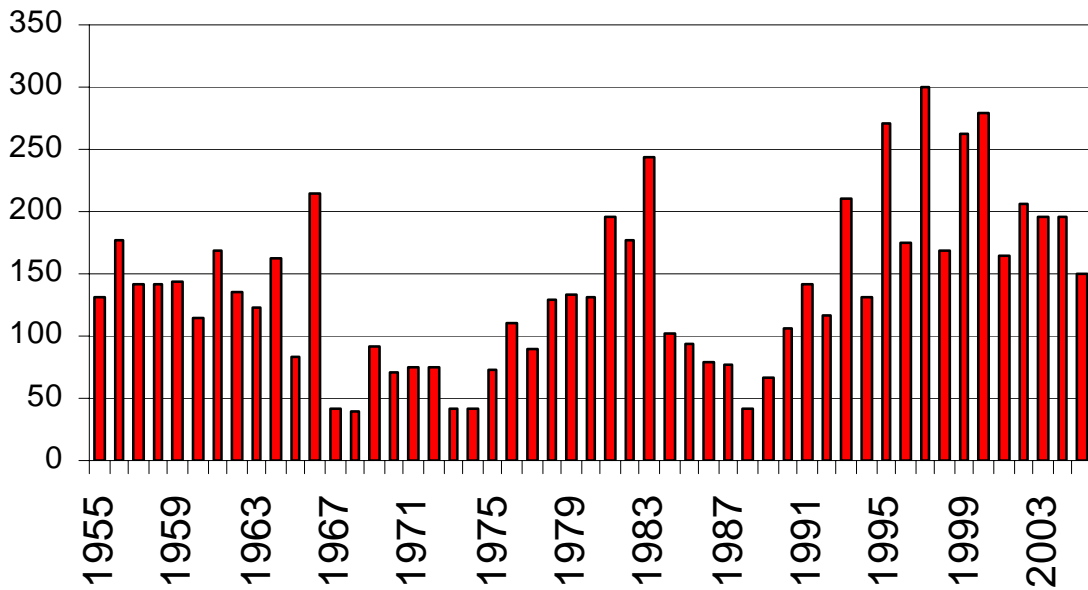


Figure 2: Number of breeding pairs of Mallards observed during counts conducted from 1955-2005 on the Yakama Reservation

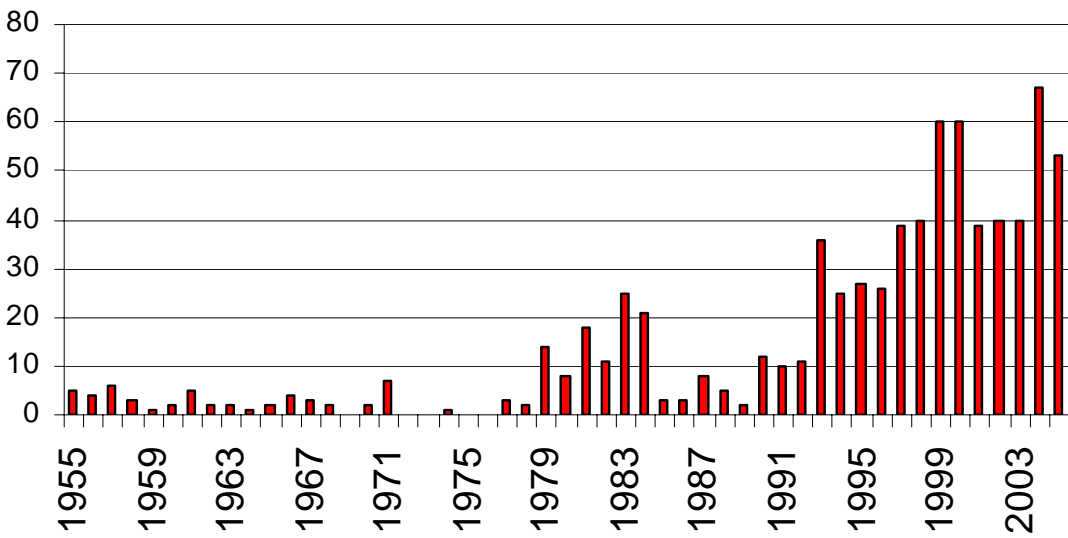


Figure 3: Number of breeding pairs of Gadwall observed during counts conducted from 1955-2005 on the Yakama Reservation

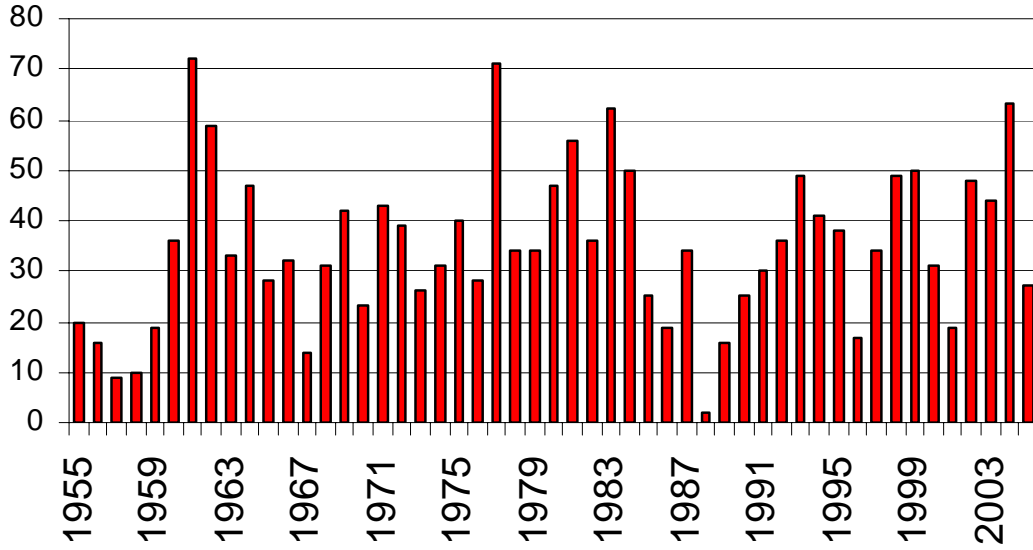


Figure 4: Number of breeding pairs of BW/Cinn. Teal observed during counts conducted from 1955-2005 on the Yakama Reservation

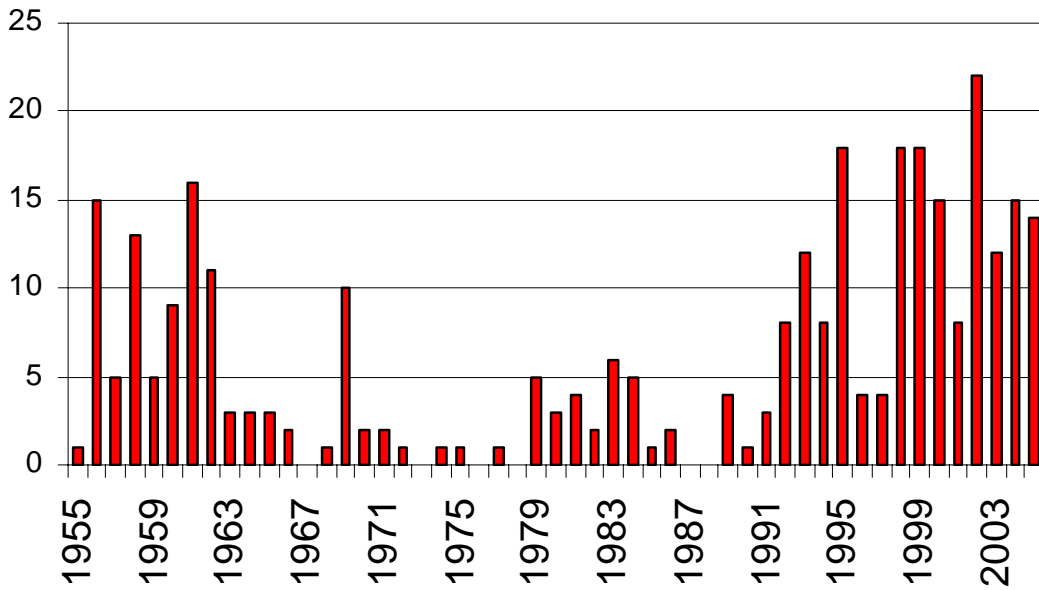


Figure 5: Number of breeding pairs of Shovelers observed during counts conducted from 1955-2005 on the Yakama Reservation

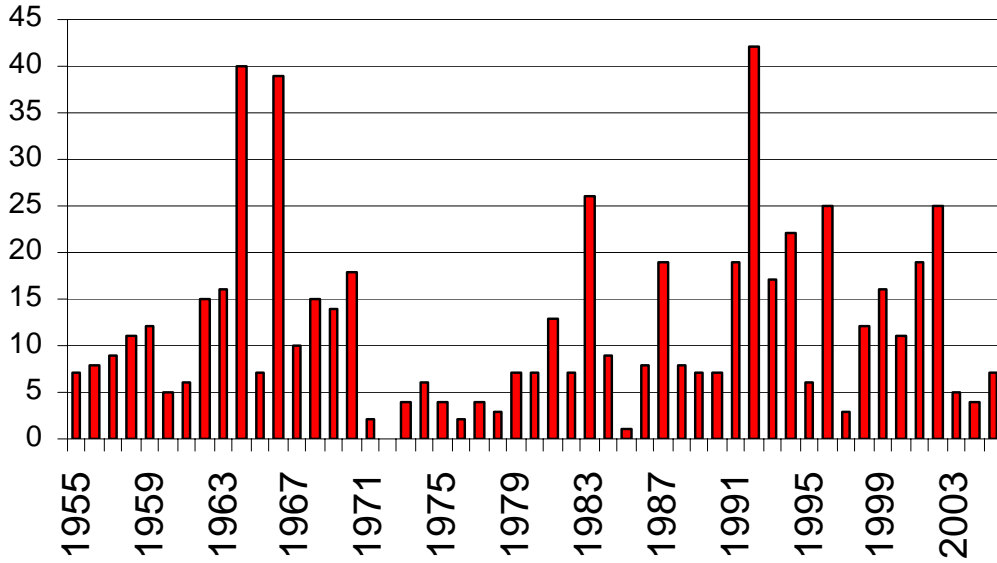


Figure 6: Number of breeding pairs of Wood Duck observed during counts conducted from 1955-2005 on the Yakama Reservation.

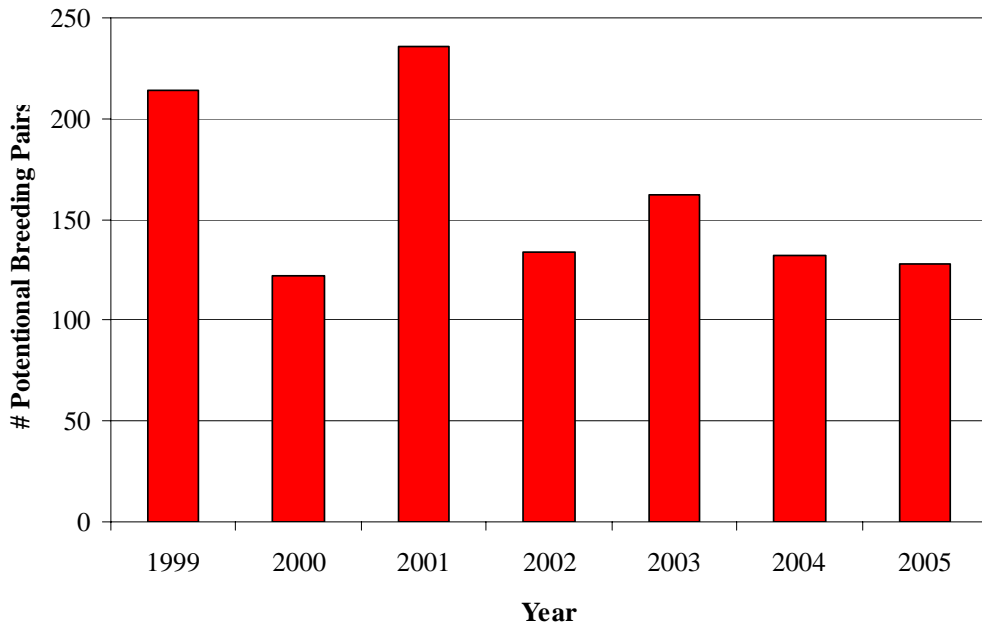


Figure 7: Number of breeding pairs of dabblers observed during counts conducted from 1999-2005 on South Lateral A on the Yakama Reservation

Mourning Dove Coo-Counts

In conjunction with the United States Fish and Wildlife Services Webless Migratory Game Bird Program, we conduct mourning dove call-counts to estimate the number of breeding mourning doves. Protocol and routes are chosen by the USFWS. These routes do not change and provide continental population estimates. The population estimates are used to set dove seasons and bag limits. On the Yakama Reservation these counts are conducted annually on 2 routes the last full week in May. Since 2000, the number of breeding pairs has increased 23% (Figure 8, 9). The increase is greater on the Pumphouse route which follows Toppenish Creek where the YNWRMP and Toppenish National Wildlife Refuge manage a significant portion of the land.

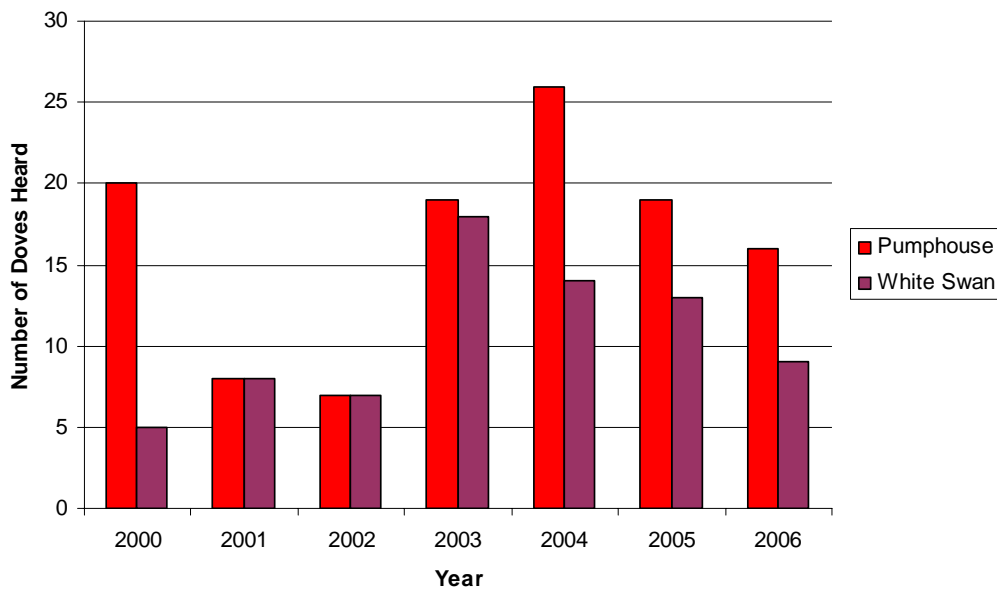


Figure 8: Number of calling doves heard on dove call count routes on the Yakama Reservation.

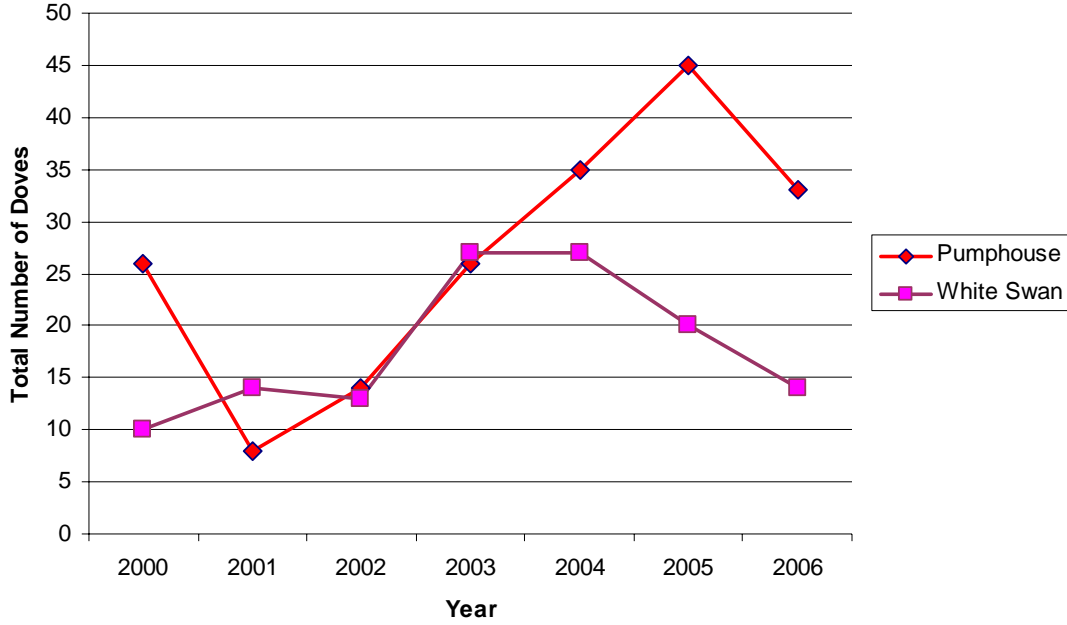


Figure 9: Total number of mourning doves seen and heard on the Pumphouse and White Swan dove call count routes on the Yakama Reservation from 2000 through 2005.

Upland Game Bird Brood Counts

During the last 2 weeks of July and the first week of August, we conduct annual counts of ring-necked pheasant, and California quail broods to index population levels. These counts are done on 7 standardized routes once a week. Both dove and quail counts indicate that population estimates in 2005 were higher than 2004 estimates (Figure 10 and 11). However, pheasant (Figure 12) population estimates have been declining since we began monitoring the populations. Reasons for the decline are unclear however changes in agricultural practices may have detrimental impacts on pheasant populations.

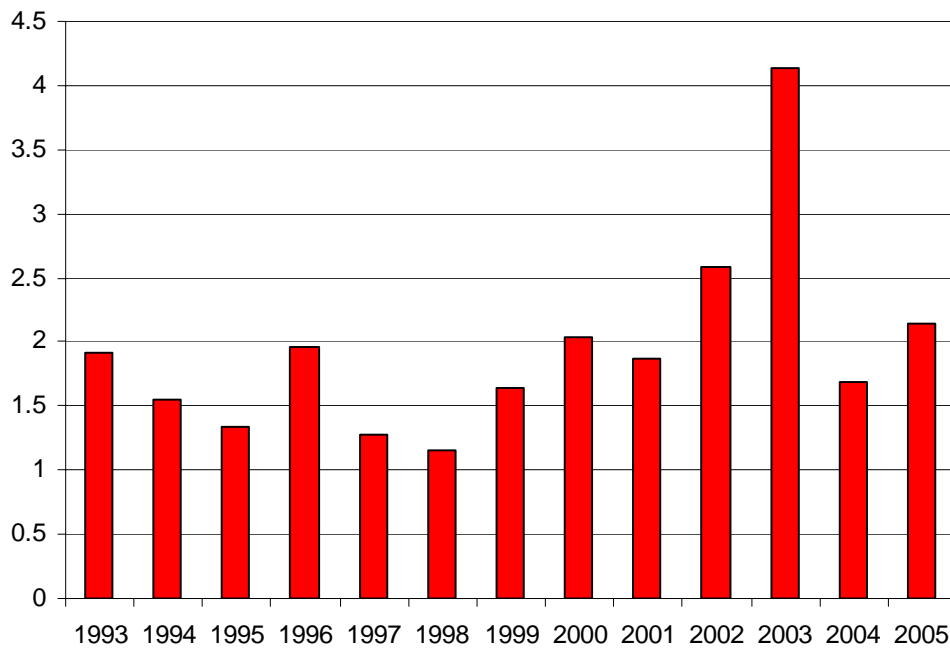


Figure 10: Average number of mourning doves seen per mile on the Yakama Reservation in Washington.

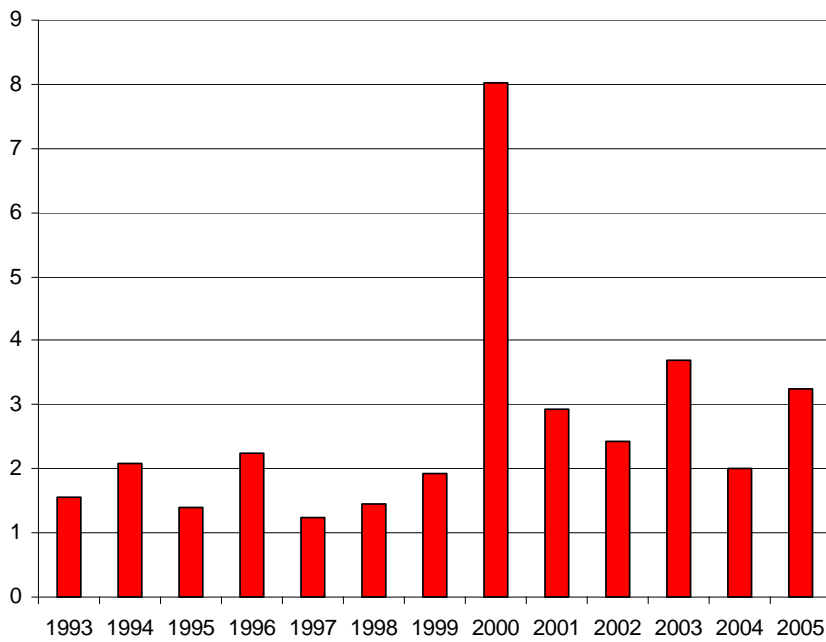


Figure 11: Average number of California Quail seen per mile on the Yakama Reservation in Washington.

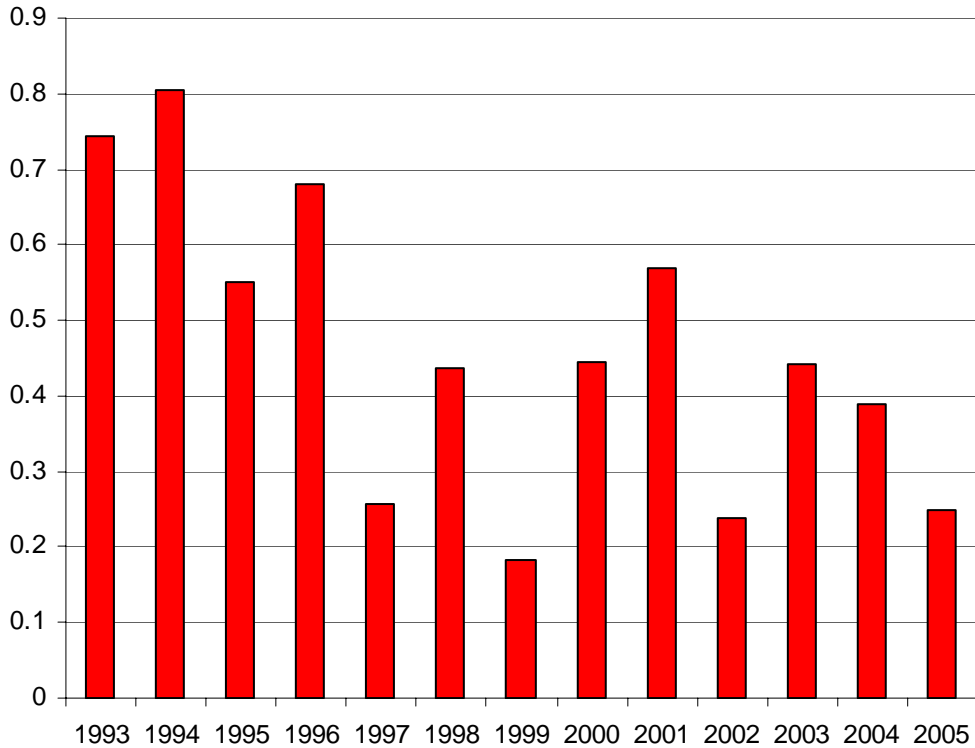


Figure12: Average number of pheasants seen per mile on the Yakama Reservation in Washington.

Opening Day Hunter Success Surveys

During the opening weekend of the Yakama Nation hunting season, we conduct bag checks to determine hunter success rates. We record the number of hunters and birds harvested. Opening weekend harvest of pheasants was higher than it has been since 2000 with the hunters averaging 0.7 birds/day (Figure 13). On Satus Wildlife Management Area, opening weekend harvest of waterfowl was the highest since 1981 with the average of 4 ducks/hunter/day (Figure 14). These counts allow us to monitor our restoration efforts and allow us to make proper management decisions.

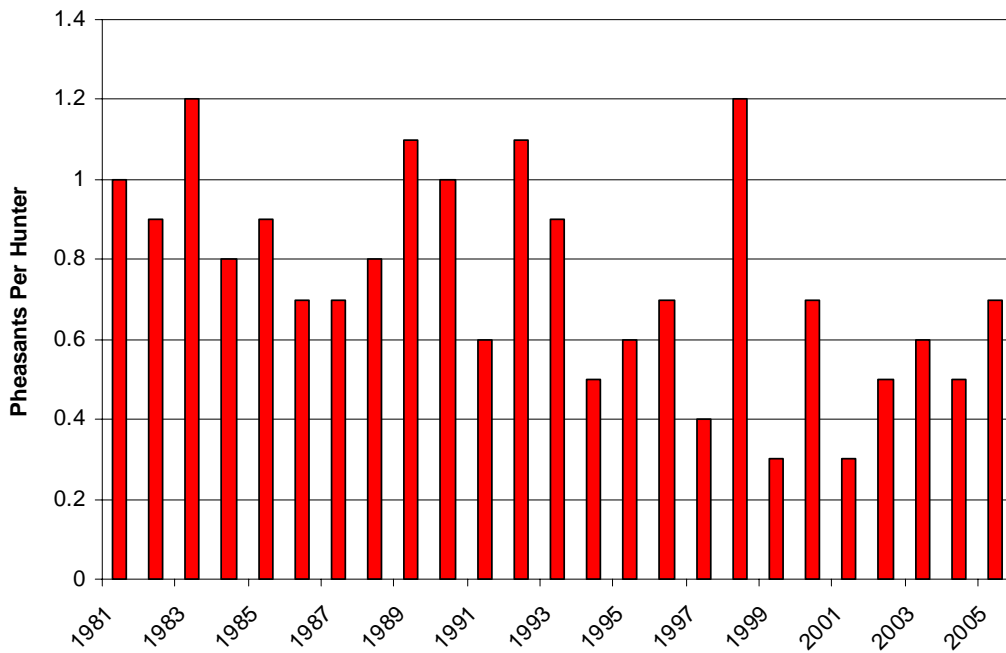


Figure 13: Opening day pheasant success

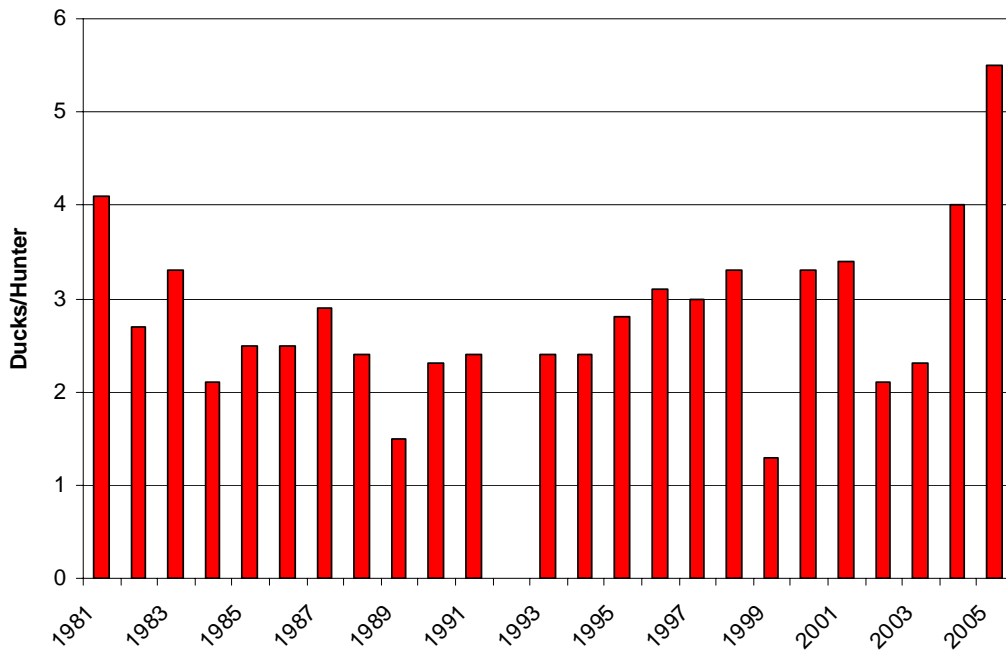


Figure 14: Opening Day duck harvest at the Satus Wildlife Area

Non-Game Birds

With the help of the Yakima Valley Chapter of the Audubon Society, we began documenting birds found on 5 restoration properties. Volunteers visit these properties at least once during each season and record the species and numbers of each species seen during the visit. The number of bird species seen ranged between 6 and 66 per visit. The highest total number of species observed are found on the South Lateral A property (Figure 15) and on the Satus property. This is probably a result of the diverse habitat found on this property and these properties are farther along in their restoration than the other properties. The lowest number of species observed occurred on Campbell Road property even though it is less than 2 miles from the South Lateral A property. The Campbell Road property, however, did host nesting ravens in 2005. This property is just beginning its restoration. These surveys will allow us to document any changes in bird diversity as restoration continues over the course of the next few years. Currently, we are analyzing data and attempting to modify protocol to provide the most reliable data to monitor our restoration efforts. Results from these surveys will allow us to make better management decisions on lands managed by the Yakama Nation Wildlife Resource Management Program. Appendix A – E list the species observed on each property.

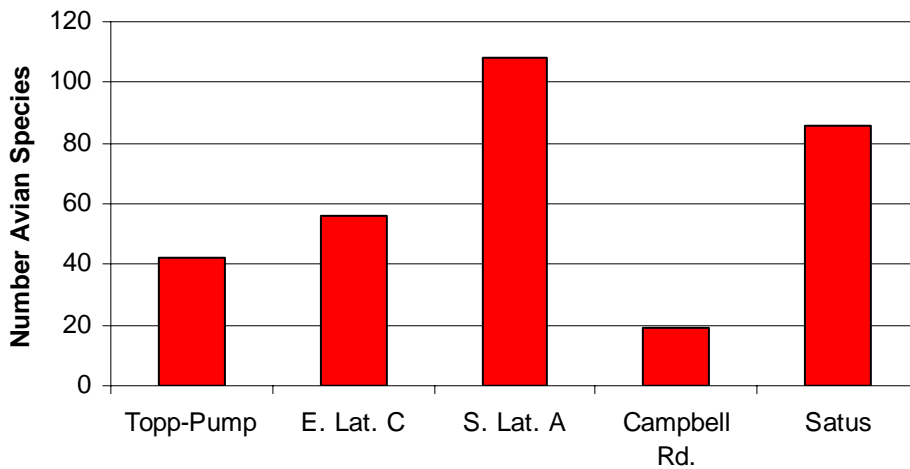


Figure 15: Number of species found on Toppenish-Pumphouse (Topp-Pump), East Lateral C (E. Lat. C), South Lateral A (S. Lat. A), Campbell Road (Campbell Rd.) and Satus Wildlife Area (Satus) properties

Monitoring Nesting Bald Eagles

Since 1997, bald eagles have nested along the Yakima River. All of these nests have been located on this Project's restoration properties. In 2005, we monitored 3 active nests. Two of the 3 nest successfully hatched and reared at least 1 eaglet. We are not sure why the third nest was unsuccessful. The adults abandoned the nest in March. Early monitoring results in the spring of 2006 show all three nests once again are occupied.

Fledging success of these nests will be monitored in the summer of 2006. These bald eagles represent the first successful nests in the area since 1902.

Monitoring Bobolink Populations

The western-most population of bobolinks in Washington (and the US) occurs off of Lateral C on the Yakama Reservation. Beginning in 2005, we began monitoring this population. We found on population of 7 breeding males off Lateral C between Pumphouse Road and Marion Drain. The appearance of juvenile bobolinks in this area indicated that some bobolinks successfully reproduced in this population. A second population was found $\frac{3}{4}$ of a mile north of Marion Drain, however right after this population was located the pasture was hayed and we were not able to get an accurate count of this breeding population. Due to the haying event there was likely no reproduction occurring in the north of Marion Drain population.

Bobolink monitoring will continue in 2006. Monitoring activity will include transect surveys of breeding birds, as well as capture and banding. Banding efforts will allow us to track the future success of these birds. A management plan for this population will be developed in 2006-2007.

Monitoring Vegetation Restoration Sites

Floristic surveys were initiated at properties, which include an inventory of native and non-native plant species present as well as notation of dominant species. These surveys allow for planning of weed treatments and native plant restoration efforts. Additional properties will be surveyed each year.

Photomonitoring was initiated at vegetation restoration sites on several properties: Buena, Campbell Road, South Lateral A, North White Swan, Old Goldendale, and South Meninick. Permanent photomonitoring points were established in spring and summer 2005. Photograph locations were marked with GPS and landmarks and the compass bearing of each photograph direction was recorded for relocation. Points will be revisited each year to provide a qualitative evaluation of changes in habitat from protection, weed control and native plant revegetation efforts. Additional photomonitoring points will be established at new restoration sites each year.

Vegetation monitoring will be conducted for new hydrologic and vegetation restoration efforts planned for fall 2006. Permanent sampling points will be established perpendicular to active or recreated stream channels in spring and summer. Vegetation composition will be estimated prior to construction activities and resampled annually during the first three years following construction; long-term monitoring will occur on a periodic basis.

Hydrologic Monitoring and Evaluation

Monitoring the successes and failures of stream restoration techniques is rarely conducted even though millions of dollars are spent annually on these activities (Bernhardt et al. 2005). The overall goal of this project is to provide the Yakama Nation with the tools necessary to better make these management decisions. To this end, we have previously described a hierarchical monitoring protocol that can be used to prioritize management decisions (Snyder et al. 2004). Faculty and graduate students from the Department of Geography and Land Studies at Central Washington University (CWU), and Grand Valley State University (GVSU) collaborated on continuing to execute this long-term monitoring protocol for the Wapato reach on the Yakima River floodplain. This past year has been spent collecting the final set of pre-restoration, base-line data that can be used to quantitatively evaluate components of this hierarchical scheme to isolate those variables particularly effective at indicating physical, chemical and biological integrity. The resulting data will provide statistically significant measurement of changes in fluvial geomorphologic features and environmental and biological attributes within and between different areas of the Wapato reach before, during, and after a proposed restorative action.

At the outset of this project, we perceived that there was a consensus among wildlife managers working for and in conjunction with the Yakama Nation, that broad alluvial floodplain/river ecosystems represented critical habitat sustaining high bioproductivity and biodiversity (Heiler et al. 1995, Stanford 1998, Ward et al. 1999). In addition, the concept of the shifting habitat mosaic (or SHM) strongly suggested that increasing connectivity between the main river channel and off-channel habitats such as side channels, spring brooks, and floodplain ponds would substantially increase the biological potential of the floodplain ecosystem by increasing habitat complexity (Stanford 1998). Therefore, protection and enhancement of this habitat was deemed critical not only for salmonid enhancement but also for the myriad of other species that rely on floodplain ecosystems (Tockner and Stanford 2003).

In establishing the monitoring protocol, we recognized that streams are organizational units that can be classified at many different spatial and temporal scales using both biotic and abiotic components. The biotic components, namely the organisms living within a certain area, interact with the abiotic components, namely the physical and chemical environment, as they process energy, complete their life-history cycles, and eventually are decomposed. This interaction leads to measurable structural and functional organization (*sensu* Minshall 1988, 1993). Examples of structural organization include biological diversity of macroinvertebrates, fish assemblage structure, algal biomass, etc., while functional organization includes measures of energy flow such as primary productivity, nutrient spiraling, and carbon cycling. The river continuum concept (RCC) by Vannote et al. (1980) and Southwood's (1978) concept of the habitat templet suggests that this interaction allows one to predict patterns in biological organization as a river progresses from headwaters to mouth.

Specific examples of the major abiotic components include flow, substratum, light, temperature, dissolved chemicals, and channel morphology and complexity. The biotic components include the primary producers, terrestrial plant litter, consumers and decomposers (Minshall 1993). The ultimate goal of our monitoring protocol is to establish the linkage between the abiotic and biotic components using as many metrics or measurements as is feasible depending on time and monetary constraints. Establishing this linkage provides managers with the greatest information and some predictive power from which to make informed management decisions (Cairns 1977, O'Neill et al. 1986, Minshall 1993).

A specific location within the Wapato Reach was identified for initial application of the monitoring protocol outlined in the first project report (Snyder et al. 2004). This site, the Meninick Wildlife Area, was recently acquired by the Yakama Nation and exhibits many of the properties considered to be ideal from the standpoint of the shifting habitat mosaic. There are numerous side channel complexes and spring brooks, as well as an abundance of large woody debris in the main river. Riparian and floodplain vegetation occur as multiple aged stands. Some infestations of noxious weeds do exist and include, but are not limited to purple loosestrife and knapweed. The site also contains a substantial but short levee that has effectively disconnected a side channel complex.

Our goal was to monitor conditions in a 'reference' side channel vs. the disconnected side channel, prior to a planned levee breach designed to reconnect the channel with the main stem of the Yakima River. Our study design included multiple sample locations in four main areas; (i) the disconnected side channel (DSC), (ii) a connected spring brook upstream of the levee (CSB), (iii) a disconnected pond (DP), and (iv) the main stem (Figure 1). (Please see Figures 2-5 for representative ground photos of each study site location). In the second year, we added another study site including three comparative sample locations (RSC 1-3) slightly downstream, representing an accidental large side channel reconnection that occurred during the 1996 flood in a Yakama Nation Wildlife Area near the North Satus Drainage Project (Figure 6). An assessment of this site in conjunction with the Meninick site, provided a more rigorous experimental design for the project and certainly enhances the assessment of the initial monitoring protocol developed as a part of this grant.

Data was collected at least one time at each of these study sites, and included the following: annual thermal regime (data loggers), major nutrients and other water quality measurements, quantitative macroinvertebrate samples, benthic chlorophyll concentration and organic matter content, large woody debris, stage-discharge relationships, permanent photopoints, channel cross-sections, substrate composition, and benthic sediment storage volume. Specific methodological procedures are outlined in the previous annual report (Snyder et al. 2004). This year (March-December 2005), we continued monitoring physical (velocity, discharge, temperature), chemical (macro-nutrients, pH, dissolved oxygen, and conductivity), and biological (algal pigment concentration, organic matter content, and macroinvertebrate abundance) parameters at each of the study sites, using the methods and protocol we

used in the previous two years. In addition to this monitoring protocol, we used an Ekman dredge to sample the benthic macroinvertebrates in the slower moving, deeper water sites at each of the sample locations. Three samples were taken at each site in October 2005, at 25%, 50% and 75% of the channel width. This data will be used to quantify the presence/absence of macroinvertebrate taxa in this habitat.

At present, 3 years of base-line, pre-restoration data have been collected at the initial set of study sites on the Yakima River floodplain. This data set is essential to establishing the natural range of variability prior to additional floodplain reconnection work scheduled to occur in the near future. In addition, two years of data have been collected at the reconnected side channel site, but for which no pre-restoration data were collected. As such, our experimental monitoring plan is as robust as possible, taking the form of a before-after, control-impacted, or BACI design (Underwood 1994) for the first site described above. Having been restored longer, the second study site hopefully will provide some temporal context for patterns expected as restoration continues (separation in time vs. space).

Comparative graphs and tables of descriptive statistics have been completed for all the sites and parameters assessed, including annual and seasonal statistical summaries of water quality parameters sampled monthly at each sample location, as well as graphs comparing within-site and between-site differences (see Tables 1-3 for examples). In addition, Kruskal-Wallis and Mann-Whitney U tests have been used to identify significant annual and seasonal differences in measured water quality parameters. These tests were used to identify significant differences between: 1) comparable sample locations at each study site; 2) sample locations within a study site; and 3) the top and bottom sample location at each channel study site. The results indicate a truly complex environmental heterogeneity of aquatic habitats within the Wapato reach of the Yakima River floodplain, with several water quality parameters differing significantly between study sites, though not always consistently by season. In addition, several significant differences were found in water quality parameters along environmental gradients within study sites, though again these varied by site and season.

As noted in previous progress reports, we have prioritized our sampling methodology in a hierarchical fashion (see Snyder and Gabriel 2005). In this scheme, initial sampling takes the form of basic monitoring of physical and biological variables and then scales up to include more functional metrics such as macroinvertebrate secondary production, and fish productivity. At this point, we are in the process of concluding some of these higher-level assessments, mainly through quantification of the macroinvertebrate community. This biological data will be combined with the physical/chemical data in a multivariate analysis (principal component analysis) that should identify a subset of these variables that best explain the patterns in insects. We recommend that future studies incorporate an assessment of the fish community as well. The final report will be concluded by the end of July, and will provide a full analysis of the baseline differences in ecological parameters between the various sites types, including an identification of the parameters most salient for restoration monitoring and a prediction of expected changes in the disconnected channel once the levee breach is initiated.

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Figure 1. Study sites on the Meninick Wildlife Area. CSB = connected spring brook, DSC = disconnected side channel, DP = disconnected pond. North is toward the top of the photograph and scale is approximately 5 km from right to left side of the photograph.



Fig. 2. Representative disconnected channel sample location (DSC-2)



Fig. 3. Representative connected springbrook channel sample location (DSC-2)



Fig. 4. Disconnected pond sample site (DP). Note the levee in the background, which disconnects both this site and the disconnected channel (DSC) from the mainstem of the Yakima River.



Fig. 5. Main channel study site (MC) at confluence with connected springbrook site (CSB-O)



Figure 6. Satus Wildlife Area and reconnected side channel study site. Sample locations and site names indicated in yellow. RSC = reconnected side channel.

Table 1. Water quality summary statistics for Wapato sample sites, Summer 2003-Fall 2005.

Measures	CSB				DP	MC
	CSB-0	CSB-1	CSB-2	CSB-3		
<u>Temperature</u>						
<u>(Celsius)</u>						
Mean	16.7	15.0	13.7	13.1	15.5	14.5
Maximum	29.0	25.4	25.7	21.1	27.8	23.8
Minimum	4.5	3.8	3.5	3.4	4.1	3.1
<u>Dissolved</u>						
<u>Oxygen (%)</u>						
Mean	81.4	73.4	65.6	67.3	96.5	116.0
Maximum	108.6	134.2	93.5	186.7	261.7	145.5
Minimum	60.1	30.8	29.1	10.2	22.8	78.1
<u>Conductivity</u>						
Mean	134.0	127.9	119.6	114.3	140.1	110.1
Maximum	191.7	178.7	174.9	148.7	206.2	135.9
Minimum	85.0	83.6	85.2	83.1	97.5	79.6
<u>Specific</u>						
<u>Conductivity</u>						
Mean	159.9	158.0	152.0	149.3	174.7	141.2
Maximum	204.5	198.1	174.5	181.3	211.2	174.5
Minimum	80.9	129.7	130.0	125.2	137.9	122.4
<u>pH</u>						
Mean	7.9	8.1	7.8	7.6	8.7	8.8
Maximum	8.9	10.1	9.1	9.7	10.4	9.8
Minimum	7.1	7.5	7.1	1.5	7.1	7.0
<u>Turbidity</u>						
<u>(NTU)</u>						
Mean	6.0	5.8	16.6	16.5	12.3	3.6
Maximum	19.7	11.4	162.9	167.0	58.7	9.4
Minimum	2.4	2.3	2.0	1.9	2.1	1.1

Table 2. Water quality summary statistics for Satus sample sites, Summer 2004-Fall 2004.

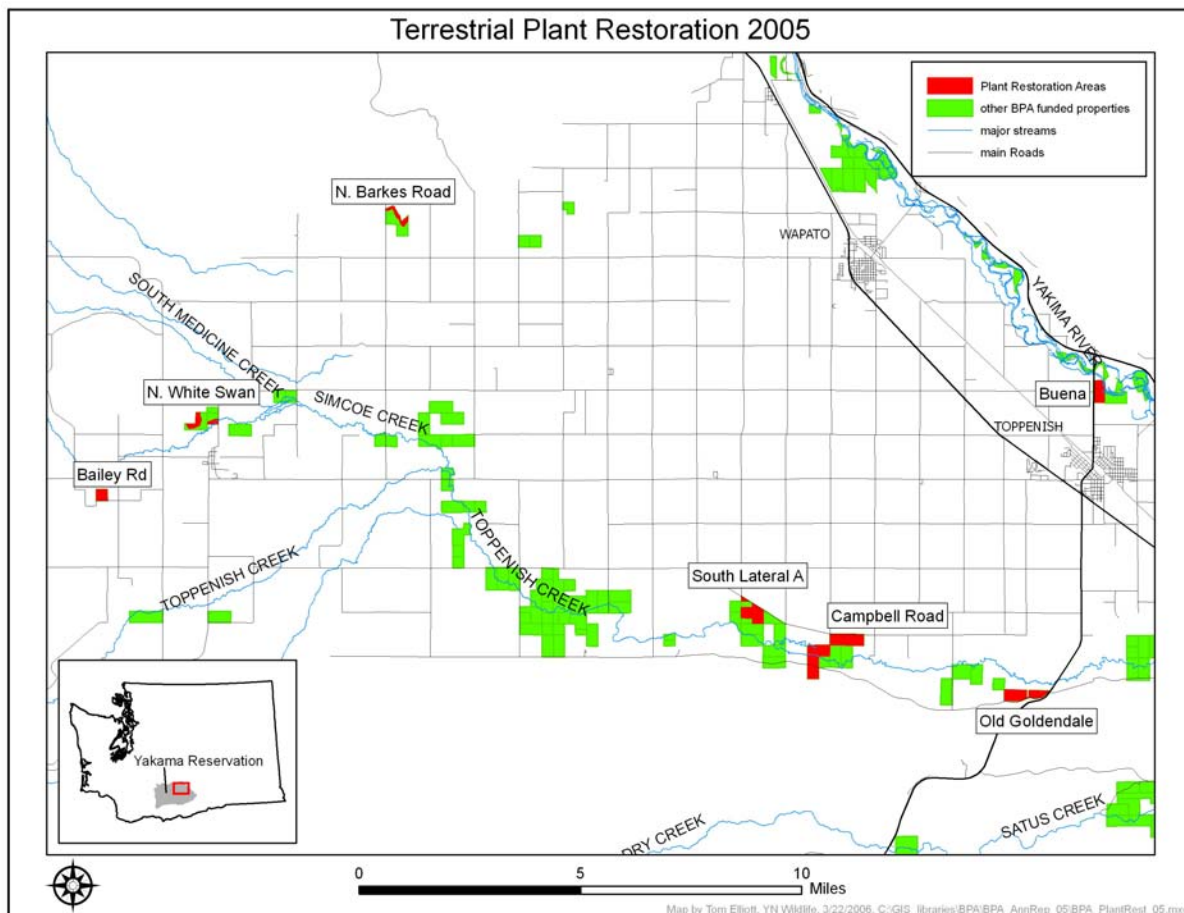
Measures	RSC-3	RSC-2	RSC-1
<u>Temperature (Celsius)</u>			
Mean	14.8	15.8	14.7
Maximum	24.3	24.4	25.3
Minimum	4.0	4.1	4.1
<u>Dissolved Oxygen (%)</u>			
Mean	127.6	146.4	154.4
Maximum	206.1	222.8	242.7
Minimum	75.7	73.2	70.2
<u>Conductivity</u>			
Mean	186.0	197.5	189.0
Maximum	223.5	247.7	236.5
Minimum	122.4	123.1	123.1
<u>Specific Conductivity</u>			
Mean	229.6	237.9	234.1
Maximum	256.9	260.4	266.0
Minimum	204.6	205.1	205.2
<u>pH</u>			
Mean	8.5	8.6	8.8
Maximum	9.8	9.9	10.1
Minimum	7.5	7.5	7.8
<u>Turbidity (NTU)</u>			
Mean	4.2	4.3	4.2
Maximum	13.5	13.8	6.7
Minimum	2.3	2.1	2.8

Table 3. Seasonal Water Temperatures (Celcius), Wapato Sample Sites, 2003-2005

SITE	N	SEASON	MEAN	MINIMUM	MAXIMUM	ST. DEV.
CSB-1	88	Spring	14.4	6.2	21.8	4.2
CSB-1	106	Summer	22.9	18.7	27.2	2.1
CSB-1	217	Fall	11.4	2.3	24.5	5.4
CSB-1	107	Winter	4.2	0.2	6.7	1.2
CSB-2	126	Spring	13.4	7.8	20.6	2.3
CSB-2	180	Summer	19.5	13.5	31.7	1.5
CSB-2	69	Fall	11.5	3.5	21.1	4.7
CSB-2	90	Winter	5.6	0.4	9.9	1.7
CSB-3	11	Spring	10.4	8.1	12.0	0.6
CSB-3	0	Summer				
CSB-3	107	Fall	10.3	3.2	17.1	3.6
CSB-3	104	Winter	8.3	1.4	11.0	1.7
DSC-1	88	Spring	15.4	7.8	28.0	4.7
DSC-1	91	Summer				
DSC-1	126	Fall	10.4	3.7	23.6	5.6
DSC-1	93	Winter	5.8	3.8	8.0	0.7
DSC-2	126	Spring	14.4	7.4	22.4	3.0
DSC-2	187	Summer	18.0	4.9	27.8	2.6
DSC-2	251	Fall	11.8	4.4	21.6	4.0
DSC-2	107	Winter	5.5	3.7	7.5	0.9
DSC-3	126	Spring	14.1	6.1	24.1	3.2
DSC-3	187	Summer	19.6	13.4	24.2	1.8
DSC-3	251	Fall	11.5	3.7	21.6	4.6
DSC-3	107	Winter	4.3	3.2	6.9	0.7
DP	126	Spring	16.4	6.2	36.0	4.2
DP	187	Summer	23.7	11.2	36.2	2.3
DP	251	Fall	12.6	4.6	22.9	4.9
DP	107	Winter	5.1	1.6	8.4	1.1

Vegetation Restoration

Terrestrial vegetation restoration occurred on 736 acres in the Project Area, which included site preparation (removal of internal fences and debris, improvement of property boundary fences, and site-specific weed control) and native plant revegetation. Intensive restoration activities require 3-5 years for native plant establishment, followed by small maintenance costs to prevent reinfestation of weed species. Pre-planting weed control typically occurs for 1-2 years until weed species are reduced to allow native plant establishment. Native grasses adapted to particular site conditions are seeded using rangeland drills in the fall prior to rains. Basin wildrye (*Elymus cinereus*) and bluebunch wheatgrass (*Pseudoregneria spicata*) were collected locally from the Reservation in 2002 and 2005 and are grown for restoration projects at a regional seed producer. Pheasants Forever provides funding for purchase of native grass seed. If necessary, post-planting weed control may occur for 1-2 years following planting as slow-growing species native to the arid west become established. Upland native shrubs and forbs may be reintroduced after native grasses are established. Costs per acre are kept to a minimum by utilizing large-scale agricultural methods and rotating weed control techniques to reduce chemical herbicide use.



Site-specific weed treatments were initiated in 2005 on 450 acres, which included mowing, disking and herbicide spray to kill several invasive plant species that will compete with reintroduced native species. Herbicide sprays and adjuvants used, as well as spray zones, follow the BPA-approved list of chemicals and treatment restrictions. Target weed species on acquired properties include: wild oats (*Avena ssp.*), knapweeds (*Centaurea ssp.*), purple mustard (*Chorispora tenella*), Canada thistle (*Cirsium arvense*), poison hemlock (*Conium maculatum*), field bindweed (*Convolvulus arvensis*), kochia (*Kochia scoparia*),

prickly lettuce (*Lactuca serriola*), and perennial pepperweed (*Lepidium latifolium*). Sites infested with perennial weed species typically require at least two years of weed control to kill underground root structures, prior to planting.



Mechanical weed control (disking) at a site on the South Lateral A property in summer 2005.

In October 2005, 46 acres were replanted with native grass seed. At the Campbell Road property, 36 acres were planted with a mix of basin wildrye, Sandberg's bluegrass (*Poa secunda*) and bluebunch wheatgrass using a no-till drill. At the North White Swan Road property, 10 acres were re-seeded with a similar mix. The North White Swan area was initially seeded in 2004 however, flooding during the winter after planting removed some of the drilled seed. In the unflooded portion of this property, planted basin wild rye stands are establishing well.

Future Vegetation Restoration

Below is a general workplan for vegetation restoration efforts in the Project Area for 2006. Note that the Status column refers to the status of terrestrial vegetation restoration at a particular site within a property.

Sites	Acres	Status	Spring	Summer	Fall
Bailey	35	Ongoing	Herbicide	Mow	Disk
Barkes Rd North	30	Ongoing	Herbicide	Mow	Disk
Buena	77	Ongoing	Herbicide	Mow	Disk
Campbell Rd -- Mink Ranch	28	Ongoing	Herbicide	Herb., Mow, Burn	Grass seeding
Campbell Rd -- Buck Little	116	Ongoing	Herbicide		
Cambell Rd -- S & E Mink, S & E Campbell	221	New		Mow, Burn	Disk
Fort Rd Toppenish Creek Crossing		New	Inventory	TBD	TBD
Garcia	80	New	Fencing, Clean site	Mow, Biocontrol	
Goldendale -- Units 1&2	114	Ongoing	Herbicide	Mow, Herbicide	Grass seeding
Meninick North		New	Inventory	TBD	TBD
Meninick South		New	Inventory	TBD	TBD
Mosebar		New	Inventory	TBD	TBD
Mule Dry Creek		New	Inventory	TBD	TBD
North White Swan -- South 30	10	Ongoing	Herbicide	Mow	Grass seeding
North White Swan -- West Pasture	33	New	Herbicide	Mow	Disk
Satus Wildlife Area (S5 olive unit)	160	New	Mow	Burn	Disk
South Lateral A -- Units 1,3,4	50	Ongoing	Herbicide		Seed shrubs/forbs
South Lateral A -- Units 8, 9	40	Ongoing	Herbicide	Herb., Mow	Disk
West Plank	120	New	Inventory	Herbicide	Mow, Disk

Cultural and Archaeological Resources

By William White



Yakama tribal members harvesting tule reeds

The Yakama Nation's Wetlands Restoration Project is responsible for the management of over 20,000 acres within the Yakama Nation's 1.3 million acre Reservation. The Yakama Nation Wetlands Restoration Project actively manages significant cultural resources on project secured lands in addition to those areas that may be subject to a project's potential effect within the external boundaries of the Yakama Reservation. The principles of preservation and protection in perpetuity are the foundation on which the project manages cultural resources.

Under the NHPA all ground disturbing project activities utilizing federal funding require Section 106 compliance under the National Historic Preservation Act of 1966 (NHPA) as amended and NEPA. The Yakama Nation strongly advocates this Federal legislation and has passed similar Tribal Resolutions for the protection of its archaeological and cultural resources within the Yakama Nation's Reservation and its ceded lands under the Treaty of 1855. These Tribal Resolutions include T-66-84 and T-92-77. Federal & Tribal requirements for cultural resource management include the identification, evaluation, preservation, and protection of cultural resources. The primary goal in protecting these properties has been one of assessing all land holdings in terms of the cultural and archaeological resources they contain and monitoring any impacts restoration activities will have on these irreplaceable resources of the Yakama Nation. As mandated by Tribal Council Resolution, one goal of this project is to preserve and protect in perpetuity the culture and history of the Yakama people for future generations.

The Yakama Nation's Natural Resources Policies plan requires the identification of cultural resources and recommends a three-phase approach including identification, protection, and preservation. In the case of Traditional Cultural Properties (TCPs) it further recommends enhancement of the cultural resource should it be required. Cultural Resource Management Plans provide the appropriate framework for successful compliance and implementation of these activities on project secured lands.

Cultural Resources Investigations



Yakama Bison Herd grazing on the Bailey Property

Bailey Property

The cultural resource inventory and survey of the Bailey Property was completed in August. Bison grazing has been used to control the weeds on this property until native grass restoration can be scheduled. The bison were removed in 2005, and preparation for seeding to native grasses occurred. We performed an extensive pedestrian survey of the property using a professional survey methodology that included transect intervals of three meters or ten feet between crew members over one hundred percent of the property this being a forty acre allotment. All exposed ground was carefully examined for evidence of past human modification and included all areas of ground disturbance and wherever visibility afforded us an unobstructed view of the ground. This included all areas where bison have grazed and removed surface vegetation. As a result of this cultural resource inventory and survey we have found no evidence of prehistoric utilization of the property. We note that the property has been a grazing pasture for livestock over the last 40 years and contains no naturally occurring surface water. We therefore recommend that the wildlife restoration program continue the native vegetation restoration project on this property. This activity is directed by the Yakama Nation's Natural Resource Management Plan and the Yakama Nation's Wildlife Resource program.



Garcia Property

Garcia Property

The cultural resource inventory and survey of the Garcia Property was completed in July. We performed an extensive pedestrian survey of the property using a professional survey methodology that included transect intervals of three meters or ten feet between crew members over ninety-seven percent of the property. The remaining three percent of the property was obscured by a dense covering of cheat grass. All exposed ground was carefully examined for evidence of past human modification and included all areas of ground disturbance and wherever visibility afforded us an unobstructed view of the ground. This included animal burrows, and cutbank surfaces. An old manufactured house and trash site lies in the northwest corner of the property. Trash consists of broken appliances and household items recent in origin. East of the trash site on a higher terrace is a single house pit. As a result of this cultural resource inventory and survey we have found a single prehistoric pit house measuring six meters in diameter and one meter in depth. We therefore recommend that wildlife restoration activities avoid this portion of the property with periodic cultural resources monitoring to protect this site from adverse conditions. This activity is directed by the Yakama Nation's Natural Resource Management Plan and the Yakama Nation's Cultural Resource program.



North White Swan Property

North White Swan Property

The cultural resource inventory and survey of the North White Swan Property was completed in August. We performed an extensive pedestrian survey of the property using a professional survey methodology that included transect intervals of three meters or ten feet between crew members over sixty-five percent of the property. The remaining thirty-five percent of the property has been extensively cultivated for hay and wheat production for many years. These cultivated areas are currently covered by hay and nothing remains of the original land form or vegetation types. In addition to this factor, irrigation modifications were made to the property in the form of a long earthen ditch to carry irrigation water to those areas of cultivation. This ditch runs east to west across the property. All exposed ground was carefully examined for evidence of past human modification and included all areas of ground disturbance and wherever visibility afforded us an unobstructed view of the ground. This includes animal burrows, and cutbank surfaces. In all of the areas that we examined there is an abundance of the noxious weed yellow star thistle and weed control methods should be taken immediately to prevent further expansion of this weed. As a result of this cultural resource inventory and survey we have found no evidence of prehistoric or historic material on any of the areas we surveyed. We therefore recommend that wildlife restoration activities continue on the property with cultural resource monitoring as directed by the Yakama Nation's Natural Resource Management Plan.



Sunnyside Dam Property

Sunnyside Dam Property

In August the cultural resource inventory and survey of the Sunnyside Dam Property was completed. This property can be designated as a Traditional Use Area of the Yakama Nation that continues to be utilized for fishing activities. The property has been misnamed Sunnyside Dam when in fact it is called Parker Dam. The property has a long history for the Yakama Nation dating back to before written history. Many Yakama members tell of how the property was a well known gambling and racing location that was frequented by members of the other northwest tribes. Stick games and other recreational activities were common here. When salmon and steelhead runs began fishing became the primary use of the area. Fishing scaffolds are still maintained and used by Yakama Nation members up to today. Members of the Yakama Nation can still identify those fishing locations utilized by their grandparents. We performed an extensive pedestrian survey of the property using a professional survey methodology that included transect intervals of three meters or ten feet between crew members over forty percent of the property. The remaining sixty percent of the property is heavily vegetated with riparian species. Two species of vegetation, poison ivy and Himalayan blackberry, are in abundance along the Yakama River which represents the northern border of the property. It is recommended that a follow-up cultural resource inventory and survey be conducted in the fall when this vegetation dies off to enable a more thorough examination of this part of the property. All exposed ground was carefully examined for evidence of past human modification and included all areas of ground disturbance and wherever visibility afforded us an unobstructed view of the ground. This included all areas where river borne gravels and cobbles have created a rocky bench to the south of the Yakama River. The Awatum village site lies one mile southwest of this property. The Sunnyside Dam property is currently subjected to extensive illegal dumping of garbage and trash and will require better enforcement supervision to reduce or eliminate this problem. As a result of this cultural resource inventory and survey we have found no evidence of prehistoric materials at this property. We therefore recommend that the wildlife restoration program continue to utilize the Sunnyside Dam property for any wetlands restoration activities and promote wildlife enhancement. This activity is directed by the Yakama Nation's Natural Resource Management Plan and the Yakama Nation's Wildlife Resource program.



Toppenish Creek Pump Unit

Allotment T-3109 of the Toppenish Creek Pump Unit

In June a cultural resources survey and inventory of allotment T-3109 was completed. This allotment is comprised of approximately 80 acres and is sometimes referred to as the Toppenish Creek Pump Unit. The initial survey of this allotment was requested by the Bureau of Indian Affairs to assess any damage to cultural resources that could have been caused by its former lessee. After a transected walking reconnaissance of T-3109 it was noted that several earthen depressions were located on the allotment which exhibited the characteristics of prehistoric house pits or cache pits. It was later determined that these depressions were made by cattle. There also appears to be an abundance of firecracked rock on the surface of the south half of this allotment and several pieces of historic era farm equipment and glassware are also present. One archaeological site 45YA524 is located northeast of this allotment. No prehistoric material was uncovered during this damage assessment. In June we again surveyed allotment T-3109 and performed an extensive pedestrian survey of the property using a professional survey methodology that included transect intervals of three meters or ten feet between crew members over one hundred percent of the property. We examined all areas of ground disturbance and wherever visibility afforded us an unobstructed view of the ground. As a result of this cultural resource survey and inventory we have found no evidence of prehistoric material. The allotment however has several pieces of historic farming equipment, glassware, and household items. We recommend that any ground disturbing activities avoid these areas of historic use. The removal of Russian olive trees can proceed on this allotment with cultural resource monitoring.

Cultural Resource Management Plans

In 2005 five Yakama Nation Wetlands Restoration Project managed properties had cultural resource management plans created and implemented. These include the Campbell Road property, Toppenish Creek Pump Unit, Satus Wildlife Area, Schuster Road Property, and the Wapato Recreation Area.



Campbell Road Property

Campbell Road Property

The Campbell Road Unit is a 320 acre parcel acquired by the Yakama Nation Wetlands Restoration Project in 2001. This property was historically used as a mink pelt farm for approximately 8 years. Other historic uses of this property have been strictly agricultural. The Shields Gun Club operated on the property until its purchase by the Yakama Nation. A cultural resource field survey of this property identified no prehistoric or archaeological resources present on the property. The likelihood of subsurface archaeological resources is remote given the property's location on an active floodplain of Toppenish Creek. A cultural resource clearance was given for the removal of the property's structures in the fall of 2001 based on available information and the deteriorating condition of these structures. The property will continue to be monitored for cultural resources when necessary project activities occur. In 2005 cultural resource monitoring of the Campbell Road property occurred during the removal of several concrete irrigation diversions along Marion Drain.



Toppenish Creek Pump Unit Property

Toppenish Creek Pump Unit

Six subterranean house pits are present on this property and limited subsurface testing using a one inch diameter soil probe in FY 2000 revealed the presence of burned animal bone and charcoal in the largest house pit having a diameter of approximately 3 meters. No lithic or diagnostic artifacts have been discovered here. Oral history indicates the presence of a longhouse on the property that was actively used up until the 1920's. This cultural resource site occurs on a filled side channel of Toppenish Creek. In the late 1920's a dairy and a home site were subsequently built on the property by cattleman and dairy farmer Gary Graham. The Graham Farmhouse was sold and relocated in February of 2000. The remaining buildings and corrals were burned or dismantled by the Yakama Nation's Wetlands Restoration project. The preferred cultural resource management plan for this property is to preserve in place all cultural resources that are identified and conduct annual monitoring of these resources to determine if additional protective measures are warranted for continued protection. Restoration plans have included the removal of Russian olive trees which have been removed with cultural resource monitoring in effect. No further disturbance of these cultural resources will occur and future wetland restoration activities will continue to avoid any cultural resource locations on the property.



Newly constructed fire lines near a fenced pit house feature

Satus Wildlife Area

The Satus Wildlife Study Area is also referred to as the Satus Wildlife Refuge. The natural setting of the Satus Wildlife Refuge has undergone extensive modification. Most of the original soils, landforms and vegetation patterns that once existed here have been changed and continue to be modified from cattle grazing, flooding, and extensive irrigation activities. Archaeological and Cultural Resource inventory and evaluation was completed in 1997 under the direction of the late Dr. Gordon Lothson. This property includes four (4) cultural resource types including burials, lithic scatters, habitation sites, and traditional cultural properties. The key to successful management of traditional, historic and prehistoric cultural properties is to treat each property as unique. Yakama tribal members see these properties within their culture as unique locales where specific activities were practiced and in cases continue to be practiced. The effects of cattle grazing, noxious weed infestation, and vandalism continue to threaten and destroy the cultural resources located within the Satus Wildlife Area. Only through adequate site protection measures has this site been protected from the adverse effects of these destructive activities. Emergency data recovery efforts in 1997 at the “Pisco” village site contributed to a better understanding of localized resource utilization and subsequent settlement development along the Yakama Reservation’s riparian streams and sloughs. Protective measures have included the fencing of these pit house locations to prevent further destruction from cattle grazing. Frequent monitoring and restricted access to the site has further deterred vandalism at this location. Re-vegetation of native species over the site’s features has further protected them from the adverse effects of artifact looting. Stabilization of the site has been accomplished through the seeding of native grasses over erosion effected surfaces and the planting of native willows along its embankment. The most important protection measure from a management perspective continues to be “avoidance”. In 2005 monitoring of the Pisco site continued. Cultural resource monitoring activities at the Satus Wildlife Area were also conducted during the removal of Russian olive trees and the creation of fire lines around the Russian olive burn piles. No cultural resources were detected as a result of these activities. In September a cultural resource field investigation of the North Satus Spillway was conducted that also detected no cultural resources being present.



Yakima River borders the Northern boundary of the Schuster Road Property

Schuster Road Property

The Schuster Road Property is also referred to as the Mouth of Toppenish Creek. The natural setting of the Schuster Road Property has undergone extensive modification. Most of the original soils, landforms and vegetation patterns that once existed here have been changed and continue to be modified from cattle grazing, flooding, extensive farming activities, and most recently the relocation of the Bonneville Power Administration's Hanford-Ostrander Transmission Line towers from the Yakima River floodplain. Archaeological and Cultural Resource inventory and evaluation was completed in 2003. A grass fire in November of 2001 exposed four distinct prehistoric utilization areas. This property includes three (3) cultural resource types including tool creation, food preparation, and habitation. The key to successful management of traditional, historic and prehistoric cultural properties is to treat each situation and each property as unique. This is also how Yakama tribal members see these properties within their culture. The effects of cattle grazing, noxious weed infestation, and vandalism continue to threaten and destroy the cultural resources located within the Schuster Road Property. Cultural Resource monitoring efforts during the Bonneville Power Administration's Hanford-Ostrander Transmission Line Towers Relocation Project have led to a better understanding of localized resource utilization and subsequent settlement development along reservation riparian streams and sloughs. A notched fishing net sinker was recovered from a depth of 53 feet indicating Yakama Nation use of the property for approximately 10,000 years. Only through adequate site protection measures can these cultural resource sites be protected from the adverse effects of ground disturbing activities. Fencing of the Schuster Road Property's culturally sensitive locations will prevent further destruction from cattle grazing. Frequent monitoring and restricted access to culturally sensitive locations will further deter vandalism. Re-vegetation of native species over the site will further protect it from the adverse effects of artifact looting. Stabilization of the site will be accomplished through the seeding of native grasses over erosion effected surfaces. In 2005 cultural resource monitoring of the Schuster Road Property continued on those areas impacted by the 2001 fire. No additional cultural resources were detected however increased public hunting use of the property has increased the likelihood of vandalism and off road vehicle traffic has increased. Protective fencing of the property's cultural resources and restricted access continue to be analyzed.



Wapato Recreation Area

Wapato Recreation Area

The Wapato Wildlife Recreation Area was included into the Wetlands and Riparian restoration project in 1994. Prior to its acquisition the property was used for small farm specialty vegetable crops by truck farmers but it has remained idle for the last few years. Livestock grazing and crop production were the main uses of the property. Hunting has also remained a primary use of the property and will benefit from the recommended restoration activities. One goal from a Yakama cultural perspective would be the successful propagation of alder, coyote and peachleaf willow, black cottonwood, golden current, smooth sumac, blue elderberry, Wood's rose, and other naturally occurring native shrubs and forbs. The restoration of this property's riparian ecosystem provides tribal members excellent hunting and gathering opportunities in the harvesting of traditional resources such as deer, waterfowl, and willow. Restoration activities such as grass planting of native species provide both food and nesting material for game birds. The reconnection of sloughs and the closure of irrigation ditches improve anadromous fish migration that has been recently obstructed by manmade diversions. In 2005 cultural resource investigations of the Wapato Recreation Area were initiated when field staff observed possible pit house depressions during garbage cleanup activities. As a result of these investigations no cultural resource features or materials were detected. Cultural Resource annual monitoring occurred at the Awatum or Parker Village site and the protective fencing was inspected.

Enhancement of Cultural Resources

Many plants, wildlife and fish occurring in the Project Area have great traditional importance for the Yakama people. All protection and restoration activities performed under the Project are beneficial to native species occurring in the project area. In addition, two site-specific activities were conducted to enhance traditionally important native plants species. At the South Lateral A property, approximately 60 acres of native tule (*Schoenoplectus acutus*) were burned to promote growth of plants that are of high-quality for traditional harvest and use. The sites were mowed in the late summer to allow plant material to cure adequately and burned with habitat technicians and fire support from local agencies.



Yakama Nation restoration crew technicians ignite a tulle bed in fall 2006, after the tulle was mowed and cured during the late summer.

Twenty Yakama Nation employees and volunteers salvaged a population of Indian hemp (*Apocynum cannabinum*), harvested for traditional manufactures and arts, from a hop field on private property and transplanted it to the South Lateral A property. Early spring monitoring of the transplants showed new buds on the plant rhizomes. Once plants emerge, the transplanted population will be monitored for survival.



Yakama Nation employees transplant Indian hemp to the South Lateral A property.

Education and Publicity

Education:

The following project presentations were given to the public in 2005.

Yakima Subbasin Annual Science Conference – May, 2005, Ellensburg, Washington. A Project overview emphasizing hydrologic restoration was presented to an audience of approximately 50 attendees.

Native American Fish And Wildlife Society Annual Conference – May 2005, Choctaw, Mississippi. Project information was presented at this national conference. Over 200 attended.

Southwest Washington Chapter of Pheasants Forever – September, 2005, Vancouver, Washington. Public hunting and Project overview information was presented at their July monthly meeting. Advertisement of this presentation in the Vancouver newspaper resulted in the largest attendance of any of their monthly meetings to date (over 30 attendees).

Yakima Valley Chapter of Pheasants Forever - March, 2006, Yakima, Washington. Information was presented at the chapter's annual fund-raising banquet. Subjects covered included public hunting, Project summary, the NAWCA proposal, and a viewing of the Pheasants Forever Television episode highlighting this project (see below). Over 250 people were in attendance.

The following educational tours were conducted in 2005.

Mabton Junior High School – May, 2005. Students toured the Satus Wildlife Area and learned about wetland and riparian restoration. Fifteen students were in attendance.

Warm Springs Tribal Biologist – August, 2005. A biologist from the Warm Springs' Pine Creek Wildlife Area toured vegetation restoration sites to learn about hydrologic and vegetation restoration methods.

Washington Waterfowl Association (WWA) – August, 2005. Twelve members of the WWA toured Project properties and participated in duck and quail banding activities.

Vancouver Chapter of Pheasants Forever – October, 2005. As a follow-up to the presentation in September, members toured Project properties and participated in a pheasant hunt. This chapter is now active in providing funding for the native grass restoration components of this Project.

The Nature Conservancy – March 2006. A group of restoration biologists from The Nature Conservancy of Oregon toured vegetation restoration sites to learn about techniques used on the project.

Tours and presentations scheduled in 2006:

Society of Ecological Restoration, Washington Chapter Annual Conference – May, 2006. Project restoration and management techniques will be presented, highlighting native grassland restoration results.

Washington Waterfowl Association, Southwest Washington Chapter Monthly Meeting – May, 2006. Public hunting, Project, and NAWCA proposal information will be presented.

North American Wetlands Conservation Council – May, 2006. A tour of the Project area is scheduled. Two council members will review the Project areas scheduled for restoration under the NAWCA proposal.

Columbia Basin Fish and Wildlife Authority – June, 2006. A tour of Project properties is scheduled for the Wildlife Group in association with their June monthly meeting.

Wetlands Management and Restoration Class - Eastern Washington University – July, 2006. A tour of Project properties is scheduled emphasizing wetland restoration and management techniques.

Publicity

Pheasants Forever Television – This nationally-syndicated television program highlights wildlife conservation activities throughout the Nation. A 10 minute segment of the Project's unique relationship with Pheasants Forever aired in the fall and winter of 2005. Native grass restoration was also emphasized. This program occurs weekly on the Outdoor Life Network.

Toppenish Review Newspaper – July, 2005. An in-depth article on the Project was written. It emphasized the protection and restoration of the wetland components of the Project. This is included in the Appendix to this report.

Washington Hunting And Fishing News – October, 2005. An article highlighting the public hunting opportunities of the Project was included in this statewide publication. It is also included in the Appendix to this report.

Trimble Company Publication – 2005. Activities conducted by the Yakama Nation's engineering Program in the Project Area were the subject of an article in the company's periodical. This emphasizes the innovative nature of the restoration work being done in the Project Area. This article is included in the Appendix.

Budget

Budget Information

Budget and expenditure information is summarized below. The operating budget expenditures totaled \$749,438. The land securing portion totaled \$765,107.

Personnel

The largest allocation of the budget is devoted to salaries and fringe benefits. In FY01, the project personnel included the following:

<u>Position</u>	<u>FTEs</u>	<u>Budget</u>
Biologist	1.3	\$56,537.60
Archaeologist	1.0	\$42,556.80
Habitat Technician	6.3	\$178,318.40
Office Support	0.8	\$26,716.80
Planner	1.0	\$31,030.40
Subtotal	10.4	\$335,160
Fringe		\$84,795.00
TOTAL	10.4	\$419,955.00

Project Cost Savings

The **Bureau of Reclamation** (BOR) funds wetland restoration activities throughout the Yakima Basin. In FY05 BOR provided funds (\$64,000) for a grade control structure on the North Satus Wildlife Area. This structure was installed in September of 2005. It provides stable flows for the wetlands and side channels of the Satus Wildlife Area.

The **North American Wetlands Conservation Act** (NAWCA) project completed in FY99 was considered such a success by the funding agency they requested that a follow up project be submitted. A NAWCA grant proposal was submitted in July 2005. This proposal was seeking \$1,000,000 to restore wetlands at the Lower Satus Creek Wildlife Area, the Old Goldendale, Meninick, and Pumphouse Properties. Some of these funds would also be used for work on Washington Department of Wildlife's Sunnyside Wildlife Area. The July submittal did not score high enough to gain funding, but another proposal was submitted in March of 2006. This proposal was enhanced and should provide a better chance of being funded. This proposal is included as an Appendix. This project is the only project approved by NAWCA to use BPA dollars as non-federal cost-share. This is because the Yakama Nation was instrumental in the writing of the federal legislation covering the Yakima River Basin Water Enhancement Plan (YRBWEP). Language in this bill specifically defines BPA funds as non-federal cost share in the Yakima Basin. Cost share commitments by the ten partners in this proposal total over \$2,500,000. The proposal provides details regarding the partners, projects and funding levels of each entity.

The U. S. Department of Agriculture's **Conservation Reserve Enhancement Program** (CREP) is designed to provide buffers along salmonid-bearing waterways in Washington. Because this project goes far beyond buffers, and is implementing full floodplain restoration, USDA officials have been

working with the project to implement a CREP project to compliment these efforts on Reservation. This will involve a pilot project consisting of 5,000 acres to be restored to native upland grass communities. All acreages will be agricultural lands which were previously irrigated with river or creek water. The enrollment of these lands will directly benefit instream flows for Toppenish, Satus, and Ahtanum Creeks. Though the NEPA work has been completed on this project, USDA personnel have raised significant roadblocks to its completion. Work to complete this agreement will continue in 2006, however the fate of this effort is uncertain.

Funding from another USDA program, the **Wildlife Habitat Incentives Program** (WHIP) has been secured for restoration activities at two Project sites, the North White Swan and Campbell Road properties. The funding for these two projects exceeds \$10,000. The funded work is related to native grassland restoration activities. This work will occur in 2006.

A large wetlands restoration project funded by the USDA's **Wetlands Reserve Program** (WRP) will be implemented in 2006. This project, totaling over \$300,000, will occur within the Toppenish Creek floodplain from the South lateral A property through the Campbell Road property. Encompassing more than 3 miles of floodplain lands, this is one of the most comprehensive hydrologic restoration actions completed to date along Toppenish Creek. Wetland, sidechannel and main channel reconnection will result.

A proposal to fund wetland restoration at the Satus Wildlife Area will be submitted to the **Intermountain West Joint Venture** (IWJV) Council in June of 2006. This proposal will ask for \$60,000 for work restoring the hydrology of Teal Lake.

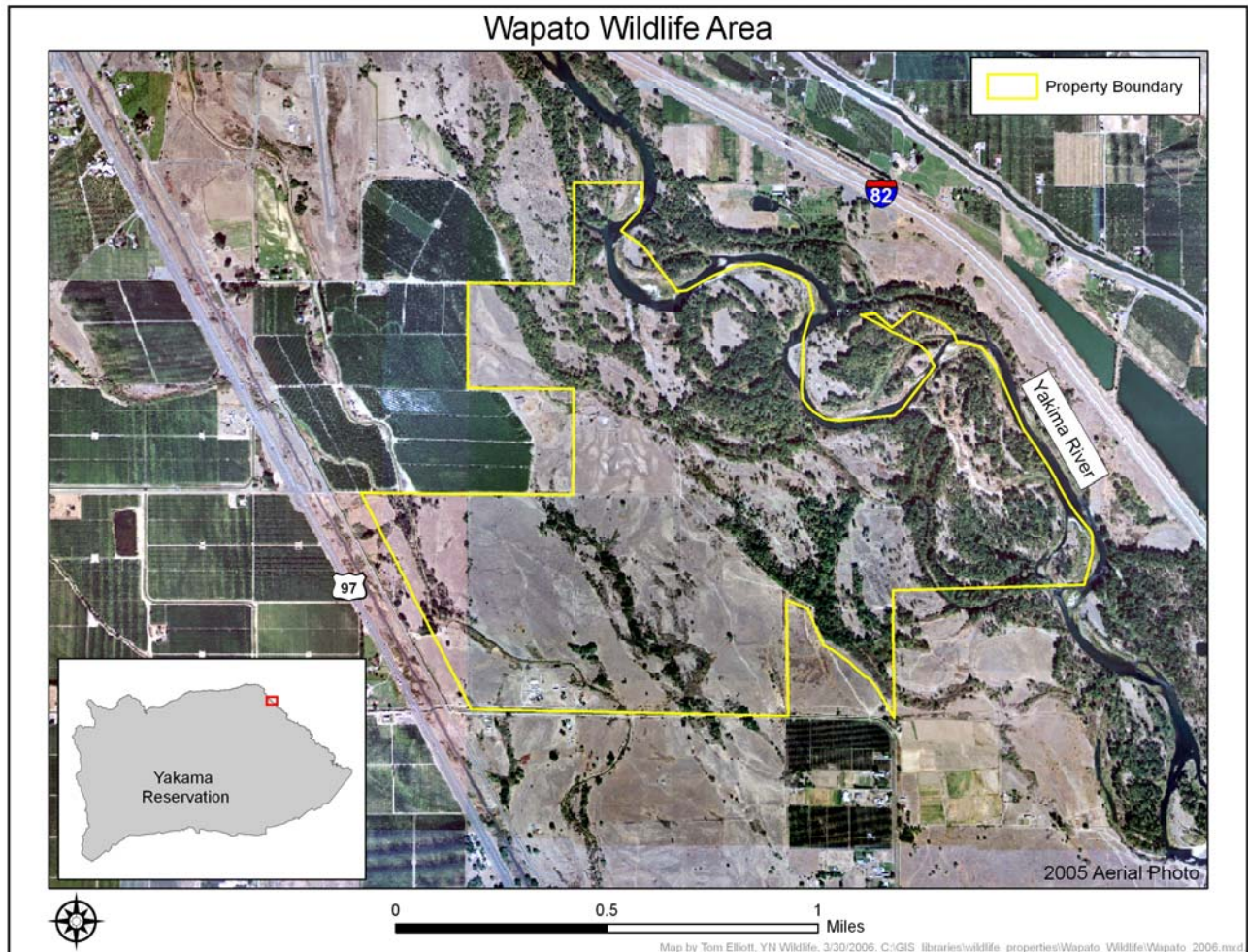
Three projects totaling over \$60,000 have been secured through the U. S. Fish and Wildlife Service **Partners For Fish and Wildlife Program**. This funding will address beaver, wild horse, and grassland issues within and adjacent to the Project area.

The following list is a summary of the project savings for 2005-2007.

<u>Program</u>	<u>Savings to the Project</u>
NAWCA (proposed)	\$1,000,000
NAWCA Partners	\$2,500,000
BOR	\$64,000
USDA Wetlands Reserve Program	>\$300,000
USDA Wildlife Habitats Incentive Program	\$10,000
IWJV (proposed)	\$60,000
USFWS Partners for Fish & Wildlife	>\$60,000
Total	>\$3,994,000

PROPERTY-SPECIFIC REPORTS

Wapato Wildlife Area (Priority Area 3):



Land Secured

Total Acreage:

753

Spawning by Fall Coho salmon was first documented on this property in FY99. Rearing salmonids were documented in September 2000 in the same area as the spawning was observed. Continued monitoring of rearing activities are conducted periodically. This reach contains the smallest percentage of non-native fish of any reach in the Yakima Subbasin. Juvenile coho were present on the property throughout the summer. An active bald eagle nest was discovered here in 2005. This nest produced one fledged eagle. Nesting activity was again documented in the spring of 2006. Monitoring of this nest will occur in the summer of 2006 to determine its success. This nest is one of only three active nests on the Project area.

Restoration

Restoration activities are complete on the Wapato Wildlife Area. All of the areas targeted for native grass restoration have been planted. Limited riparian weed control and replanting may be needed over

the course of the next few years. A major irrigation canal that crosses through the property was piped in FY01. This has aided flood passage across the property.

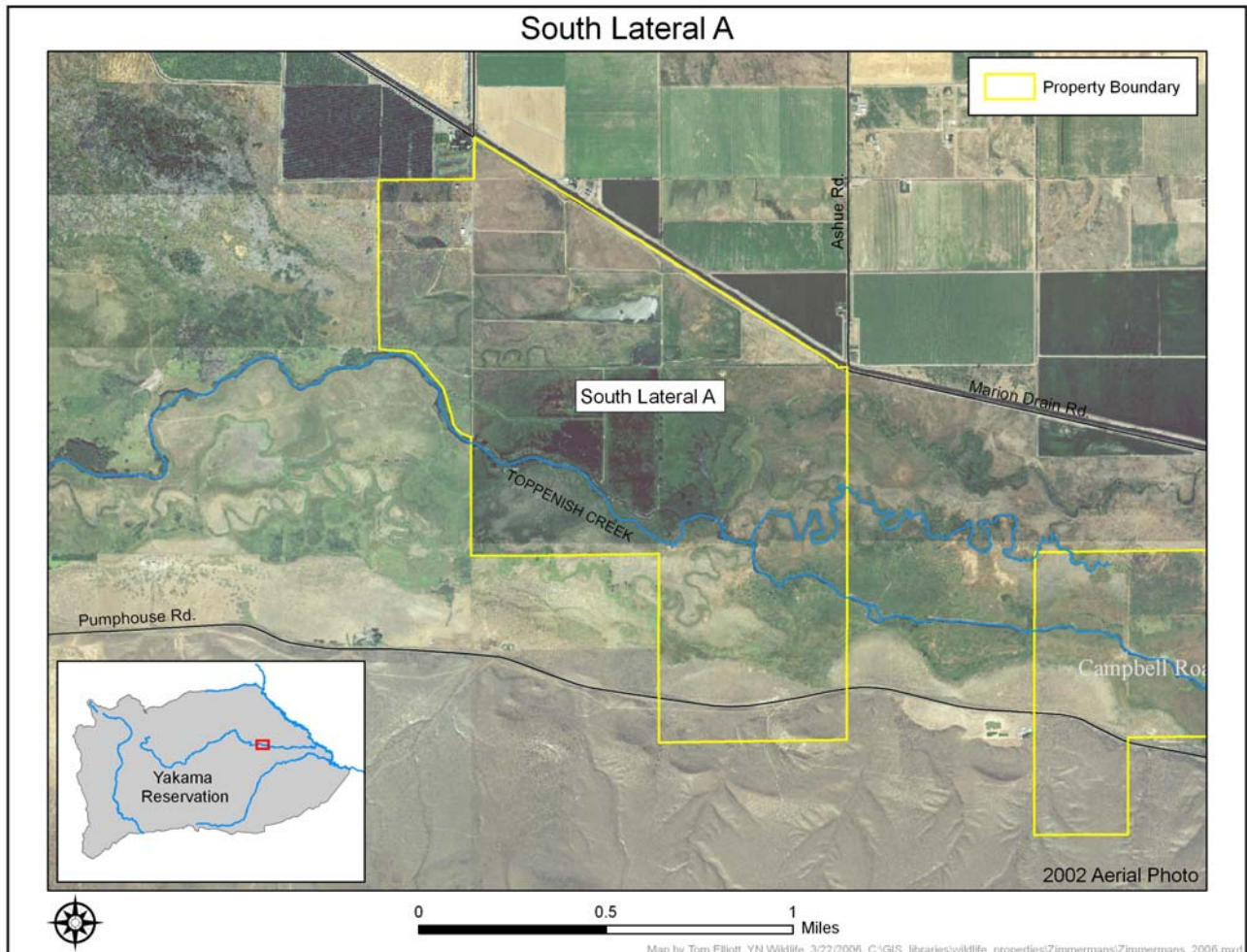
Operation and Maintenance

O & M activities include: weed control (mostly purple loosestrife and Scotch thistle), fence maintenance, water control and maintenance, and property posting. A growing concern on this property is the increase in garbage dumping. The proximity of this property to the city of Wapato, makes it a convenient dumping ground. Increased fence repair and garbage removal activity has occurred here over the past few years.

Future Activities

Expansion of the Wapato Wildlife Area up and downstream of the present property is planned.

South Lateral A (Priority Area 1):



Land Secured

Total Acreage:

603

Enhancement

Vegetation restoration occurred on approximately 45 acres on this property. Initial weed control was initiated in summer 2005. Invasive plants were mowed and disked to reduce the weed biomass, kill above-ground stems, and stress underground root structures. Dominant weeds on these sites are: Canada thistle, prickly lettuce, Russian thistle, kochia, and field bindweed. One site was disked again in March 2006 to prevent weed resprouting following winter precipitation. These areas will be planted with native grasses in 1-2 years after weeds are adequately controlled.



Yakama Nation Wildlife technician disks field at South Lateral A to control perennial weeds. Non-native tall wheatgrass (Agropyron elongatum) is on the lower left.

A population of Indian hemp was salvaged from a private agricultural field and transplanted to this property. Indian hemp is used in traditional manufactures and arts that have domestic, spiritual and ceremonial uses. Yakama Nation employees and volunteers assisted with removing approximately 300 plants and root structures from a hop field and planting them in a prepared site. In spring 2006, new buds were appearing on the transplants. A subset of the plants were marked to monitor survival longer-term.



Yakama Nation Wildlife employees plant Indian hemp root stocks into prepared bed at South Lateral A property.

Operation and Maintenance

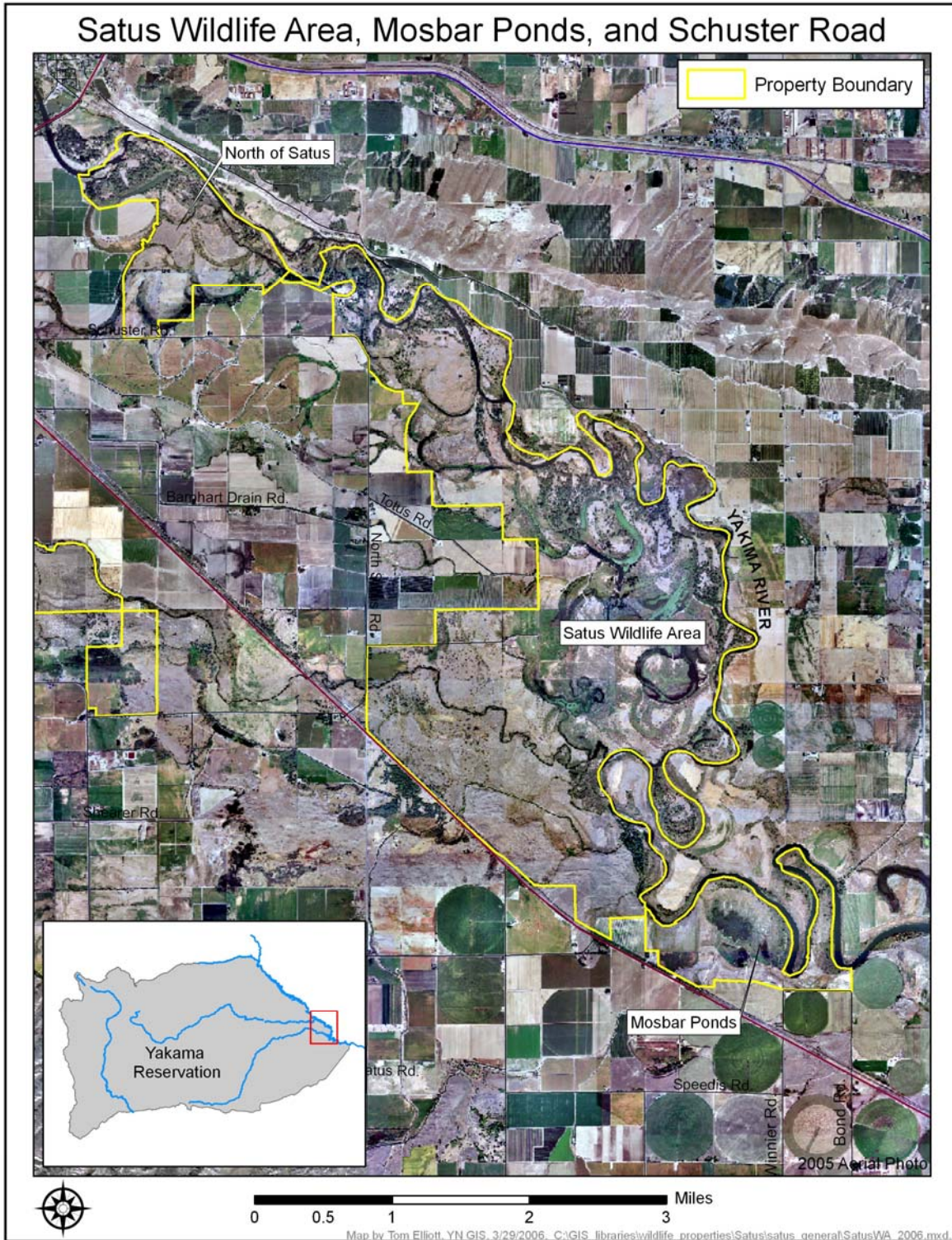
Over 150 acres were planted to Great Basin Wild Rye in the fall of 1997. These plantings were extremely successful. The restored wetland areas were managed as waterfowl brood cover this summer. Native species such as wapato, burreed and bulrush are filling the wetland areas nicely. Traditional harvest of the bulrush stands occurred again this year. The value of these tules for mat construction is

extremely high. Traditional tule bed management will occur in those wetlands also managed for waterfowl brood production. Annual harvest will allow the bulrush stands to maintain a density desirable for optimum brood feeding and protection. Annual mowing and burning activities have resulted in a near total replacement of undesirable cattail beds by tule and wapato communities. Wapato (*Sagittaria latifolia*) is an important emergent wetland plant from both a wildlife and cultural perspective. Though it was common historically, years of wetland destruction and disturbance have nearly eliminated it from the valley. These wetlands will be managed more and more toward the promotion of moist soil and wapato plants as the newer wetlands revegetate to adequate brood cover. Irrigation water was used to augment the northernmost wetlands after the north channel dried. This greatly aided in the management of the wetlands during the extremely dry and hot summer. This summer's drought once again caused much of the property to be dewatered. This condition allowed further control activities on the Eurasian watermilfoil sites. These wetlands will be monitored annually to ensure that milfoil growth remains in check.

Future Activities

As with the Wapato Wildlife Area, this property may be expanded up and downstream as the opportunity arises. Nearly all of the land surrounding the property is tribal or individual allotment.

Satus Wildlife Area (Priority Area 2):



Land Secured
Total Acreage:

4,558

Restoration

After several growing seasons of water management on the property since restoration, the exotic lily pad infestation remains reduced by approximately 50-70%. Less desirable coontail and bladderwort communities also seemed to be greatly reduced.

Wetland restoration activities for 2005 included the installation of a grade control structure on the north portion of the property. This project, funded by the Bureau of Reclamation, is now providing stable flows into the wetland and side channel habitats of the property.

A large Russian olive removal project funded by the Bureau of Indian Affairs is ongoing. This project removed 1,000 acres of olive trees in 2004. In 2005 the remaining olive piles were burned. Treatment of the regrowth is currently occurring and will continue for the next several years. Olive infestation areas will be replanted to native vegetation as well over the course of the next few years.

Cattle management on this property significantly changed in 2005. A 10 year cattle lease which allowed grazing for 250 pairs from April through September expired at the end of 2004. This lease was not renewed. Currently the grazing plan has changed from 250 pairs to 75. Vegetation response to this alteration in the grazing will be monitored over the course of the next few years. Native grass restoration will also occur in association with this grazing reduction.

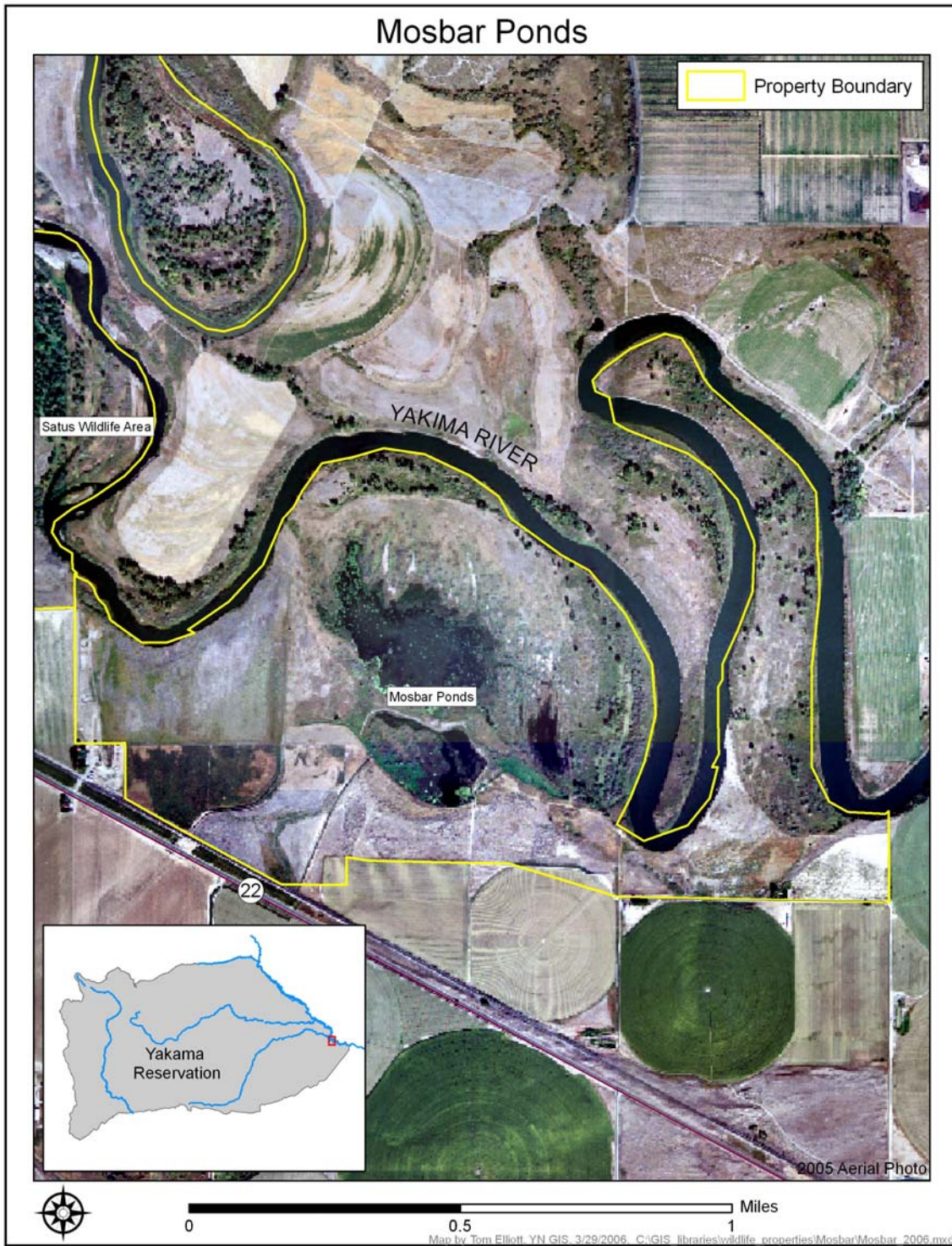
Operation and Maintenance

O&M activities include fence repair, road and water control structure repair, olive and weed control, food plot management, burning, cattle management, and water level manipulation. Russian olive removal will be an ongoing management activity for many years.

Future Activities

Native vegetation re-establishment and wetland restoration activities are the major future plans for this unit. A proposal for funding a Teal Lake restoration project is being submitted to the Intermountain West Joint Venture Committee in June of 2006.

Mosebar Pond Unit (Priority Area 10):



Land Secured
Total Acreage:

520

This property was secured in FY 1998. It connects to the south boundary of the Satus Wildlife Area and continues downstream several miles along the Yakima River. The property is composed of a large oxbow slough wetland complex, riparian shrub, riparian forest and upland grass habitat types.

Restoration

Restoration activities began in FY99. Approximately 30 acres of disturbed uplands were resloped and planted to a great basin wild rye mix. This area was in great danger of erosion due to overgrazing in the past. The east field seems to be growing well, the west portion, however, was anear failure. Future grass restoration is planned for the coming years.

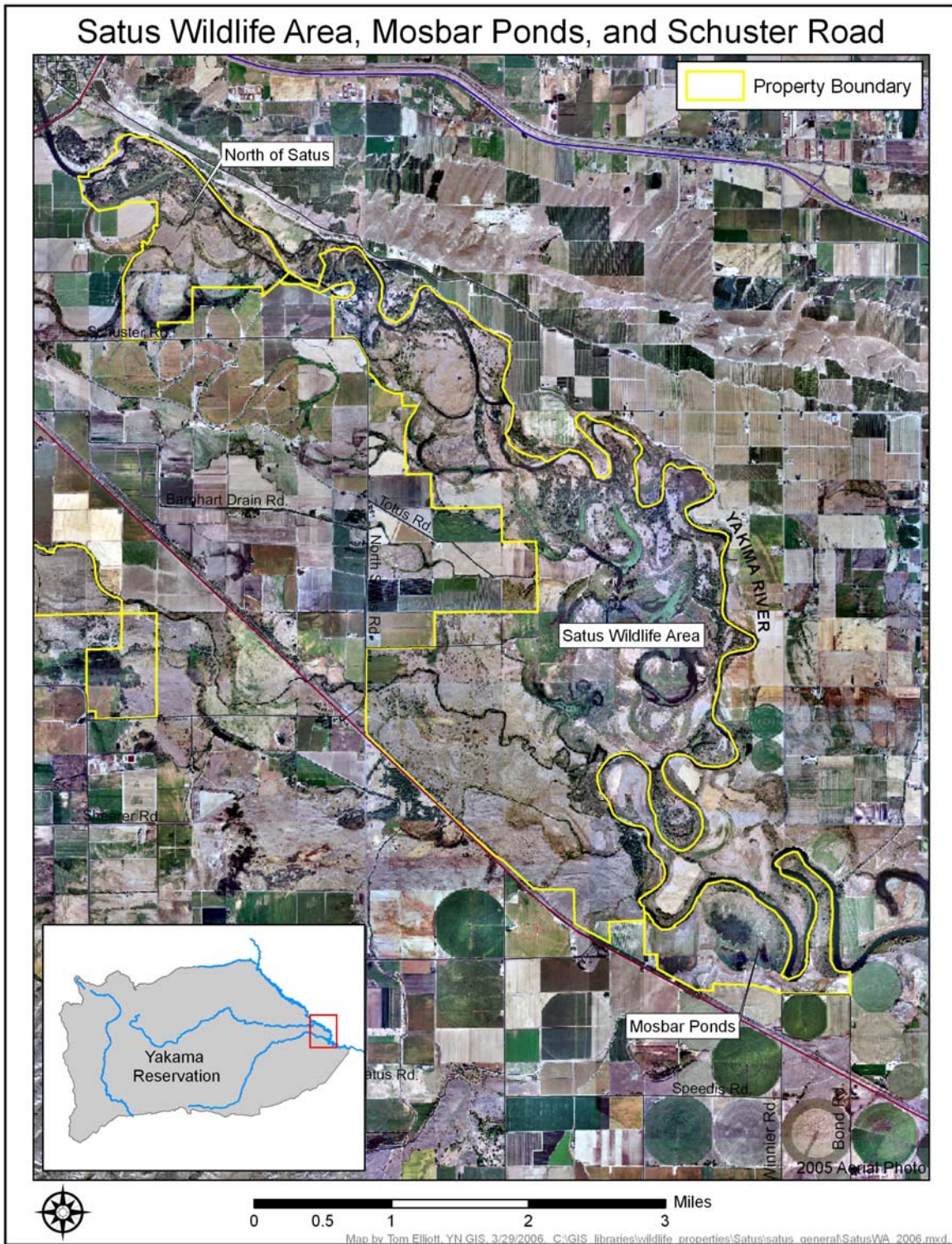
As with the Satus Wildlife Area, the Bureau of Indian Affairs also funded Russian olive removal activities on this property. This activity will also be ongoing for the next several years.

A large wetland restoration project occurred in the summer of 2001. It involved gaining water control on the nearly 200-acre Mosebar Pond. This wetland area is comprised of a perched oxbow slough, which is only connected to the Yakima River during flood events. The restoration allows water level control and periodic drawdown. The irrigation pump pond was expanded and disconnected to Mosebar Pond. This was necessary because recent agricultural activities along the drain feeding the pump pond have caused deterioration of the water quality entering the pump pond. The restoration was highly successful. A summer drawdown of Mosebar Pond during construction allowed over 200 white pelicans access to the carp population that has infested the pond. It appears that the drawdown and subsequent pelican predation have removed significantly removed the carp from the pond. Monitoring will occur periodically to assess the carp populations. As they increase to undesirable levels, summer drawdown management will be used to keep them under control. This restoration was funded by the U. S. Department of Agriculture's Wetlands Reserve Program.

Operation and Maintenance

O&M activities will consist of fence repair, wetland management, and upland grass maintenance and weed control.

North of Satus Unit (Priority Area 5):



Land Secured
Total Acreage:

1,110

This nearly 1,000-acre area borders the Satus Wildlife Area to the north and follows the Yakima River nearly to the city of Granger. It includes the confluence of Toppenish Creek and the Yakima River and the area within which the Satus Wildlife Area wetlands are connected to the river. Habitats include wetland; riparian shrub, herb and forest; and upland grass. Overgrazing for many years has heavily impacted the property. Groundwater well transects were established on this property in 2000. These transects, monitored by USGS are looking at the hyporheic response to the channel reconnection which occurred on this property after the flood of 1996. Central Washington University is currently monitoring this area.

Restoration

The grade control structure identified in the Satus Wildlife Area report was constructed on this property. It provides stable flows for the wetland and side channel habitats here, and on the Satus Wildlife Area. Russian olive removal funded by the Bureau of Indian Affairs is also occurring on this property. Passive restoration, combined with minor scotch thistle control, is providing the enhancement of grass and riparian habitats. Grass planting activities will occur on portions of the property in the next few years.

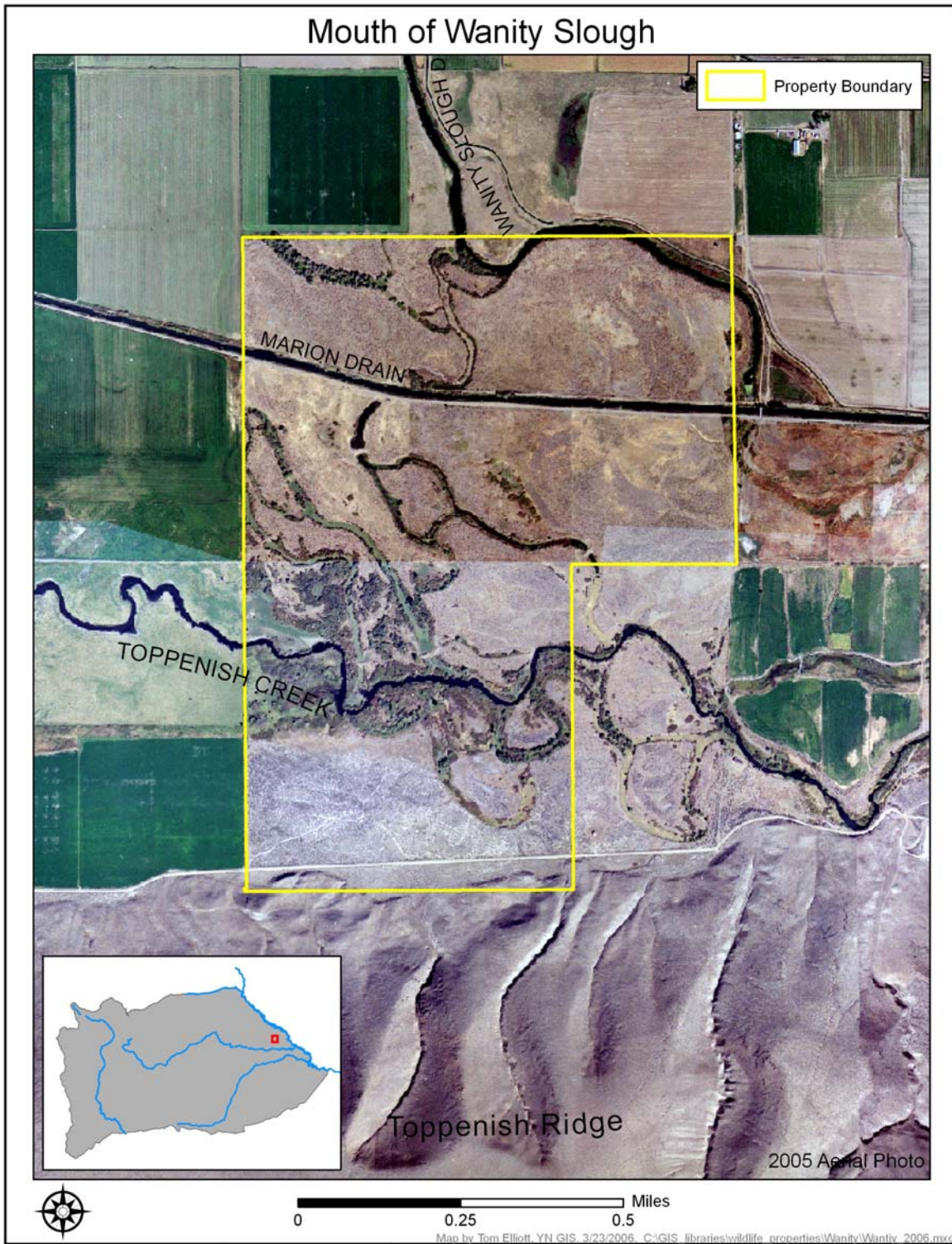
Operation and Maintenance

O&M activities consist of fence repair, wetland management, and upland grass maintenance and weed control.



Grade Control Structure installed on North Satus Property

Mouth of Wanity Slough (Priority Area 11):



Land Secured
Total Acreage:

400

This property consists of 400 acres of land along Toppenish Creek where Wanity Slough historically entered the creek. Wanity Slough, originating from the Yakima River near Union Gap, flows through the valley and presently is cut off by Marion Drain one half mile from its historic confluence with Toppenish Creek. This area consists of multiple channels that have been disconnected hydrologically from Wanity Slough since the 1920's.

Restoration

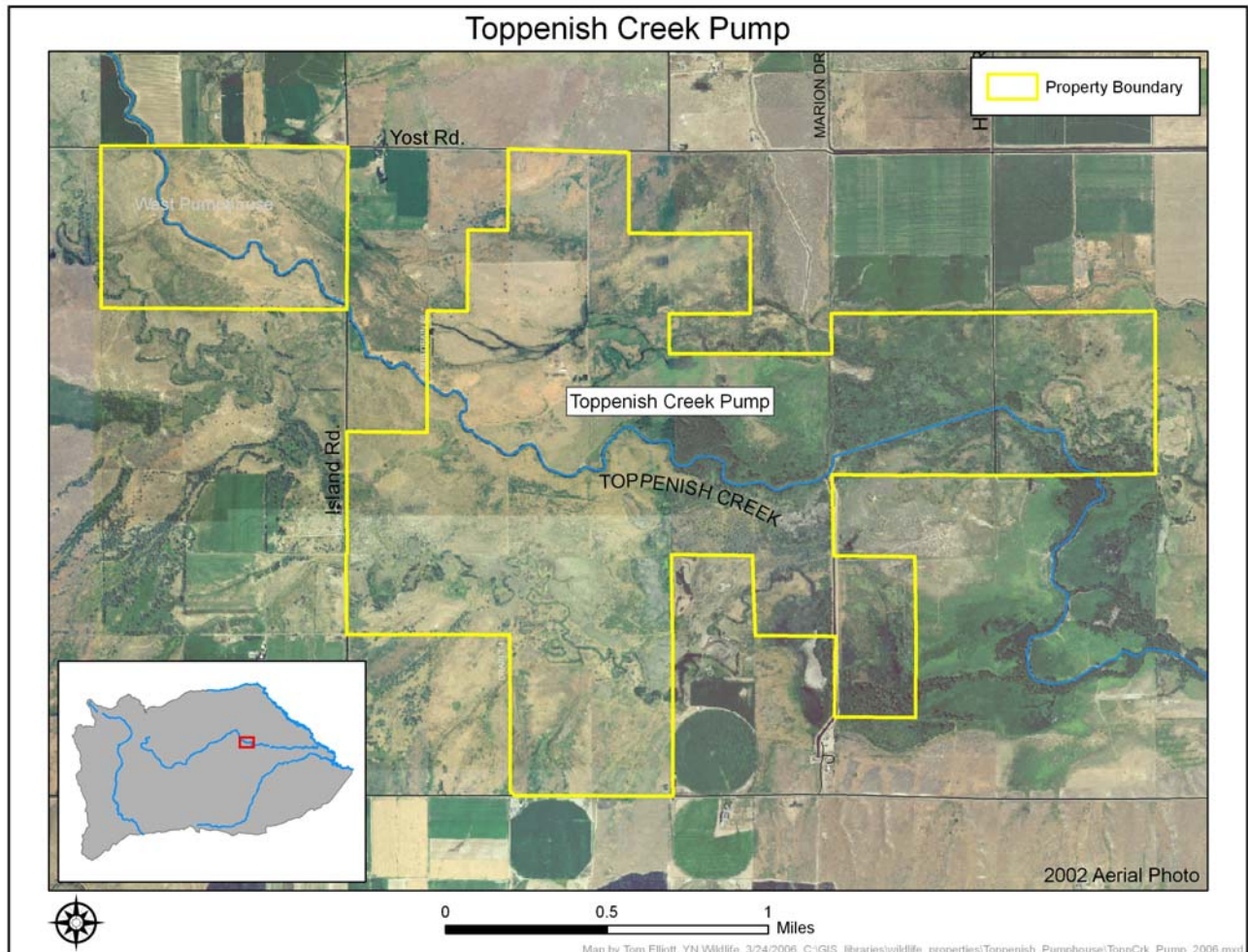
Restoration of this property consists of reconnecting the Wanity Slough hydrologically through a series of wells that will tap into the upwelling groundwater entering Marion Drain. Wells have been installed at the upper ends of two side channels. A solar pump was installed in 2000 to supply water to one of the channels. The Bureau of Reclamation funded the well installation and solar pump. The pump has a capacity of 150 gallons per minute and seems to be working very well in supplying the necessary hydrology to the channel it is situated on. Water control structures, also funded by BOR, were installed along the slough fed by this pump in 2001. Monitoring of the success of this restoration will determine whether additional wells will be needed. According to the staff at BOR, this solar pump station may be the largest such station used for natural resources enhancement in the northwest.

The vegetation of this area has been lightly grazed for many years and is relatively intact. Portions of the Unit have been excluded from grazing, however, grazing will occur on much of the area. This property is within an area defined since 1932 as a waterfowl no hunting reserve. Because of this it is used by tens of thousands of waterfowl each fall and winter. By reconnecting the wetlands on the unit, tremendous waterfowl production and wintering benefits will be realized at an extremely low cost.

Operation and Maintenance

O&M activities consist of fence repair, wetland management, and upland grass maintenance and weed control. The pump station requires periodic maintenance such as cleaning of the panels, however it is fairly self-sustaining.

Toppenish Creek Pump (Priority Areas 12, 15):



Land Secured

Total Acreage:

1,589

This property consists of a large wetland complex amid a multi-channeled portion of Toppenish Creek. Though the landscape of this property is relatively untouched, much vegetation and hydrologic alteration has occurred. Much of this property is managed as a wintering waterfowl reserve.

Restoration

A large restoration effort occurred on this property in 1999. Historic channels were reconnected north and south of Toppenish Creek. Nearly 200 acres of extremely dense Russian olive habitat was removed south of Toppenish Creek. Portions of this area will be replanted to wild rye over the course of the next few years. The wild rye plantings from 1999 are growing very well. This area receives much use by wintering waterfowl and upland game birds.

In the 1920's a dairy and a homesite were built on the property. This site occurred directly on a filled side channel. The home site was removed early in 2001. The remaining buildings and corrals were burned or dismantled. Removal of the homesite will allow for the reconnection of the side channel over the course of the next few years. Much of the remaining hydrologic restoration will be funded by the

BIA flood abatement project. The planning for this effort began in FY00. Implementation of this project will occur in 2006-2007.

An experimental spring and early summer pasture (~40 acres) was incorporated into the project in FY01. This area is infested with reed canary grass and has not received hydrologic reconnection at this time. Grazing allowed the reed canary grass to be reduced, promoting moist soil plants. Waterfowl wintering and migration use of the pasture land increased greatly due to this management practice.

A fish screw trap, purchased for the Project by Ducks Unlimited, has been in operation on this property for several years. Juvenile steelhead are captured and tagged. These monitoring efforts, conducted by the Yakama Watershed Project, are very important in the development of our understanding of steelhead use of the Project area. This monitoring has emphasized the importance of this area for steelhead juvenile rearing. Monitoring on this property and on the Toppenish National Wildlife Refuge 10 miles downstream, has shown that juvenile steelhead gain much of their body mass while rearing within the Project area. Juvenile rearing begins in the Project area in November each year. Migration out of the Project area generally occurs in April or May.

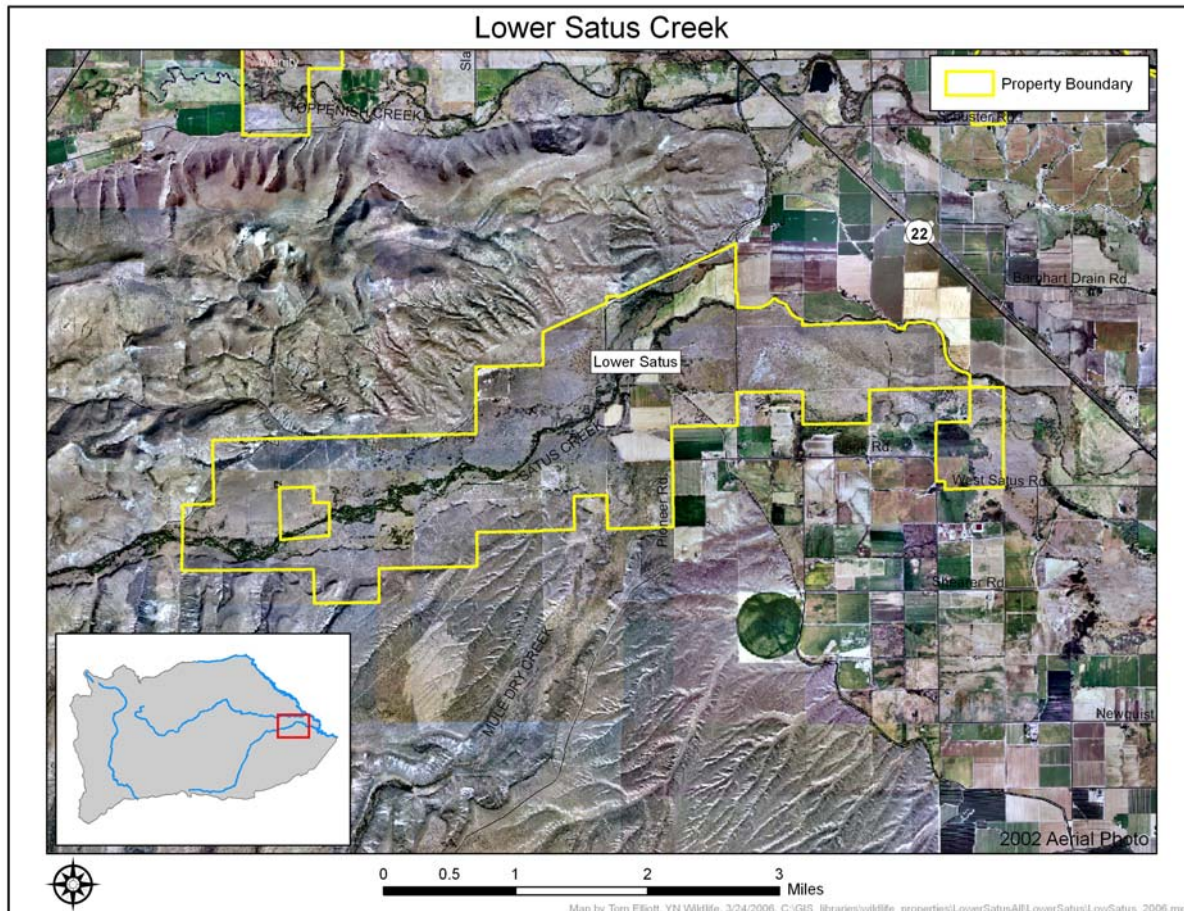
Operation and Maintenance

O&M activities consist of fence and road repair, wetland management, and upland grass maintenance and weed control.

Future Activities

Land was added to this property in 2005. Plans are being developed for the hydrologic reconnection of this newly acquired land. Incision of Toppenish Creek in this area has caused dessication of wetland and side channel habitats. The reconnection of Toppenish Creek with its historic channel will allow the hydrologic restoration of the portion of this Unit south of Toppenish Creek.

Lower Satus Creek Unit (Priority Area 4):



Land Secured

Total Acreage:

3,839

This Approximately 2,000 acre area was secured in 1999. A 400 acre addition was made to this property in 2005. The unit consists of mostly tribal land with some individual allotments included. Channel simplification and wetland loss are the major hydrologic impacts that have occurred on the property. Native grass and riparian areas persist in portions of the unit, though much of the area will require revegetation. The inclusion of this property into the restoration project has resulted in a total removal of the last remaining irrigation diversions on Satus Creek. Satus Creek is now free-flowing from the headwaters to its confluence with the Yakima River. As a part of the process to secure these lands, YN purchased a large portion of the Individual Allotments occurring in the area in 1998.

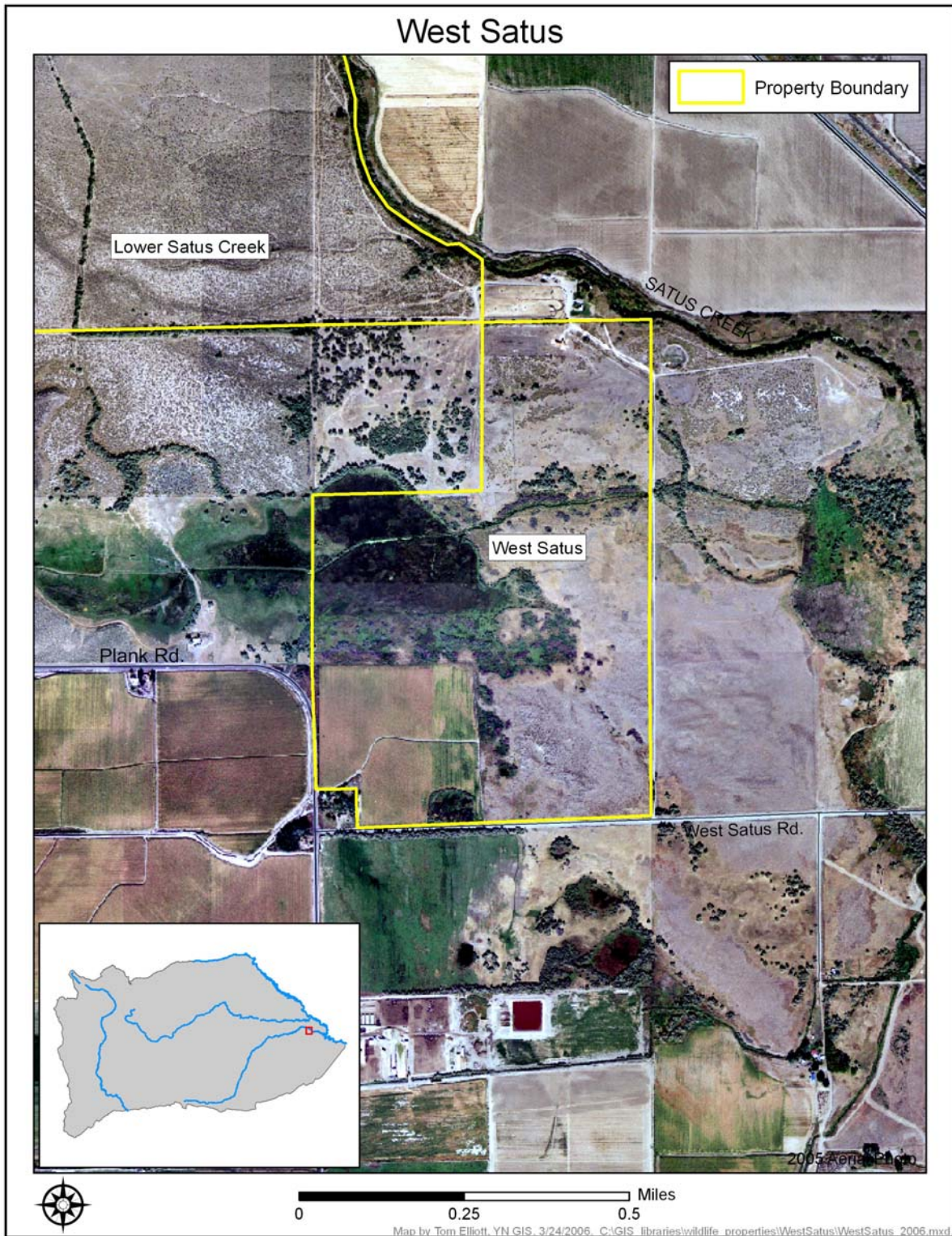
Restoration

The cultural and archaeological surveys began on this property in 2000. They were completed in 2001. A large side channel and wetland restoration effort is planned for 2006-2007. NAWCA funding has been sought for this project.

Operation and Maintenance

O&M activities consist of fence and road repair, upland grass maintenance and weed control.

West Satus Unit



Land Secured:
Total Acreage:

This property is the first area secured in Priority Area 13. Lands are currently being secured which will connect this property with the Lower Satus Creek Property. At this point only 3 miles of Satus Creek remain unprotected by this project and the Satus Watershed Project. Soon the most important steelhead production creek in the Yakima Basin will be protected from the headwaters to the mouth.

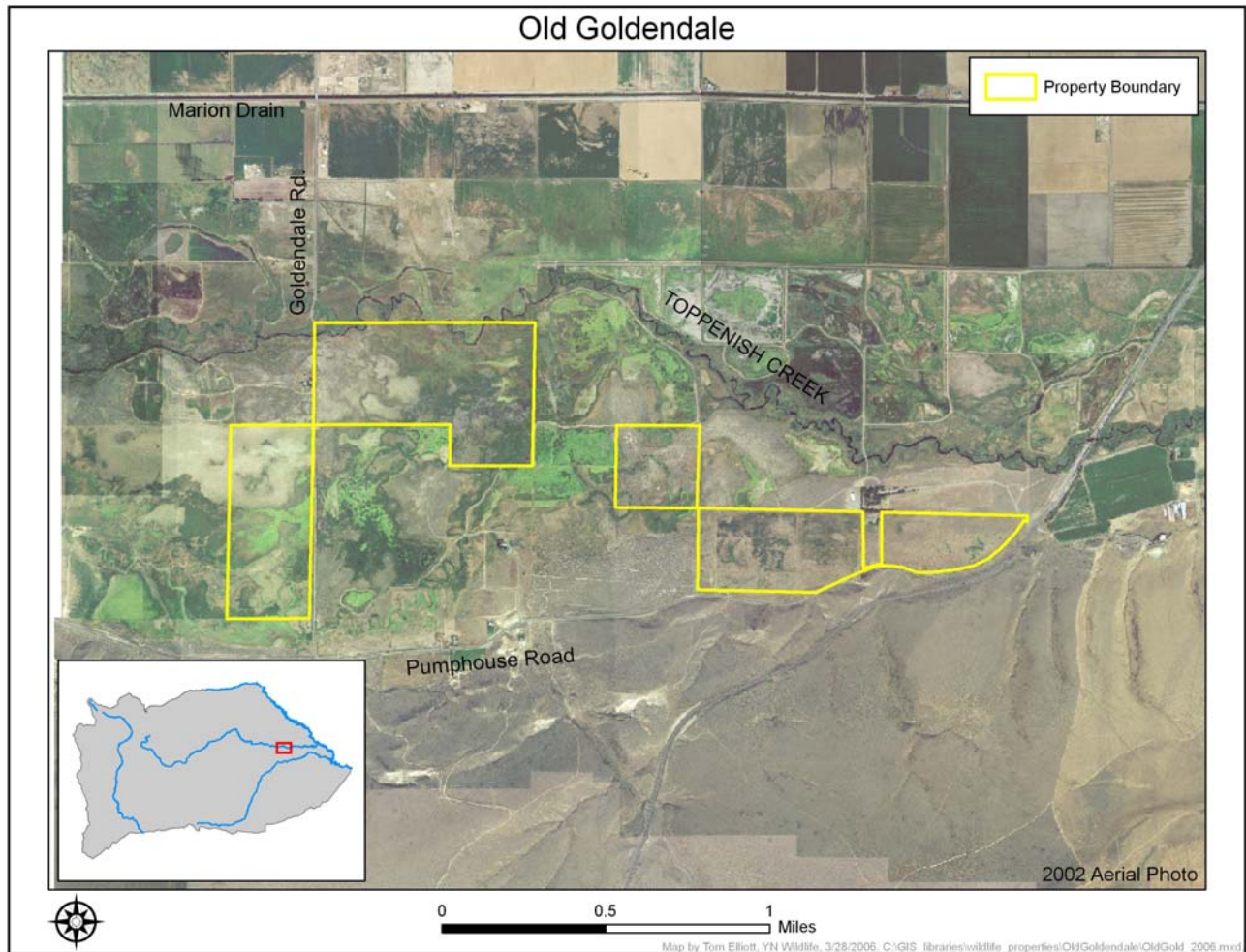
Restoration

Russian olive trees were removed on this property as a part of the effort funded by the Bureau of Indian Affairs. Further control will be ongoing for several years to come. Wetland restoration will not likely occur on this property for two to three years.

Operation and Maintenance

O&M activities consist of fence and road repair, upland grass maintenance and weed control.

Old Goldendale Road



Land Secured

Total Acreage:

407

This property, along Toppenish Creek, formerly contained a private duck hunting club. Waterfowl pond management involved a total blockage of Toppenish Creek to flood the hunting areas. This blockage has been removed and the wetlands are currently flooded only during moderate flood events on the creek. Cattle removal is allowing for grassland restoration. This property, situated directly adjacent to the Toppenish National Wildlife Refuge, contains wetland habitats historically in common with those on the Refuge. A large levee now separates them. Coordination with the Refuge in restoration activities will allow the reconnection of this large wetland area.

A landscape painter recently chose this property for a portrait. It has been printed as a limited edition poster to raise money for the Yakima Symphony Orchestra. This attests to the aesthetic nature of this project's landscape restoration methods. One goal of restoration activities on properties of this project is the natural appearance of the restored areas. Large, unnatural management structures, roads, etc. are minimized to maintain a property that not only functions naturally, but also looks as close to native as possible.

Restoration

Hydrologic restoration on this property is included in the NAWCA proposal. It will consist of the installation of a gradecontrol structure to stabilize flows in this incised reach of Toppenish Creek. Hydrologic connection will be restored with the adjacent wetlands of the Toppenish NWR as well.

Native plant restoration was initiated on 114 acres of this property in summer 2005. The parcels were mowed twice, and disked to control weeds. Dominant weeds at this site are perennial pepperweed, kochia and purple mustard. Weed control will continue during spring and summer 2006, and if adequately controlled, native grasses (basin wildrye, Sandberg's bluegrass and saltgrass) will be drilled in fall 2006. Native shrubs that are adapted to alkali floodplains will be planted after when grasses are established.

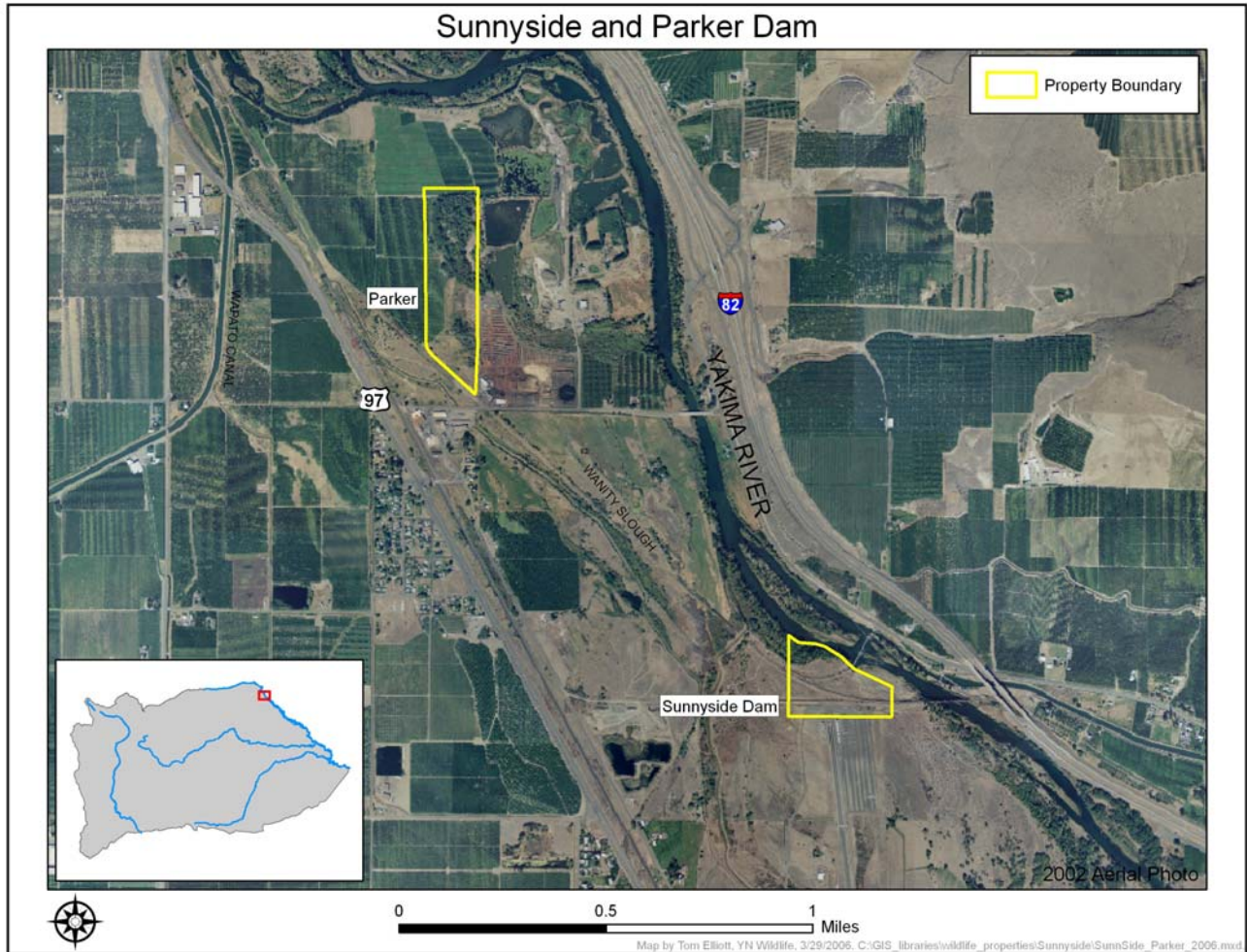


114 acres of the Old Goldendale unit is disked by a restoration technician in fall 2005.

Operation and Maintenance

O&M activities consist of fence and road repair, upland grass maintenance and weed control.

Sunnyside Dam and Parker Properties



Land Secured

Total Acreage:

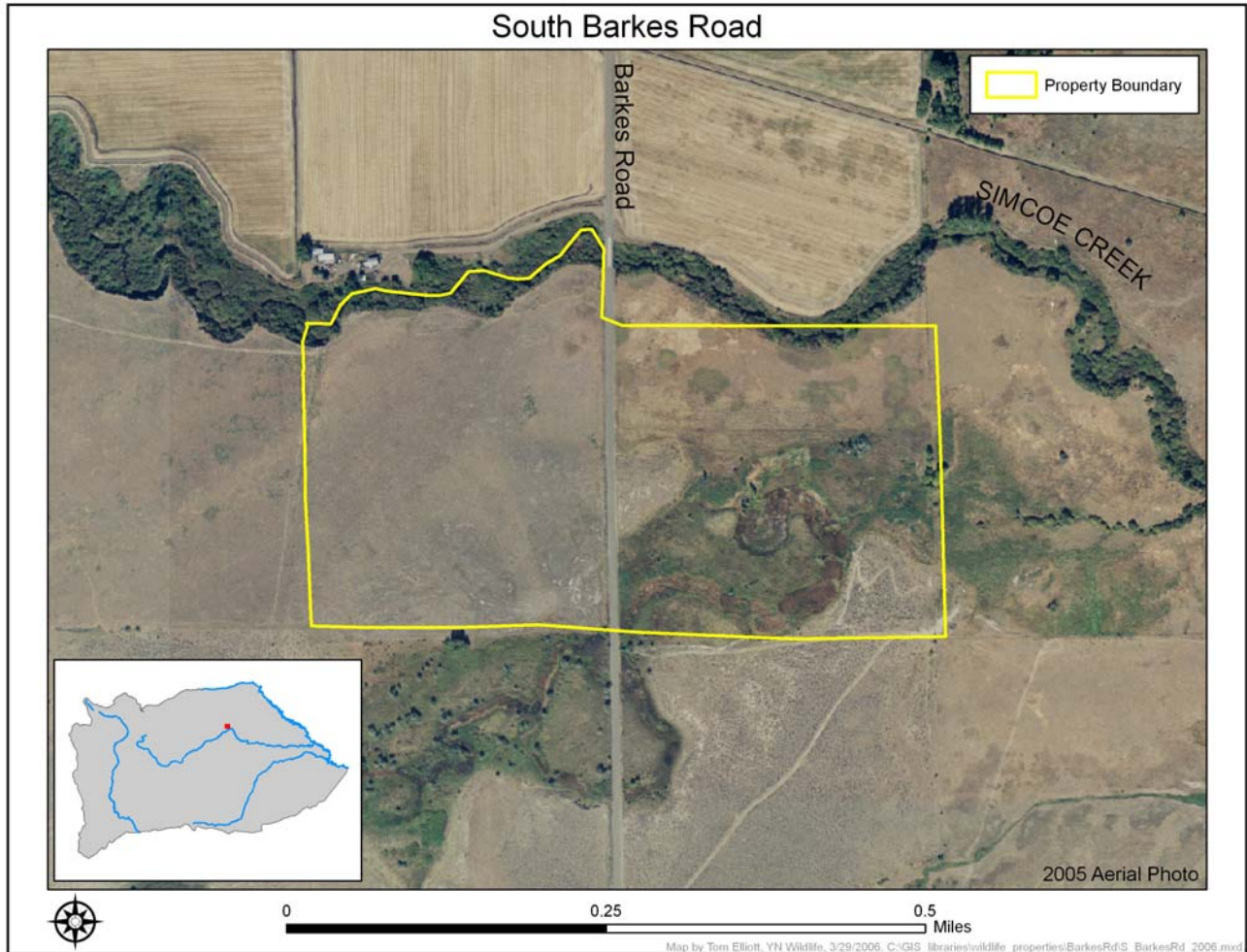
55

These properties, located along the Yakima River above the Wapato Wildlife Area, are undergoing passive restoration through the removal of cattle grazing. They are small parcels that will be connected to the Wapato Wildlife Area in the next few years as those areas become priorities for inclusion into the project. The Parker property contains a large winter village site.

Operation and Maintenance

O&M activities consist of fence and road repair, upland grass maintenance and weed control.

South Barkes Road



Land Secured

Total Acreage:

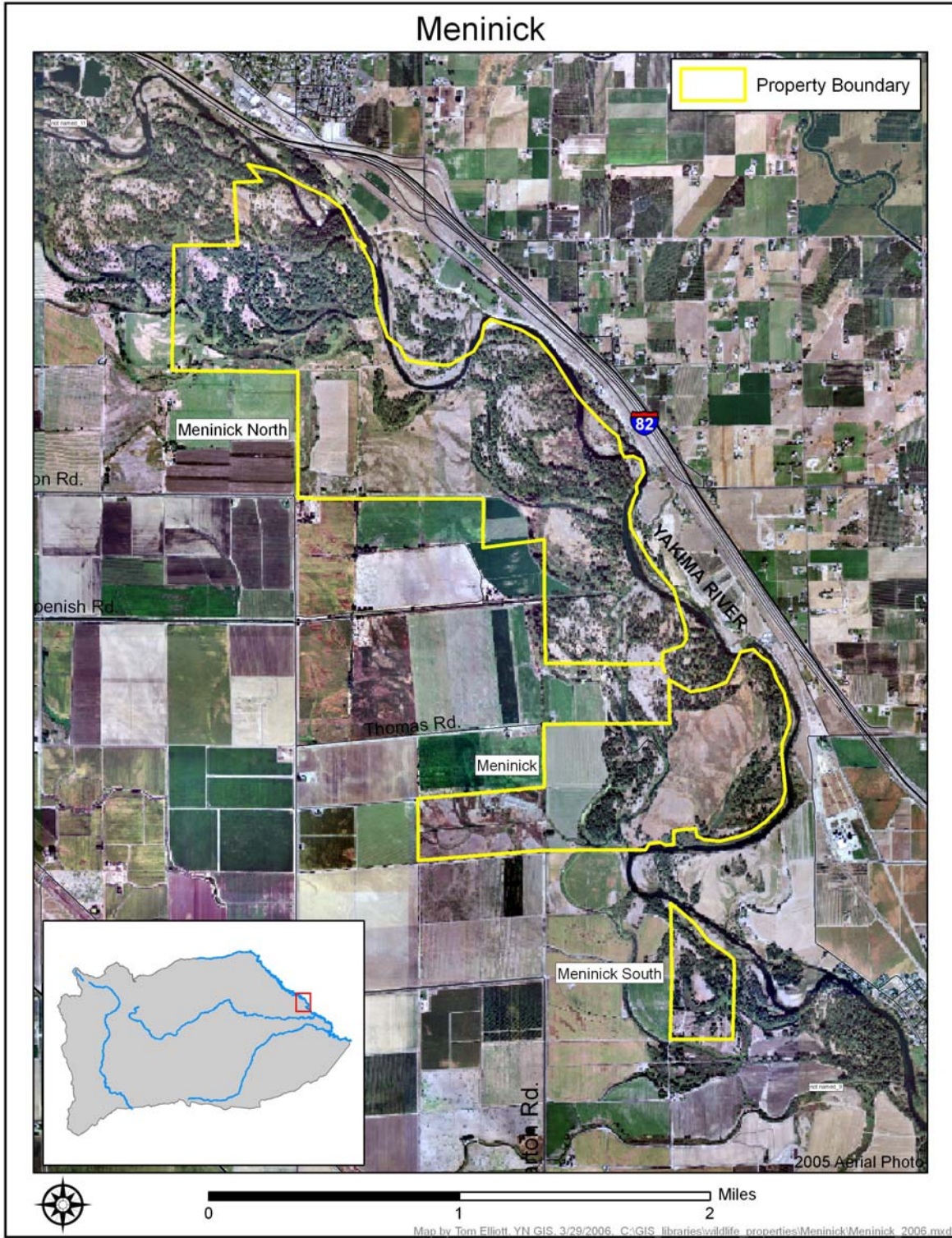
80

This small parcel, along Simcoe Creek, again was the first property secured in an area that will become a priority in the next few years. Great Basin wild rye has been planted to sixty acres of this property. A small wetland complex has also been restored with a water control structure donated by Ducks Unlimited.

Operation and Maintenance

O&M activities consist of fence and road repair, upland grass maintenance and weed control.

Meninick Wildlife Area (Priority Area 6)



Land Secured
Total Acreage:

1,499

This unit currently consists of much of the floodplain habitat near the Yakima River between the cities Zillah and Granger. This property consists of side channel, wetland, grassland and gallery cottonwood forests. A portion of the wetland and side channel habitats have been disconnected from the river due to levee development in the past. The project with Central Washington University is currently monitoring this area in anticipation of the side channel and wetland reconnection in the next year or so. NAWCA funds are being pursued to accomplish this reconnection. This project will be an important means of demonstrating the benefits of side channel reconnection from a fish, wildlife and hydrologic standpoint.

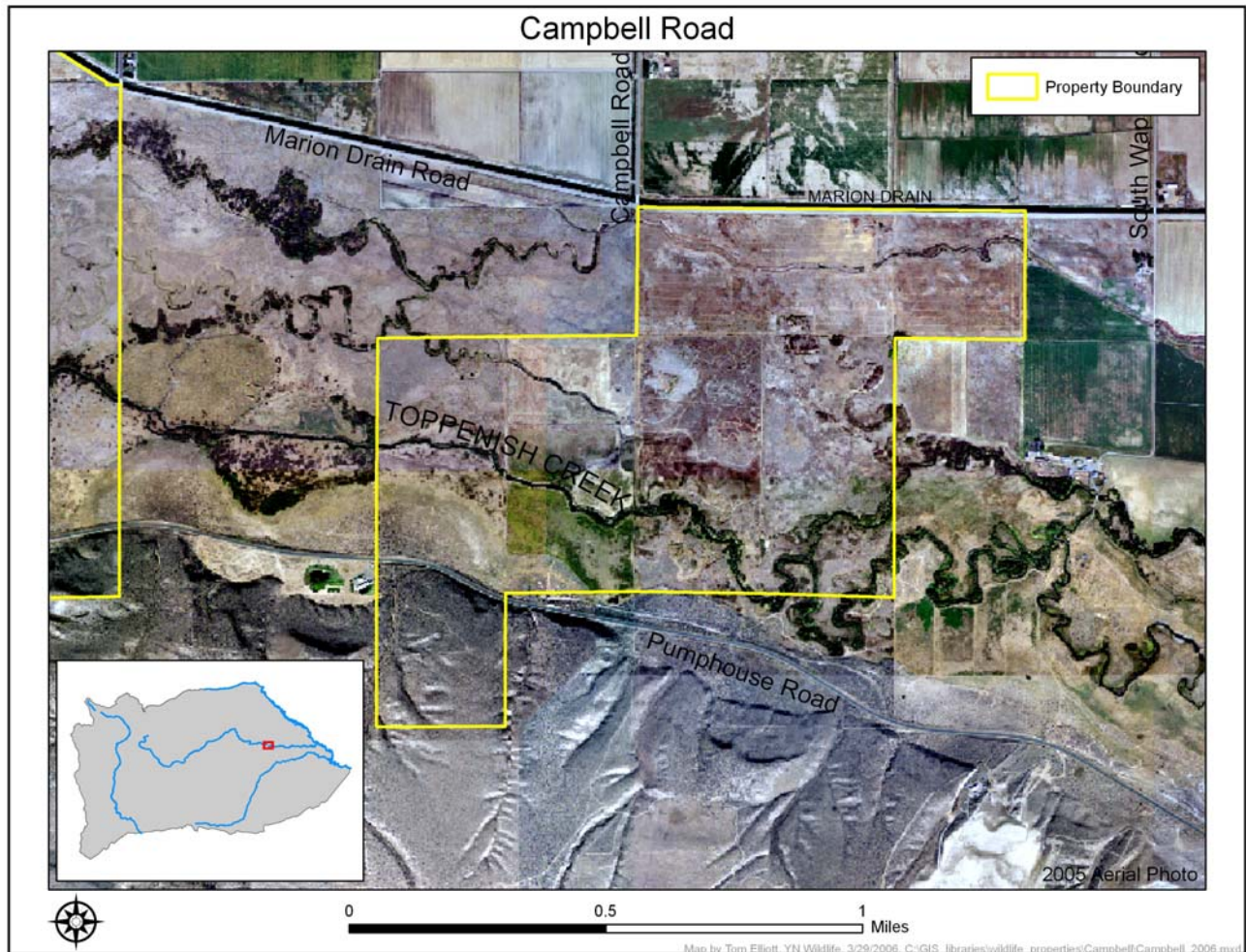
Restoration

Much grassland, wetland and side channel restoration will occur on this property for many years to come.

Operation and Maintenance

O&M activities consist of fence and road repair, upland grass maintenance and weed control. Because of the abused nature of this property when it was secured, weed control is a priority. Scotch thistle infestation has been extensive. Future irrigation debris removal will be necessary as well.

Campbell Road



Land Secured

Total Acreage:

485

This property is located along Toppenish Creek 3 miles east of the Lateral A property. It is composed of a multiple-channelled portion of Toppenish Creek floodplain. This property may be connected to the Lateral A unit in the future because the land in between is all tribal and allotment land managed as one cattle lease. When this occurs, a five mile portion of prime Toppenish Creek bottomlands will be incorporated into native habitat restoration and management

Two separate fee parcels were purchased in this unit in 2000. The landowners at that time were asking for a purchase price much above its assessed value. It then sold to a Canadian gun club. The Canadians, desperate to sell a property they could not manage efficiently as a club, were willing to sell to the Yakama Nation at a great loss. This type of situation exemplifies the benefits of a front-end loaded trust fund approach to land purchasing. The Project had the ability to walk away from a bad situation in the first place because it was not tied in to this particular property. When the land came available later at a reasonable price, purchase was possible.

The other 80 acre fee parcel purchased came on the market very suddenly. This property was an old mink ranch converted to a duck club many years ago. Because private gun club properties are becoming

more and more scarce along Toppenish Creek, it was considered a very desirable property. The trust fund approach that this project operates under allowed a very fast appraisal and bid offer on this land. Soon after the bid was submitted and accepted three separate gun clubs secured bids on the property in the event that our purchase fell through. The time that passed from the discovery of the sale to the final closing was less than one month. This property could not have been purchased if this project did not have a trust fund approach to funding.

Restoration

Hydrologic restoration of this highly disturbed property will occur in 2006. This is being conducted as a portion of a USDA-funded project under the Wetlands Reserve Program. Hydrologic restoration will occur from this property upstream to the South lateral A property. It is one of the most aggressive restoration projects implemented to date on Toppenish Creek.

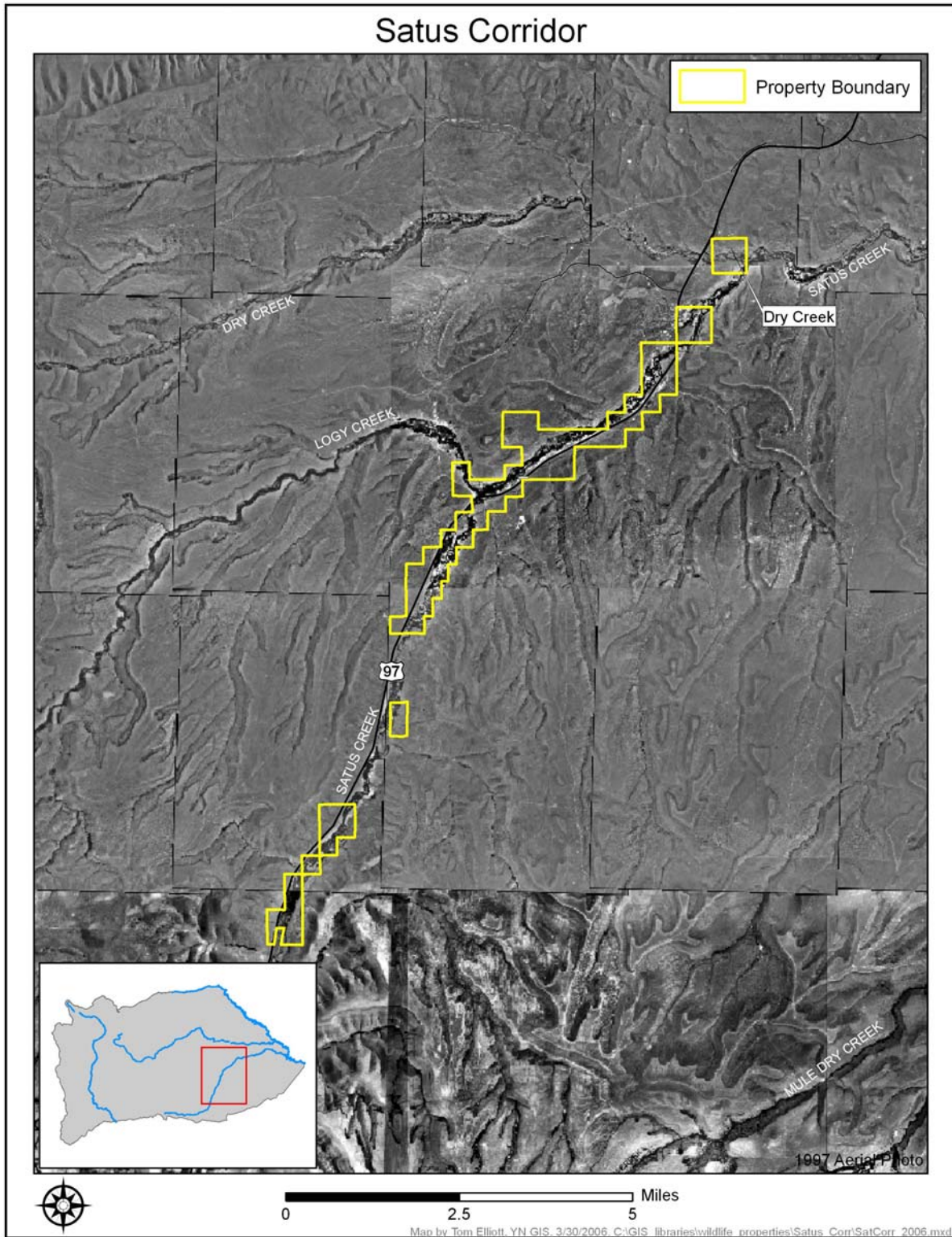
Native grasses were planted on a portion of this property in 2000. The removal of three homesteads out of the floodplain occurred in 2001. USDA Wildlife Habitat Incentives Program (WHIP) funding was used for a portion of the restoration activities on this land. The WHIP funding allowed for the removal of a large concrete levee along Toppenish Creek. The levee removal allows for hydrologic reconnection of the floodplain wetlands on the property.

Vegetation restoration efforts occurred on 144 acres. Weed control on all acres included mowing, disking and BPA-approved herbicide spray. Of the 144, 36 acres were planted with native grasses including basin wildrye, Sandberg's bluegrass and bluebunch wheatgrass. Site-specific weed control will continue on additional acres in the southern portion of the property in 2006, however, revegetation planning will not occur until hydrologic restoration is complete.

Operation and Maintenance

Removal of interior fences was initiated in winter 2005-06 on all 360 acres of this property. In addition, debris, structures, and trees associated with an old homesite were removed from this site. A homesite well was also decommissioned according to BIA and YN Water Code requirements. The cement pad of a homesite, a small storage shed, and the remains of large woody burn piles remain on the site and will be addressed in the future.

Satus Corridor



Land Secured
Total Acreage:

2,721

This large parcel contains the total floodplain area of a significant portion of Satus Creek along Highway 97. Overgrazing has caused much riparian habitat loss within this area. The loss of vegetation contributed to flood damage and prohibitively high creek temperatures. These temperatures often acted as thermal barriers to fish passage on this important steelhead waterway.

Restoration

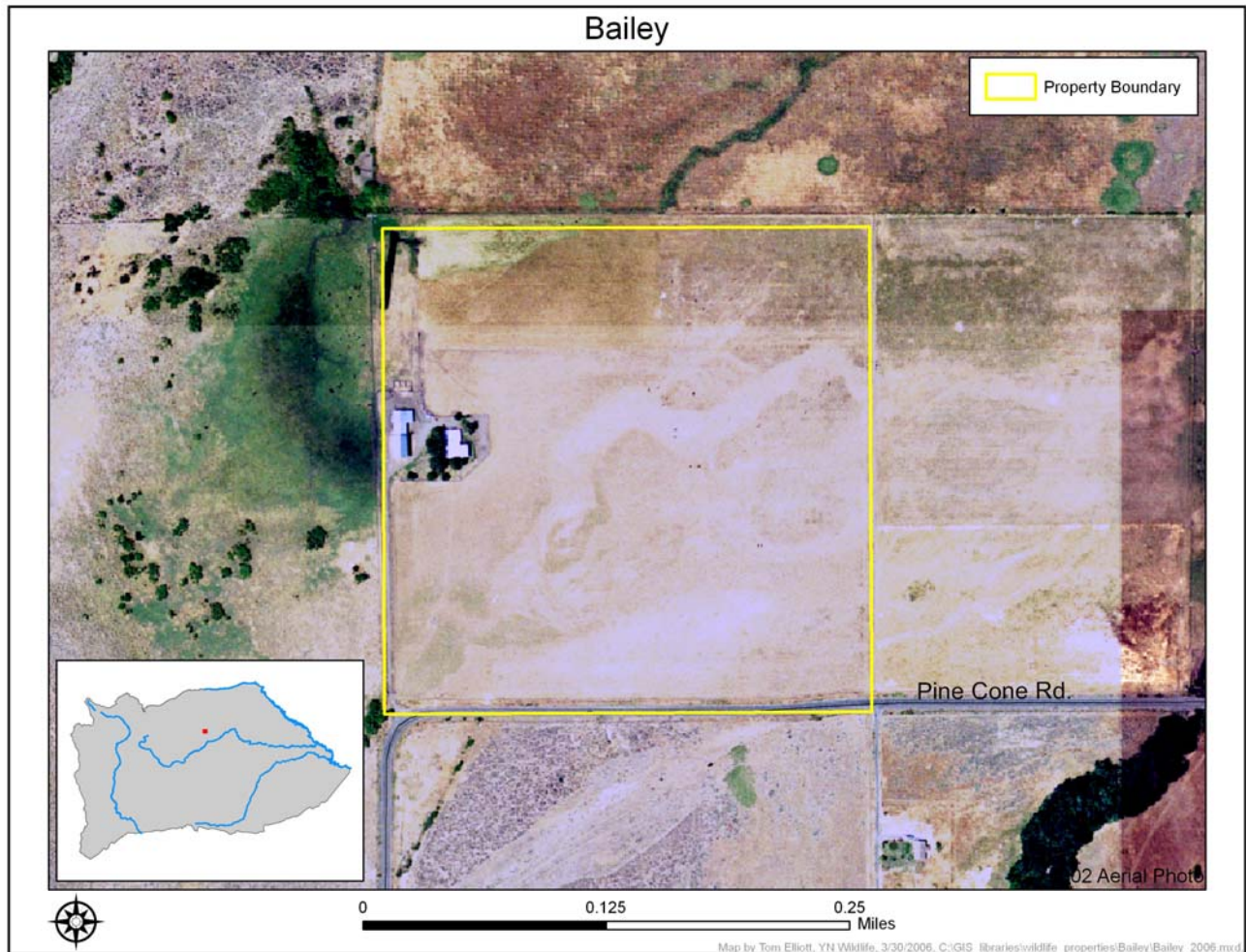
Restoration has consisted mainly of passive techniques. The property has been fenced to remove livestock. Scotch thistle control has occurred in portions of the unit. Salmon Corps has participated in the placement of willow cuttings in the channel upstream of the property to facilitate natural recolonization. The riparian vegetation is responding very well to the cattle exclusion. Native wild rye stands are also benefiting. Limited planting of grass may be needed in the future, but not as much as in other areas. A series of fires have burned portions of the riparian habitat on this property in recent years. These areas seem to be revegetating very well on their own.

This property hosts nearly half of the steelhead redds on the main channel of Satus Creek. As the riparian habitat returns, it is anticipated that the steelhead production will also increase in this area.

Operation and Maintenance

O&M activities consist of fence and road repair, upland grass maintenance and weed control.

Bailey Property



Land Secured

Total Acreage: 40

This small property was purchased to return its water right to Toppenish Creek instream flows. No irrigation has occurred on this land since it was secured. The land consists mostly of former irrigated hay fields. It is currently under restoration to return it to native grass.

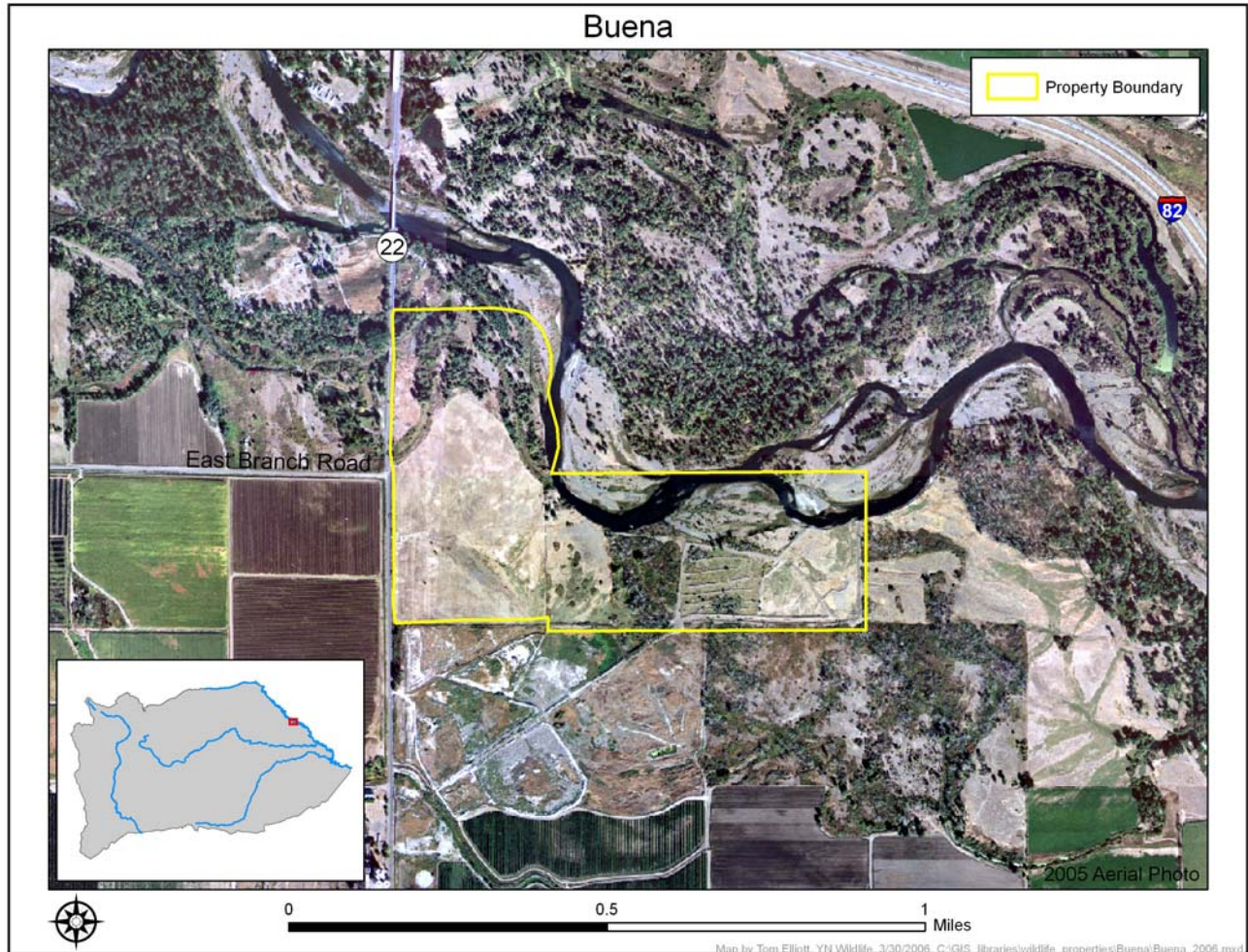
Restoration

Vegetation restoration was initiated at this property in summer 2005. Weed control for cheatgrass, prickly lettuce, and tumbled mustard was conducted by mowing the field in summer 2005, followed by disking in fall 2005 and early spring 2006. Weed control will continue at this site through fall 2007 when it will be drill seeded with native grasses.

Operation and Maintenance

This small property has few maintenance requirements aside from checking fencing and gates for repairs as needed.

Buena



Land Secured

Total Acreage:

156

This property originally contained a large cattle feedlot directly adjacent to the Yakima River. Periodic flood flows would wash the cattle waste into the river. The property now is under restoration. It hosts an active bald eagle nest. The nest has been successful in each of the last 2 years. It is active this year as well.

Restoration

Vegetation restoration was initiated at this property in summer 2005. Weed control for difficult-to-control perennial species (including perennial pepperweed, Scotch thistle and Canada thistle) was conducted by mowing the field in summer 2005, followed by disking in fall 2005 and early spring 2006. Mechanical and herbicide weed control will continue at this site until weeds are adequately controlled to establish native grasses.

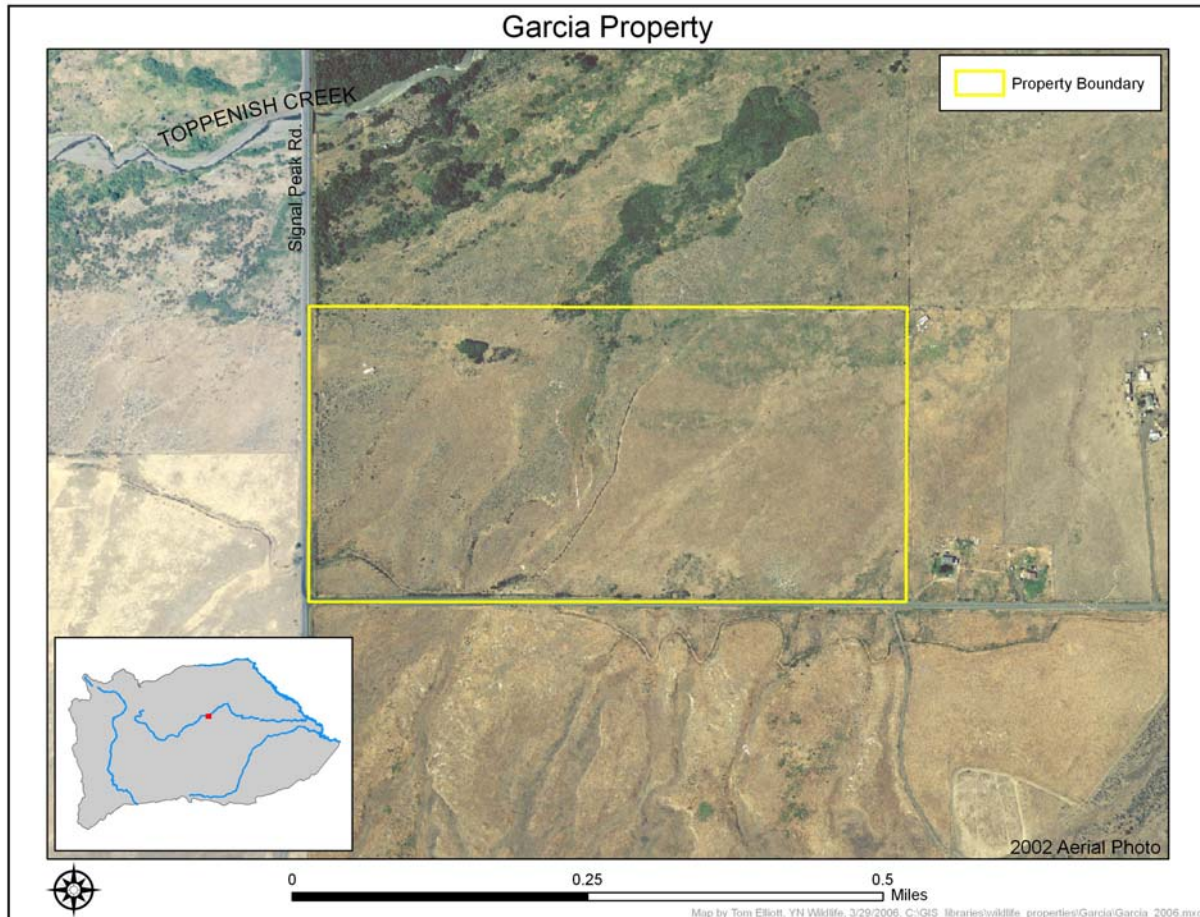


Pre-treatment photograph at Buena in early summer 2005. Tall weeds in the center of photo are poison hemlock.

Operation and Maintenance

O&M activities consist of fence and road repair, upland grass maintenance and weed control.

Garcia



Land Secured

Total Acreage:

80

This small property is located in the historic floodplain of Toppenish Creek south east of White Swan. It is the first property secured in this area. Further lands are targeted in this area, but not yet secured.

Restoration

Because this property is currently isolated, few plans are in place for restoration at this time. Native grass restoration will likely occur over the next few years.

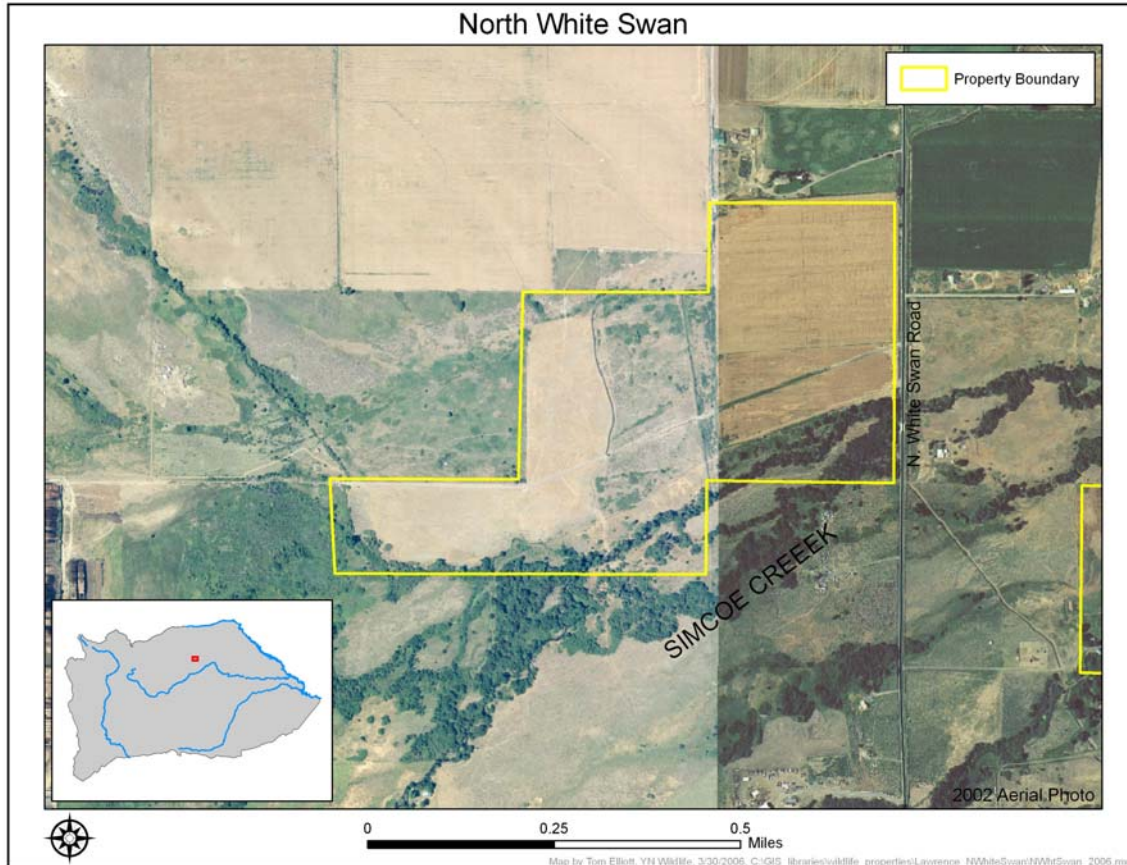
Operation and Maintenance

Border fences of this property were repaired to prevent trespass livestock. Removal of homesite materials was begun.

Future Activities

In the near future, the dominant weed species, an invasive knapweed, will be treated with BPA-approved herbicide. Additional homesite materials and debris will continue to be removed until the site is cleared for vegetation restoration activities.

North White Swan Road



Land Secured

Total Acreage:

141

This is another property in an area where future land securing activities are planned. The property contained one of the largest irrigation diversions on Simcoe Creek, greatly reducing instream flows during critical times for steelhead. Currently, steelhead spawning and rearing occurs on this property.

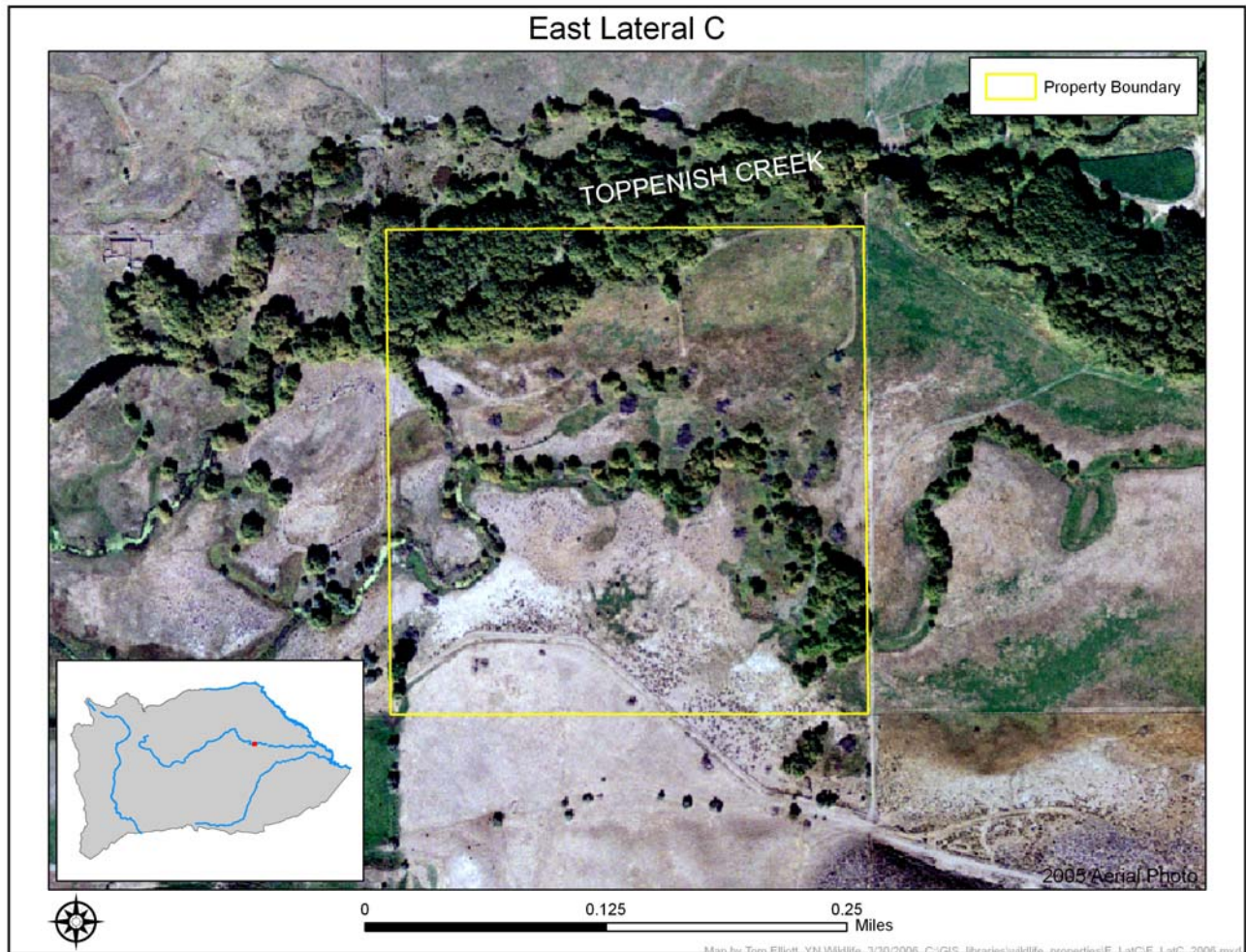
Restoration

Vegetation restoration activities were initiated on 30 acres in 2003 using mowing and disking. Following initial planting in 2004, winter floodwaters removed approximately 10 acres of seed. In 2005, this area was retreated for weeds and reseeded with a native grass mix. Weed control was initiated on an additional 33 acres. Pre-planting weed control will continue at this site until native grasses are established. In addition, 80 acres were surveyed for vegetation restoration, general weed control and fence repair needs.

Operation and Maintenance

Perimeter fences were repaired along one-half mile of the property in winter 2005-06 to prevent trespass livestock.

East Of Lateral C



Land Secured

Total Acreage:

40

This is another property in an area where future land securing activities are planned. Russian olive control activities have occurred in the past. Fences have also been repaired. A large heron colony exists in the large peach-leaf willow forest of the property.

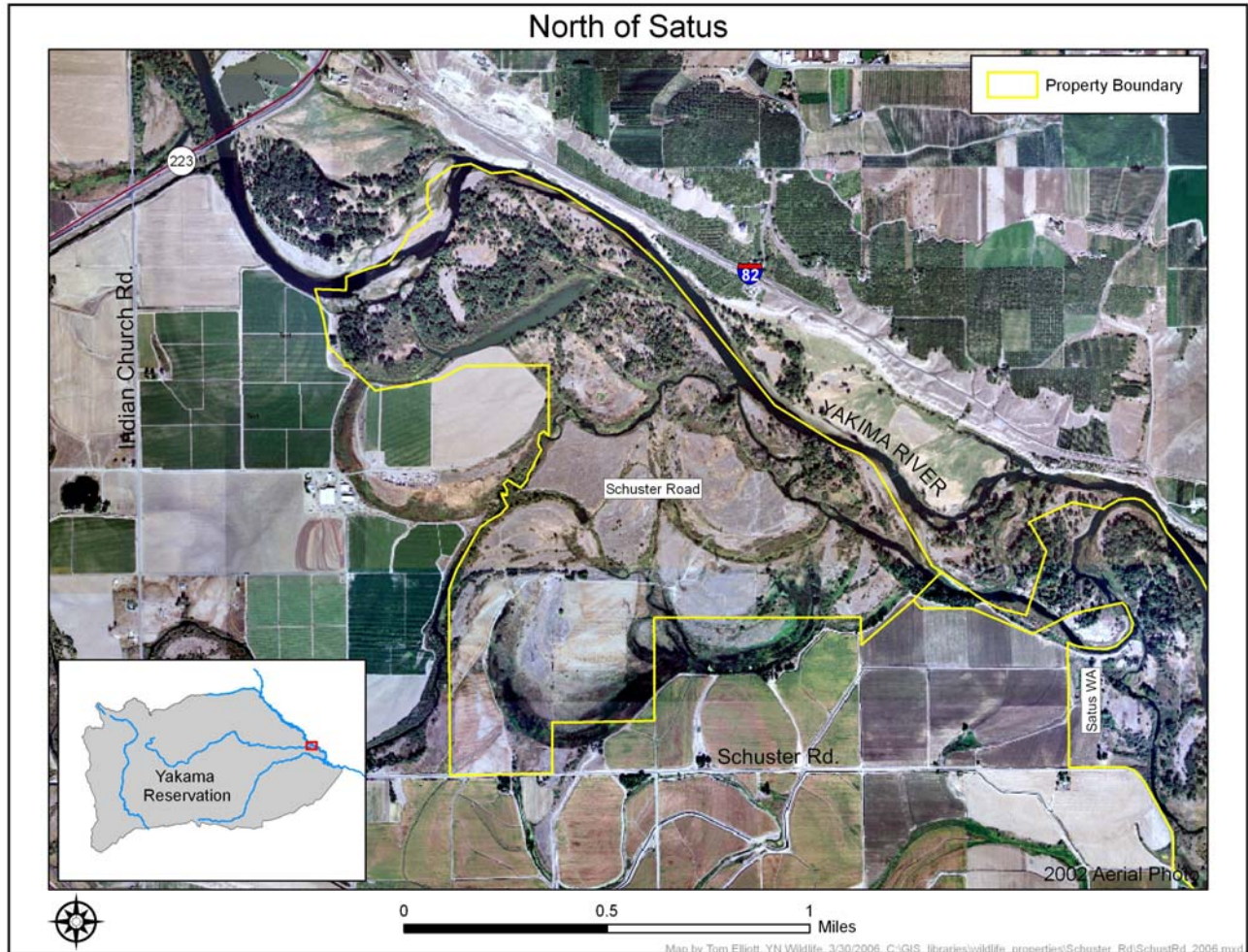
Restoration

This property contains Toppenish Creek, a side channel, wetland and upland habitats. The native vegetation is fairly intact. Passive restoration techniques will be used here. Hydrologic restoration may occur in the future, but will need to be coordinated with adjacent properties.

Operation and Maintenance

Perimeter fences were repaired along one-half mile of the property in winter to prevent trespass livestock.

Shuster Road Property



Land Secured

Total Acreage:

675

This property is located at the confluence of Toppenish Creek and the Yakima River. Extensive wetlands and side channel habitats occurred here historically. Much of these habitats have been degraded. Native riparian vegetation occurs, but much of the grassland vegetation has been lost.

Restoration

Restoration activities on this property will include hydrologic reconnection. Toppenish Creek historically flowed into the Yakima River at 4 location on this property. It now flows into the river at two locations. Hydrologic restoration will involve grade control devices as much of the side channels have become incised. Upland restoration will target grassland habitats. The upland restoration will likely follow the hydrologic restoration to ensure that there is adequate ground water for the grass needs.

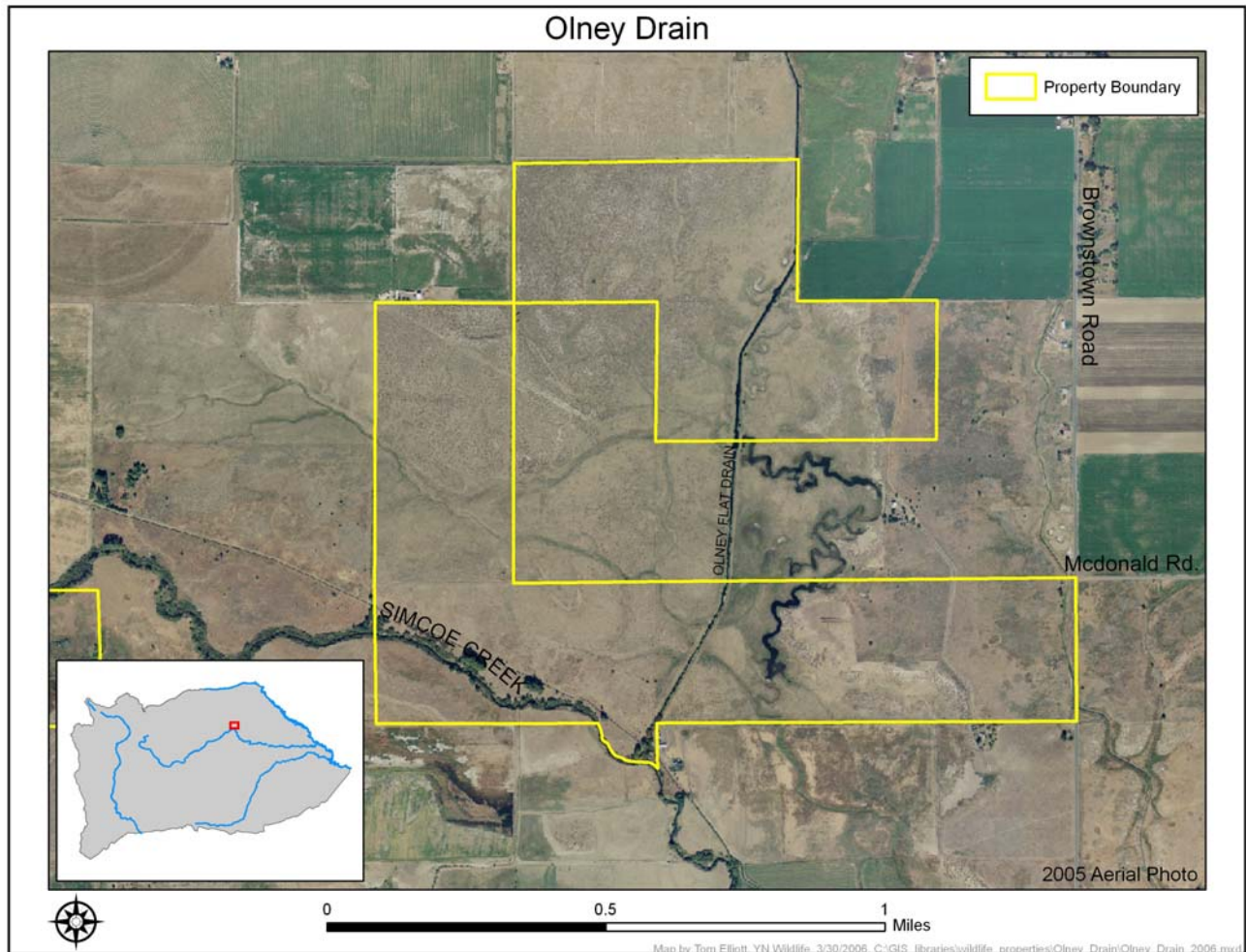
A large BPA transmission line crosses this property. Access by transmission personnel is necessary for line maintenance. These lines were raised in 2004. Because this area is a summer staging area for American white pelicans, there is concern related to bird strikes on the lines. Dead pelicans have been found under the lines, but no assessment of the line's impacts on migrating pelicans and geese has been

implemented. This assessment needs to occur to determine the effects of these lines on bird movements and to develop appropriate mitigation measures to lessen the impacts of these lines on migrating birds.

Operation and Maintenance

Fence, road and sign maintenance is required annually. Weed control activities occur spring through fall. A portion of this property is share cropped for winter grain access by migrating waterfowl.

Olney Drain Property



Land Secured

Total Acreage:

451

This property was secured in 2005. It contains a portion of the historic Olney Lake wetland complex. Current agricultural practices create significant sediment input to Simcoe Creek at this location. This property was secured to begin the restoration necessary to remove the negative impacts the Olney Drain has caused.

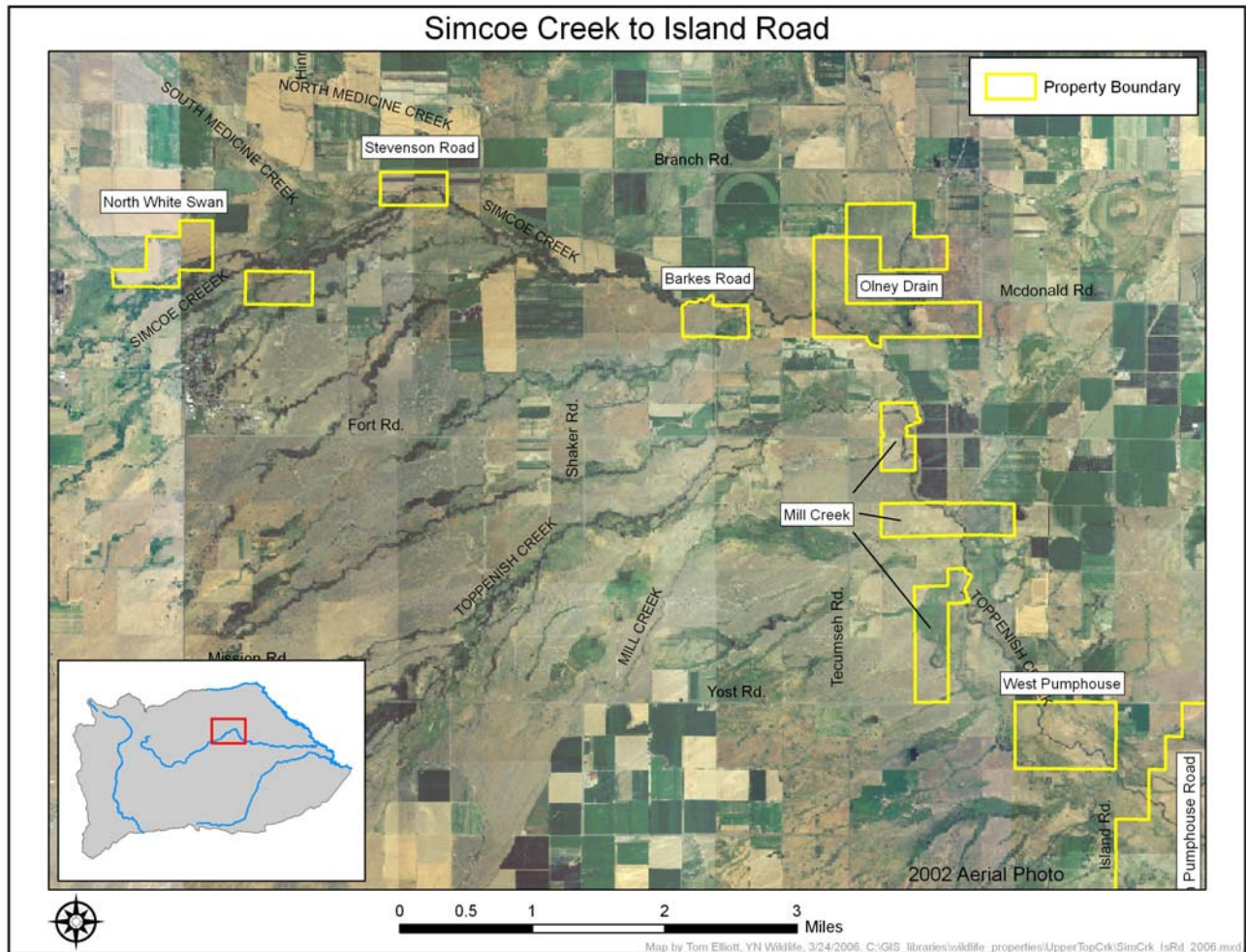
Restoration

Because this property is newly secured, restoration plans have not yet been developed. Basic cultural, vegetation, hydrologic and wildlife surveys are needed. The complete wetland complex will be secured when the current lease expires. The cattleman with the lease is willing to turn it over to the project for restoration and protection.

Operation and Maintenance

These activities have not yet been planned.

Other Lands from Simcoe Creek to Island Road



Land Secured

Total Acreage:

328

Several isolated parcels have been secured along Simcoe Creek and Toppenish Creek east of White Swan. Some of these properties have been identified previously, and some have not. The goal in this portion of the Project Area is to connect these lands so that adequate hydrologic restoration can occur. This Project has secured 20,000 acres toward a goal of 27,000 acres. It is the intent of this Project to connect these lands over the next few years.

Restoration

Restoration activities will involve hydrologic reconnection. Uplands will be replanted and the wetland/riparian vegetation will be allowed to return as restoration continues.

Operation and Maintenance

These properties are too new to have O&M plans.

Appendix A

Toppenish Review Independent Newspaper – July 20, 2005

Independent

• White Swan
• Harrah
• Granger

Serving The Central Yakima Valley Since 1904

Wetlands Restoration



Martha Goudey photo
After reconnecting waterways, Yakama Nation biologists have seen wetlands on the Satus, the Toppenish Creek and Yakima River floodplains make a comeback. See story and more photos on page 20.

PAGE 20 • JULY 20, 2005

THE REVIEW INDEPENDENT

Wildlife response to wetlands restoration Beyond Wildest Expectations

PART 1
By MARTHA GOUDEY

When Arlen Washines, program manager for Yakama Nation Wildlife Resource Management, says "go with the flow," he may be telling you to relax.

But his words also underpin the philosophy of a Yakama Nation project to restore natural water flows to the Yakima River, Satus Creek, and Toppenish Creek flood plains.

As a result, wetlands that were once the natural habitat for thousands of waterfowl, nesting birds, animals, and native plants are being restored to their natural state.

"We're trying to help the land help itself," Washines said. "It has more expertise and experience than we do in how to fix itself."

"To allow water to flow where it has naturally flowed for centuries is 80 percent of the healing process. Once you do that the ground already has established vegetation that will grow."

Restoring natural water flows, however, isn't quite as simple as it might sound.

Tracy Hames, Yakama Nation wildlife biologist, has been spending part of the past 16 years buying back reservation land for the tribe. As part of one of the largest wetlands restoration projects in the Northwest, 20,000 acres have been purchased or



Martha Goudey photos

The wetland portion of the project is all under water in the spring. Without restoration, upland portions will grow to weeds. In those areas, biologist Tracy Hames and his crew plant Great Basin wild rye, native to the Valley. It grows six to seven feet high and controls weeds on its own.

spring. Side channels fed the wetlands.

"It was once thought that floods were bad," Hames said. "That you had to contain the water, and move it as fast as possible."

Reservoirs also had a lot to do with the changes.

"When they put in the five reservoirs, it turned the hydrology of the Yakima River inside

Hames said. "We deal with the changes, and restore what we can restore. If you can't tear out the reservoirs, what can you do? There is no simple answer."

In the upper Yakima River, during the dry season from July through September, more water is released from the reservoirs, so it's wetter than it would normally be.

In the spring and summer

in the 1970s primarily in response to Yakama Nation cultural concerns (see part 2 next week). In 1989 Hames was hired to implement the project.

When Hames started, no land was under tribal management for wildlife habitat in the agricultural portion of the reservation.

Once the idea took hold and grant money began to make its way to the project, Yakama Wildlife began acquiring land.

When a piece of property is secured, Yakama Nation archeologists and the Yakama Wildlife cultural resource staff are called in to survey the land.

Then Hames and his crew look at old aerial photos of each area taken every 10 years since 1937. That tells them what has been altered and what needs to be done to restore the property to its original state.

Back in the 1930s the South Lateral A property, one of the properties being restored and fed by the Toppenish Creek, was one huge wetland.

"By then alterations were already made," Hames said.

"By the '40s and '50s much of the property was used to grow grains, but it was too wet to grow permanent crops such as hops."

The old photos show the Toppenish Creek with at least three to four channels that spread out over the flood plain. Now, except for the land that has been

remove the manmade obstructions.

Once the natural order of things is identified, Hames and his crew "fix the water."

"We take a piece of land and remove a levee, and allow the water to flow into the old channels and wetlands."

Where the levees have been removed, lowland wetlands are thriving.

"We restore the hydrology and we watch to see how the vegetation responds," he said. "Then we go in and replant, depending on the piece of property."

Every piece of property in the 20,000 acres requires different treatment.

In the Satus Wildlife Area, a 7,000- to 8,000-acre chunk of flood plain between Granger and Mabton, reconnecting sloughs is sometimes all it takes to get the water flowing naturally (see sidebar story).

"We have to learn how the system worked historically, look at what has been altered in the last 150 years, and then figure out how to fix it."

Some acreage now used for cattle grazing and share cropping will be preserved, however.

Grazing cattle create winter feeding habitat for geese. Acreage planted in hay and alfalfa not only provides food for a small buffalo herd maintained by Yakama

Biologist Tracy Hames is wild about life on the Satus

By **MARTHA GOUDEY**

Taking a drive with Tracy Hames to the Satus Wildlife Area is a cross between a field trip and Mr. Toad's Wild Ride.

Hames, a Wildlife biologist for Yakama Nation Wildlife Resource Management, is in charge of purchasing land, acquiring grants, and restoring more than 20,000 acres of reservation land to its natural state, assisted by a crew of five.

And once you're invited to go on a tour with him, you'd better be ready to jump into the rig or you might find yourself staring at his taillights.

It's not that he wants to leave you behind.

During duck banding, which is what he and his crew will be doing the next few months, he's more than eager for you to come along.

Just keep up, and help when you can.

Hames is excited about what he, his crew, and the Yakama Nation are doing to restore the land.

Before man built dikes and levees, water flowed freely through natural floodplains along the Yakima River, Satus Creek, and Toppenish Creek. Hames is all about restoring that water flow.

Once on the road he starts talking.

Not fast, but he has so much information to share you either just listen closely while enjoying the scenery.

Or you take frantic unintelligible notes as the rig bounces along rough roads through wild and remote areas only a few miles from downtown Toppenish.

Hames knowledge ranges from the best habitat for a wood duck (or any other species of animal, insect or plant), how to transplant a beaver family to the mountains, to tiny brown bugs imported to eat a beautiful but damaging weed called purple loosestrife.

Pointing to a stretch of land piled high with uprooted trees, Hames tells why the Russian olive, an exotic tree brought in as

Continued on page 15



Martha Goudey photos

White water-lilies naturally recede when the flow of water is restored. The lilies in the background above previously covered the whole pond, choking off native vegetation.

JULY 20, 2005 • PAGE 15



Standing in front of a marsh where white water-lilies have begun to recede due to increased water flow, Yakama Nation wildlife biologist Tracy Hames talks with Tammy Bauer, a Youth Conservation Corps worker.

'The Russian olive 'weed' has to go, says biologist Hames

Continued from page 20
an ornamental, has to go.

"It's a bad weed," he said. "Where the Russian olive was removed in the '80s, native wild currant bushes are growing."

The currant provides food for local wildlife.

Deer, bear, beaver, bobcat, and an occasional cougar can be found on the Satus.

At least four colonies of great blue herons nest in the cottonwood forests along the edge of the Yakima River.

You might see red-tailed hawks circling, squirrels perching on the top of dried Russian olive branches, and an uncommon weasle darting across the road.

A small herd of domesticated buffalo also has its place on the land, and provides meat for the Heritage Inn Restaurant, Legends Casino, and for tribal elders.

"It's a healthy meat," Hames said as he walks toward a corral built to hold the big bisons.

"It's said that you can keep a buffalo anywhere he wants to be," Hames quips.

Driving north, Hames points out the reach of the project along the Yakima River, from Granger to Mabton. And then he points to

a stand of cottonwoods and says the first active bald eagle's nest since 1902 is in those trees.

Earlier, standing next to a small lake, Hames told of the evils of the white water-lily. On the far side of the lake, the water-lily covers the surface like a thick blanket. Closer, the water is clear and blue—and moving.

"The white water-lilies were so thick here, you couldn't land a duck," Hames said. For a duck biologist like Hames, that is very bad news.

But it's not just about ducks. The white water-lily chokes out natural vegetation, which will return once the natural flow of water is restored.

Where the water flows, he said, the water-lily naturally recedes.

"And that promotes natural vegetation," Hames said.

When Hames and his five man crew reconnected sloughs two miles upstream, it had an effect downstream.

And reconnecting is a big part of what restoration is all about.

For more information, to go duck banding, or to take a tour, call Hames at 865-6262.

HUNTING

YAKIMA

Yakima waterfowlers await push of northerns

Central Washington duck hunters are waiting for the first flights of northerners to arrive, to help give the fairly-young waterfowl season a needed kick in the waders. Since a decent start in October, when water-

fowlers found good numbers of locally produced mallards, teal and wood ducks, the hunting has definitely slowed, according to local biologists.

“Our northern birds normally start arriving right around

Thanksgiving,” reports Yakama Nation waterfowl biologist Tracy Hames. “The duck hunting usually picks up around then.”

Good corn crop: Bird arrival time in the Yakima Valley depends on various factors, including the weather up north, but all the corn grown in the area should mean the ducks have plenty to eat if and when they arrive. Hames says that during the past few years, more farmers have gone back to no-till farming, which leaves more corn on the ground and helps keep the ducks around longer.

Where to go: Hames points to the Satus Wildlife Area near Granger. The large public hunting area there includes several ponds and creeks, and butts up against the Yakima River. Hunters can set up decoys or try their hand at jump-shooting.

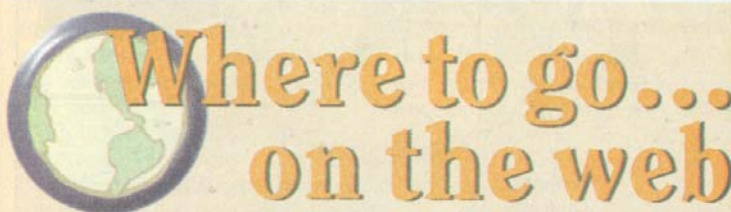
The Satus area also offers pretty good quail hunting, with an occasional pheasant showing up here and there as well.

The Toppenish National Wildlife Refuge, located near Highway 97 just south of Toppenish, also provides hunters with access to sloughs, ponds and Toppenish Creek via a number of set blind locations.

Regs: The Satus and the NWR have complex schedules. Call for details. Both are also located within Yakama Indian Nation boundaries, so a special hunting permit is required, in addition to the normal licenses and stamps. A Yakama Nation season permit is \$30.

Info: For more, hunters should contact the Yakama Nation (509-865-5121) and Toppenish NWR (509-865-2405).

— Rob Phillips



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Restoring Damaged Streams

Yakama Indian Nation Uses Trimble to Help Save Natural Resources

The 1.2-million-acre Yakama Indian Reservation is located in South Central Washington and spans Mount Adams, Klickitat River and Yakima River basins. Using an interdisciplinary and sustainable approach to care for the land and natural resources, the Yakama Nation today utilizes Trimble surveying systems on a variety of projects that help restore streams damaged over the last 200 years of agricultural, logging and related developments. Restoration of the streams is critical to the area's threatened and endangered fish, such as mid-Columbia steelhead, bull trout and other game fish including Coho and Chinook salmon.

Currently, the Yakama Nation Engineering Program is studying a 10-mile stretch of Toppenish Creek that has been unnaturally redirected over the years. Obstructions in the floodplain have forced seasonal high water off the original floodplain, leaving the main channel with the largest capacity high and dry. After purchasing additional floodplain lands, the Yakama Nation is now assessing options to utilize the capacity of the floodplain rather than sustain damages to infrastructure and buildings outside the original floodplain.

Using Trimble GPS and optical total station systems, Yakama engineers are working on a flat portion (reach) of Toppenish Creek. Because the creek's gradient is so flat through this reach and the floodplain stretches some two miles wide, a very accurate survey had to be performed around the project area perimeter. The project used a Trimble 5700 GPS Base Station and Trimble 5800 GPS Rover for the perimeter survey and to establish control for interior individual projects. "The Trimble GPS gave us a great level of confidence that water will actually run downhill and we are not trying to force it uphill," according to Chane Salois, engineer for Yakama Nation. In addition, a Trimble 5603 Robotic Total Station was used for project design and construction surveys. "The use of high-accuracy Trimble systems has guaranteed that we are able to stabilize a reach and also ensure passage for threatened and endangered fish," said Salois.

One of the techniques the engineers have utilized for stabilizing a reach (both horizontally and vertically) is building grade-control structures out of large boulders (up to 10,000 lb or 4,536 kg each) in a stair-step pattern. These grade-control structures will help direct the stream flows both during normal and flooding events, and will reduce the energy carried by the streams by creating plunge pools. These plunge pools ensure that fish, which can only navigate certain heights at specific stream velocities, can jump upstream against the flow of the water. Use of the Trimble equipment helps maintain these changes in grades to ensure the requirements necessary for facilitating fish survival.

**Yakama is the original spelling; Yakima is often used currently.*



Appendix B

NORTH AMERICAN WETLANDS CONSERVATION ACT PROPOSAL

PROJECT OFFICER'S PAGE

What is the proposal title? Lower Yakima Wetlands Protection/Restoration II

What are the geographical landmarks for the proposal?

- State(s): Washington
- County(ies): Yakima
- Congressional District(s): 5
- Central latitude and longitude point: Latitude 46.32577, Longitude 120.32443

What is the date you are submitting the proposal? March 2006

Is an optional Matching Contributions Plan submitted with the proposal? No

What is the status of previous NAWCA-funded proposals you have submitted in the same project area?
Phase 1 was funded in 1997 and has been successfully completed.

How many more proposals will you submit for the same project area? Depending on property acquisitions and funding, there are potentially 3 additional project proposals over the course of the next 25 years.

What is the Project Officer's information?

- Name: Tracy Hames
- Title: Waterfowl Biologist
- Organization: Yakama Nation
- Address: P. O. Box 151, Toppenish, WA 98948
- Telephone number: (509) 865-5121, cell (509) 949-2155
- Facsimile machine phone number: (509) 865-3619
- Electronic mail address: tracyhames@yakama.com

Will any of the NAWCA funds requested as part of the proposal be received or spent by the U.S. Fish and Wildlife Service or another Federal agency? No

If yes, which agency(ies) will receive these funds and what is the fund amount:

Agency _____ Amount _____

(add additional lines as necessary)

Are carbon sequestration credits involved in the proposal? No

If yes, please highlight and provide details in the appropriate budget narrative section.

To ensure that the proposal complies with available guidelines and to ensure that partners are aware of their responsibilities, the organization's Authorized Representative (the individual signing the required SF-424, who may or may not be the same person designated as the Project Officer above) certifies to the following statement: I have read the 2006 standard grant instructions, eligibility information, and grant administration standards and informed partners or partners have read the material themselves. To the best of my knowledge, the proposal is eligible and complies with all NAWCA, North American Wetlands Conservation Council and Federal grant guidelines. The work in this proposal consists of work and costs associated with long-term wetlands and migratory bird habitat conservation.

Do you have any comments about, or suggestions for, the NAWCA program? No

NORTH AMERICAN WETLANDS CONSERVATION ACT PROPOSAL SUMMARY
Lower Yakima Wetlands Protection/Restoration II, Washington

COUNTY(IES), STATE(S), CONGRESSIONAL DISTRICT(S):): Yakima County, WA, District 5

GRANT AMOUNT \$1,000,000

MATCHING PARTNERS \$2,575,979

Grantee: Yakama Nation (YN) \$1,734,453
Washington Department of Fish and Wildlife (WDFW) \$257,227
Pheasants Forever (PF) \$100,000
City of Grandview (COG) \$271,418
Ducks Unlimited, Inc. (DU) \$100,000
Yakima Basin Environmental Education (YBEE) \$7,000
Yakima Valley Audubon Society (YVAS) \$34,240
Washington Waterfowl Association (WWA) \$2,400
Central Washington University (CWU) \$18,000
Lloyd Sak (LS) \$51,241

GRANT AND MATCH - ACTIVITIES, COSTS, AND ACRES \$3,575,979 and 12,804 (546) acres
Fee Acquired - \$361,345/ 320 acres
Restored - \$2,665,261/ 12,351 acres
Enhanced - \$449,373/ 133 acres (546)
Indirect Costs - \$100,000

NON-MATCHING PARTNERS \$625,416
U. S. Fish and Wildlife Service (USFWS) \$27,100
U. S. Natural Resources Conservation Service (NRCS) \$533,625
U. S. Bureau of Reclamation (BOR) \$64,691

NON-MATCH - ACTIVITIES, COSTS, AND ACRES \$625,416 and 1,848 (340) acres
Restored - \$625,416/ 1,848 (340) acres

FINAL TITLE HOLDERS/MANAGERS AND ACREAGE: Yakama Nation 11,843 acres, Washington Department of Fish and Wildlife 1,652 acres, City of Grandview 870 acres, U. S. Fish and Wildlife Service 160 acres, Tule Gun Club 127 acres.

PROJECT DESCRIPTION: This project is Phase 2 of a large watershed-based, collaborative effort to restore over 40,000 acres of native floodplain habitats in the Middle Yakima River Basin. Phase 1 of the Lower Yakima Wetlands Protection/Restoration project, funded by NAWCA in 1997, was successfully completed. This Phase 2 project proposal has been revised substantially from the 2005 submittal to include additional restoration project areas and collaborators. The Yakama Nation (YN) is working to restore Yakima River, Satus Creek and Toppenish Creek floodplains on the Reservation to provide cultural, fish, wildlife and flood control benefits. Partners are restoring native floodplain habitats in the project area watersheds on and off Reservation lands. These unique watersheds have been degraded by various agricultural uses, but have suffered less irreversible damage than most watersheds in eastern Washington. Simple activities such as channel reconnection, creek level grade control, sediment load management, and hydrologic and vegetation restoration can return these systems to healthy conditions. While this NAWCA project involves only the lower elevation wetlands of these watersheds, the YN is also actively restoring the rangeland, forest and mountain meadow components. Entire watershed restoration such as this is extremely rare in the Northwest.

Several restoration activities will occur throughout the 40,000 acre project area. The YN is acquiring a parcel (320 acres) along Satus Creek through permanent easement, which has been incorporated into the YN's Lower Satus Creek Wildlife Area. Grant-funded wetland hydrologic restoration will occur in this parcel. Russian olive removal, a wetland noxious weed, is occurring within a large portion of this property. Upstream of this complex

on the Yakima River at the YN's Meninick Wildlife Area, reconnection of a side channel and wetland will occur. On Toppenish Creek, wetland hydrology will be restored using grade control devices and spillways on a parcel which includes YN land and the adjacent Toppenish National Wildlife Refuge. To the west on Toppenish Creek, a large floodplain constriction will be removed, allowing hydrologic reconnection of a wetland that has been dewatered for decades. WDFW's Sunnyside Wildlife Area and City of Grandview's Byron wastewater treatment facility will use spillways and water level control structures to restore spring and early summer wetland hydrology to enhance wetland bird habitat. WDFW and the City of Grandview will also reconnect flow to a wetland basin to control extensive exotic waterlily infestations using methods developed in the Phase 1 NAWCA project. In addition, winter waterfowl feeding within the WDFW and Grandview wetland restoration areas will be developed using Washington State Duck Stamp funds. Reestablishment of bird nesting cover will occur in floodplain habitats throughout the project area using native grass seed provided by three local chapters of Pheasants Forever. Ducks Unlimited Inc., the primary contracting source for the project's wetland restoration activities, has over 10 years of experience and expertise in the project area restoring more than 10,000 acres of wetlands.

HABITAT TYPES AND WILDLIFE BENEFITTING: The project area contains significant wetland diversity in central Washington, which would be improved by this project. The YN Satus Wildlife Area and WDFW Sunnyside Wildlife Area protect a large, geologically unique stretch of the Yakima River with broad meanderbelt topography that is rich in oxbow slough wetlands, riparian gallery forests, and seasonal palustrine emergent wetlands. These complex wetland/riparian associations contain the most important waterfowl, shorebird and waterbird habitat in the Yakima River Basin. Satus Creek, the Yakima River's lowest major tributary, is located entirely within the Reservation and its upper watershed is completely undeveloped. Land acquisitions by the YN removed all irrigation diversions so that Satus Creek is the only watershed in the Middle Yakima Basin without reservoirs or diversions. The watershed's large uplands represent some of the highest quality shrub-steppe habitats in eastern Washington. Satus Creek also contains broad floodplain habitats dominated by cottonwood forests, emergent wetlands, and multiple side channels mixed with uplands. The Toppenish Creek floodplain, containing the Old Goldendale Wildlife Area, Mid-Toppenish Creek and Pumphouse restoration areas, was at one time a broad riverine floodplain system consisting of riparian forest wetlands, shrublands, palustrine emergent marsh, wet meadow and upland grassland habitats. Vegetation removal and channelization for agriculture created a floodplain with a reduced hyporheic zone and an abbreviated hydroperiod. Following restoration activities in Phase 1, wetland plants culturally important to the Yakama people (including tule, wapato, Indian hemp, Basin wildrye, and camas) are thriving. These native wetland plants will also be restored to project areas in Phase 2.

Satus and Toppenish Creeks, which enter the Yakima River in the YN's Satus Wildlife Area, are responsible for 60-75% of production of the federally-listed Columbia steelhead. Young steelhead nearly double their body weight during rearing while in these watersheds. Survival on their oceanic migration would be lower without these wetland and channel habitats that are critical to their pre-migration weight gain.

PUBLIC BENEFITS: The project provides traditionally valuable wetland native plants and animals, previously greatly reduced or eliminated in the project area, to the Yakama people. The project area also provides the majority of public waterfowl hunting opportunities in the Yakima Basin. Schools and teacher environmental training programs throughout the state use YN restoration projects as educational tools. Other popular recreation activities include observation and photography of shorebird, waterbird and neo-tropical migrants.

NEW PARTNERS: Several new partners are included in Phase 2. The City of Grandview manages a large wetland complex within the Byron Tract. Three regional Pheasants Forever chapters, including Vancouver, are funding materials for floodplain habitat restoration. Yakima Basin Environmental Education, a local non-profit organization for Yakima Valley students and teachers, will provide volunteer support for native vegetation collection to be used in habitat restoration. Yakima Valley Audubon will assist project partners in monitoring bird use of restoration projects and properties. The Washington Waterfowl Association will assist in wetland and upland vegetation planting and weed control. Central Washington University has provided extensive wetland monitoring through graduate student involvement and will be integral in Phase 2. Lloyd Sak, a local farmer cooperating on the Sunnyside Wildlife Area restoration, has been working with NRCS to restore Yakima River riparian habitats. The Natural Resources Conservation Service is funding two Wetlands Reserve Program efforts: wetland restoration on Mid-Toppenish Creek and on the Tule Gun Club. Finally, the Bureau of Reclamation is funding hydrologic restoration to allow consistent flows to enter North Satus and Satus Wildlife Areas.

PURPOSE AND SCOPE

What are the proposal objectives, affected habitats, and affected wildlife (especially wetland-associated migratory birds) and wetland functions?

Background Information: Phase 1 of the Lower Yakima Wetlands Protection/Restoration project was funded by NAWCA in 1997 and has been successfully completed. In the treaty of 1855, the 14 Tribes and Bands now known as the Yakama Nation (YN) reserved a portion of their vast homeland for their exclusive use. The Yakama Reservation is comprised of 1.3 million acres. It is located in south central Washington from the peak of Mount Adams and the Cascade Mountain crest on the west, to the Yakima River on the east. This area was well chosen; it holds some of the most productive natural resources in eastern Washington. Along with the salmon harvested on the Columbia River, the Reservation's combination of the forested highlands, the shrub-steppe rangelands, and the diverse lowland riparian valleys provided many of the needs of the Yakama People. Native riparian and wetland areas provided an abundance of foods, medicines and other subsistence items. European settlement and Federal actions late in the nineteenth century, however, combined to alter the landscape of these lowland communities. The introduction of irrigated agriculture brought in water for crops, but also caused the construction of an elaborate series of drainage ditches which, along with land leveling activities, removed a large portion of the original wetlands of the Toppenish and Satus watersheds in the Yakima basin. Those areas, so critical to the seasonal use of the Yakamas were degraded in one generation's time. Presently the creek corridors are the only areas in which native wetland habitats remain. Traditional food and materials gathering areas have become rare in the valley.

Proposal Objectives: To address the loss of culturally important habitats, the YN has initiated an effort to protect the wetland areas that remain and to restore the areas that have not been permanently altered. The overriding objective of this effort is to protect and restore the native wetland habitats and ecological functions necessary to provide diverse plant and animal resources for the present and future use of the Yakama People. An important method of achieving this is habitat restoration on a landscape scale. The YN believes that the greatest benefits to the cultural and natural resources of the Reservation will be attained by bringing large contiguous blocks of ecologically significant riparian corridors, wetlands, and associated upland habitats under protection, restoration and management. Because the Yakima Basin contains one of the most productive anadromous fisheries in the Columbia Basin, and because of the great importance of salmonids to the lifeways of the Yakama People, all past and proposed YN riparian restoration projects would also benefit salmonids. Flood control is also a major component of the YN restoration projects. Recent flood events on the Reservation have caused substantial property damage and loss of life. The protection and restoration activities of this project are designed to reconnect floodways away from human habitation. A healthy, broad floodplain system is critical to the protection of not only these human resources, but also the surface and ground water resources of the YN. Presently the YN is working toward these objectives through numerous plans and cooperative efforts. Some of these are outlined in the answers to the questions further on in this section.

Activities occurring at each project tract are outlined below:

Lower Satus Wildlife Area (LSATUS) 2,607 acres: This Yakama Nation property, located at the border of the range and valley portions of the Satus Watershed, once contained extensive side channel and wetland habitats mixed in with gallery alder/cottonwood forests and native bunchgrass uplands. Activities since the early part of the twentieth century disconnected these wetland and side channel habitats from the main channel of Satus Creek. Levees were constructed, and a portion of the area was leveled for crop production. Three irrigation diversions were installed, removing nearly all of Satus Creek's water during the critical times for fish and wildlife survival. These activities resulted in a deeply incised channel totally disconnected from its floodplain. The wetlands and side channels, though still present on the landscape, have been dry for nearly 80 years.

In the early 1990's the Yakama Nation, through their Wetlands and Riparian Restoration Project, began securing these lands for permanent protection and restoration. This included the removal of the three last irrigation diversions on Satus Creek. A 320 acre portion of this property has recently been acquired and permanently protected for inclusion into this effort and is included as match in this proposal. This critical acquisition represented the last parcel needed to implement this NAWCA project's reconnection of the wetlands and side channels on the Lower Satus Wildlife Area. This reconnection will be completed with requested grant funds. The uncropped upland portions of this property are relatively pristine. The portions of the property converted to

agricultural production will be replanted to native grasses using the seed provided by a portion of the Pheasants Forever match. Removal of Russian olive, an invasive exotic tree in wetlands, is also occurring within the disconnected wetlands and channels of this property using match dollars. The reconnected hydrology will allow for native vegetation following removal of the Russian olive stands.

Satus Wildlife Area (SATUS) 4,492 acres: This property is located along the Yakima River and includes the mouths of both Toppenish and Satus Creeks. The NAWCA project acres involve only a portion of this nearly 8,000 acre property permanently protected for habitat restoration and management by the Yakama Nation. This property adjoins the Sunnyside Wildlife Area directly across the Yakima River. These two properties combine to create a permanently protected floodplain area of over 10,000 acres. This property, consisting of gallery cottonwood forests, side channel, grassland, shrubland, oxbow wetland and other palustrine habitats, was one of the highlighted properties in Phase 1 of this NAWCA project. Phase 1 consisted of reconnecting hydrology to the large oxbow wetland complex of this area. The project was extremely successful. Since Phase 1, much work has been done on this property to compliment the Phase 1 efforts. Nearly 1,000 acres of Russian olive trees are being removed as a match component of this NAWCA project. Native grass seeding will also occur here with the match provided by Pheasants Forever.

Sunnyside Wildlife Area Headquarters Unit (SUNNY) 363 acres: This property, located adjacent to the Satus Wildlife Area, was also highlighted in the Phase 1 portion of this NAWCA effort. This property, along with SULPHUR and BYRON, are permanently protected and managed by the Washington Department of Fish and Wildlife. Once again, the NAWCA acreage for Phase 2 is only a small portion of the total area of SUNNY, SULPHUR and BYRON (over 7,000 acres). Wetland hydrology was successfully restored within the oxbow slough wetlands on this property in Phase 1. Phase 2 match restoration activities include Russian olive removal, the installation of “beaver deceivers” on some of the water control structures from Phase 1, native grass planting, and the enhancement of winter waterfowl forage availability using Washington State Duck Stamp funds.

Sulphur Creek Wildlife Area (SULPHUR) 381 acres: This tract is permanently protected as a portion of the Sunnyside Wildlife Area above. It is managed by the Washington Department of Fish and Wildlife. It consists of Yakima River bottomland habitats that have been disconnected from their floodplain by levee development and the construction of a large agricultural drain in the early portions of the twentieth century. Match activities here consist of Russian olive removal and grassland restoration using Pheasants Forever grass seed. Grant activities include the restoration of wetland hydrology to the wetlands of this property.

Byron Ponds Wildlife Area/Grandview Wastewater Treatment Facility (BYRON) 1778 acres: These tracts are permanently protected as part of the Sunnyside Wildlife Area above. Restoration activities on the Byron Wildlife Area and the Grandview Wastewater Treatment Facility are hydrologically linked, and these properties are referred to collectively as BYRON in this proposal. Byron Ponds is permanently protected by the Sunnyside Wildlife Area, and is managed by the Washington Department of Fish and Wildlife. The Grandview Wastewater Treatment Facility is permanently protected by the City of Grandview. Although near the Yakima River, Byron Ponds is the only tract outside of the floodplain. It is included in the project area because it consists of emergent wetland and grassland habitats and, like the other tracts included in this NAWCA project, supports excellent waterfowl production. Match activities on Byron Ponds include a carp removal and barrier effort funded by Washington State Duck Stamp funds. Russian olive removal is also included as a component of the match on the Byron property. Grant funded activities include hydrologic restoration of the wetland areas through the installation of spillways and water control structures.

The Grandview Wastewater Treatment Facility includes excellent waterfowl production and migration habitat for waterfowl and other wetland-dependent birds. For years this facility has been a showcase of how a small city can manage their sewage treatment in a manner that also greatly enhances wildlife. Recent changes to their operating permit have forced Grandview to alter the management of their effluent in a manner that causes a reduction in wetland hydrologic function during spring months critical for waterfowl and other wetland bird reproduction. The wetlands that once provided the best redhead production in central Washington are now nearly dry in the spring. The match funded activity on this tract includes the purchase of a water delivery structures to provide water to these wetlands to the extent that their new water quality permit allows. Grant funded activities are for additional water control structures, combined with those described in the Byron Ponds. The water control

structures will allow alternative water sources to be conveyed to the Grandview wetlands in spring months when the treatment facility's permit will not allow them to use treatment water.

Meninick Wildlife Area (MENINICK) 773 acres: This NAWCA tract is a portion of a larger property (~3,000 acres) along the Yakima River upstream of the Satus Wildlife Area. It is permanently protected for wetland and riparian restoration and management by the Yakama Nation. This property contains extensive gallery cottonwood forests with wetland and side channel habitats interspersed throughout. Grant funded activities will be used to reconnect the hydrology to a wetland/side channel complex cut off in the 1940's by levee development. Central Washington University is currently on contract with the Yakama Nation to document pre- and post-construction hydrologic conditions associated with this project. Water chemistry, temperature and aquatic invertebrate parameters are among those being studied. Hydrologic pre- and post-project monitoring has infrequently been employed in restoration efforts in the Yakima Basin. This project will provide information to guide side channel and wetland reconnection projects throughout the watershed.

Old Goldendale Road Wildlife Area (OLDGOLD) 340 acres: This tract is located on Toppenish Creek. It consists of a large emergent wetland complex that includes lands permanently protected by the Yakama Nation and lands included in the USFWS's Toppenish National Wildlife Refuge (NWR). Toppenish NWR was highlighted in Phase 1 of this NAWCA project. Hydrologic restoration occurred on much of the 2,000 acre NWR. Phase 2 addresses a portion of the wetland hydrology not addressed in Phase 1. The west portion of the NWR adjoins the Yakama Nation's Old Goldendale Wildlife Area. Historically a large emergent marsh encompassed both properties. Development previous to the area becoming a NWR caused this wetland to be disconnected hydrologically from Toppenish Creek. The recent protection of the west portion of this wetland system by the Yakama Nation will now allow for the proper reconnection of this wetland. Grant funds will be used to reconnect a side channel of Toppenish Creek. This side channel provides the hydrology for the wetland complex on the YN and NWR lands.

Toppenish Creek Pumphouse Wildlife Area (PUMPH) 2,070 acres: This tract is also part of a larger property (approximately 3,200 acres) permanently protected for wetland and riparian restoration and management by the Yakama Nation. Small portions of this tract are also permanently protected as a part of Toppenish NWR. The western portion of this property was successfully highlighted in Phase 1 of this NAWCA project. Disturbance on this property has been extensive. Levee placement, channel disconnection, irrigation canal construction, creek straightening, vegetation removal, and house development have been among the many activities causing damage to the wetland resources of this tract. Because of the extensive alteration, the Yakama Nation has embarked on a long-term restoration effort on this property. Phase 2 activities include the piping of a nearly mile long irrigation canal that currently crosses the floodplain. This canal provides water to a pumphouse that supplies irrigation to lands uphill and to the south of the property. The presence of this canal causes hydrologic disconnection to over half of the floodplain wetlands in this area. Match funds will be used to install a nearly mile long pipe in the place of the canal. Grant funds will then be used to reconnect the wetland hydrology that has been severed for 100 years by this canal. Future projects may also occur on this property.

Mid-Toppenish Creek Wildlife Area (MIDTOPP) 1,482 acres: This area encompassed nearly 4 linear stream miles of Toppenish Creek Floodplain between the Old Goldendale Road and Toppenish Creek Pumphouse properties. It is comprised of wetland, channel and riparian habitats. Historically, this area contained diverse habitats influenced greatly by beaver activity. The removal of beaver from the system, levee development and channelization activities have resulted in a near total loss of hydrology and wetland function on this property. The Wetlands Reserve Program project is restoring hydrology to this area, and reconnecting channels and wetlands that have been dry for decades. The **Tule Gun Club (TULE)** is a subset of this area. The Tule Club is comprised of 127 acres surrounded by the Mid-Toppenish Creek property. It is included as a separate entity only in the budget tables. The work at the club is being completed within the larger Mid-Toppenish Creek Project.

North Satus Wildlife Area (NSATUS) 239 acres: This area is directly upstream from the Satus Wildlife Area. It is directly connected hydrologically to the Satus Wildlife Area. A large component of Phase 1 of this NAWCA project occurred on this property, reconnecting the Yakima River to its floodplain. The Bureau of Reclamation later provided funding to install a grade control structure on the property to allow for a more consistent flow through the reconnected channels, which was completed in the fall of 2005.

Affected Habitats: All of the habitats affected by this project are located in low elevation valley floodplains along the east slopes of the Cascade Mountains. These riparian corridors and valley floodplains are integral components of the shrub-steppe ecosystem; however they have become extremely rare due to heavy agricultural use and subsequent homesite development. These habitat mosaics are extremely diverse, creating crucial habitat for a wide variety of wildlife species. Wetland habitat types in these locations include large oxbow slough palustrine wetland, emergent marsh, wet meadow, riparian shrub, and gallery cottonwood forest. Upland grassland and shrub-steppe habitats are included within these floodplains. Further information on this subject is provided in the Technical Assessment portion of this proposal.

Affected Wildlife: In the arid west, a very large proportion of wildlife species use wetland and riparian habitats associated with floodplain areas. This project is located in one of the best waterfowl production valleys in eastern Washington. Mallards are the most abundant species produced. Wood duck, blue-winged/cinnamon teal and gadwall breeding populations are also very healthy. Past projects on these properties are responsible for the protection and restoration of the habitat that produced in 2001 the first successfully breeding pair of bald eagles in the Middle Yakima Basin since 1902. By 2005 there were at least 4 active nests on the project properties. Volunteers from the Yakima Chapter of the Audubon Society assist in conducting non-waterfowl bird surveys 4 times per year on the project properties. These surveys are showing a great diversity of bird species breeding, wintering and migrating through the project area. Heron colonies in the area include over 400 nests in multiple rookeries. American white pelican populations exceed 600 individuals from February through November each year. Restoration of greater sage-grouse populations in the Satus watershed is currently occurring. Project properties will be instrumental in the success of this augmentation effort. Healthy populations of mule deer, black bear, bobcat, beaver, jackrabbits, and other mammals occur in the project area. Cougars and elk are sighted occasionally as well. As stated in the Proposal Summary, the Satus and Toppenish Creek watersheds are responsible for 60-75% of the total steelhead production in the Yakima Basin. Other salmonids using the project area include spring chinook (passage and winter rearing), fall chinook, (spawning and rearing), and coho salmon (spawning and rearing). More information on the wildlife species affected by this project is included in the Technical Assessment portion of this application.

How does the proposed work form a long-term wetlands and migratory bird conservation proposal that should be funded under the North American Wetlands Conservation Act (NAWCA)?

This project is located in the eastern Washington portion of the Intermountain West Joint Venture. In the 1995 Intermountain West Joint Venture Implementation Plan, the Yakima Basin was identified as one of seven Focus Areas in Washington state for waterfowl and other species. In 2004, the Washington Steering Committee of the IWJV completed a Coordinated Implementation Plan for Bird Conservation in eastern Washington. In this new state plan for the IWJV, the Lower Yakima Valley was designated as one of 43 Bird Habitat Conservation Areas in eastern Washington for waterfowl as well as other migratory birds. The project involves wetland restoration on properties that are permanently protected. The project area includes some of the most productive waterfowl breeding habitats in eastern Washington. Wintering numbers of waterfowl, once in the hundreds of thousands, now peak in the tens of thousands. Habitat restoration is the major strategy identified to return some of these wintering birds back to the region. Non-game wetland dependent migratory birds are also very abundant. Sites in the project area previously restored show great diversity in terms of migratory bird species breeding, wintering and using the area as a stopover. The responses in the Technical Assessment provide more detail on this matter.

What are the linkages between the proposal and conservation objectives of the following programs/plans and other international migratory bird and wetlands conservation programs/plans: North American Waterfowl Management Plan, Partners in Flight, U.S. Shorebird Conservation Plan, and North American Waterbird Conservation Plan? How do proposal activities address specific habitat priorities stated in these conservation plans? If there are no direct linkages to conservation plans, how and why was the proposal was developed?

The project is located within the Intermountain West Avifaunal Biome in the **Partners in Flight (PIF) North American Landbird Conservation Plan**. Two of the primary habitats identified in this biome are western shrublands and riparian. The PIF plan concludes that riparian habitats support the highest bird diversity of any western habitat type, while being one of the rarest. Riparian areas are sensitive to disturbance and have been substantially degraded by development in the region, including dewatering and alteration of water flows, road construction, invasive species encroachment, severe overgrazing and recreation. Such is the case in the project area. Hundreds of acres of riparian habitat along the Yakima River, Toppenish Creek, Satus Creek, along with numerous oxbows, sloughs and side channels, have been cleared, overgrazed, dewatered and channelized for agricultural production and other human development. Significant improvement and long-term protection of riparian habitat is proposed for the SULPHUR, SUNNY, SATUS, LSATUS, PUMPH, MENINICK and OLDGOLD tracts. Western shrublands are also critical: “Shrub nesting species comprise the largest number of Species of Continental Importance in this biome.” The PIF plan identifies conversion for agriculture, invasion of non-native grasses, overgrazing of grasses and forbs, development, sagebrush eradication, and changes in fire regimes as factors which have resulted in considerable loss and degradation of habitat, with subsequent declines of associated bird populations. This description correctly describes much of the shrub steppe in the project area. “Shrub steppe was identified as the highest priority habitat for conservation based on trends in bird populations and habitat in the Interior Columbia Basin.” The LSATUS tract is situated at the lowest elevation of that portion of the Reservation slated for Greater Sage-Grouse reintroduction. Its position and relatively abundant water resources make it ideal for breeding, brood rearing and wintering sage grouse. As such, it is a unique landscape feature that will contribute significantly to sage grouse recovery particularly with restoration of its shrub steppe and wet meadow habitats.

The **Intermountain West Regional Shorebird Plan** identifies the Great Basin, which includes the project area, as one of the six BCR’s in this region, and that it “stands out enormously important for both breeding and migrating shorebirds.” While the project area does not contain any large shorebird concentration areas, it contains a wide variety of freshwater and saline palustrine, riverine and lacustrine wetlands, an abundance of irrigated croplands, and extensive wetland wildlife management areas. These habitats are distributed throughout the Lower Yakima Basin and occur in all of the tracts in this proposal, as well as several private hunting clubs, Toppenish National Wildlife Refuge and the State Sunnyside Wildlife Management Area. The Intermountain West plan concludes that finding ample high quality freshwater will be the greatest challenge faced by future shorebird conservation interests. Adequate, long-term water supplies are secure for improvement and maintenance of habitat quality on all tracts in this project. High priority species that breed within the Great Basin that will benefit from habitat improvements in the project area include long-billed curlew, American avocet, black-necked stilt, killdeer, spotted sandpiper, Wilson’s phalarope and common snipe.

The project is included in the Intermountain West Region in the **North American Waterbird Conservation Plan (NAWCP)**. Twelve species identified in this plan also occur in the project area and all will receive some degree of benefit from wetland and riparian habitat improvements on all project tracts, particularly the American white pelican, eared grebe, white-faced ibis, western grebe, black-crowned night heron, and great blue heron. The major concern expressed in this plan is shortage and competition for high quality water to support high quality habitat for waterbirds. In the plan, high quality water is described as “life giving, yet transient, oases for aquatic birds.” The competition for water is also intense in the project area, and while not extensive, each wetland and riparian habitat in the project is in fact an oasis in an otherwise arid landscape. Water conservation practices being implemented in the surrounding agricultural landscape continue to decrease the abundance of agricultural wetland habitats outside of the project tracts. Fortunately all of the tracts within the project have secure supplies of freshwater to grow wetland and riparian plant communities and to allow managers to maintain hydrologic regimes necessary for migrating and nesting waterbirds.

The project is also included in the Columbia Basin ecoregion of the **North American Waterfowl Management Plan (NAWMP)**. This arid region, in the rain shadow of the Cascade Mountains, receives 6 to 9 inches of rainfall per year. Reservoirs have been created and huge diversion dams built across every major stream including the Yakima River, Satus Creek and Toppenish Creek to supply irrigation water to thousands of acres of high value cropland. Most of the natural wetlands were palustrine emergent or riparian types associated with the stream corridors. Many of these historically valuable areas have been severely degraded by channelizing and de-watering the streams, clearing woody riparian vegetation and severe overgrazing. Many of the wetlands that occur in the area today are “irrigation induced” irrigation ditches and canals, drainage ditches and depressions that receive tailwater from irrigation. By insuring an adequate, long-term supply of water, extensive areas of wetland and riparian habitat are included in the project for restoration and protection. All tracts in this proposal will improve and preserve shallow emergent marshes and woody riparian habitat. Many high priority species listed in this plan, such as mallard, wood duck, northern pintail, canvasback, cinnamon teal,

redhead, and hooded merganser, will benefit from proposed habitat improvements. Riparian habitat improvements, particularly along Satus and Toppenish Creeks, will significantly benefit endangered salmon and steelhead.

The project area occupies much of Bird Habitat Conservation Area 21—the Lower Yakima Valley—as described in the Intermountain West Joint Venture **Coordinated Implementation Plan for Bird Conservation in Eastern Washington**. Priority habitat types in eastern Washington were divided into three categories—Priority A being the highest priority. Priority A habitats listed in the plan includes Eastside Grasslands, Shrub Steppe, Eastside Riparian-Wetlands, and Herbaceous Wetlands. In all cases the goal as stated in this plan is to stop the loss and degradation of these highest priority habitats and to institute aggressive restoration activities. All protection, restoration and enhancement activities proposed for all tracts within the project are specifically targeted at significantly improving and maintaining the integrity of these four Priority A habitats. Reasonably secure water supplies for all of these tracts will help to maintain the integrity of these habitats into perpetuity. Numerous species of waterfowl, shorebirds, and waterbirds listed in this plan and described in the tables and narratives above will significantly benefit from proposed habitat improvements in the project.

If the proposal is part of a larger multi-phase or landscape level project, how does it fit into the larger effort?

This NAWCA project is one component of a large, long-term effort to restore two of the most important watersheds in the Yakima Basin. Due to intensive development and fragmented land ownership patterns elsewhere, projects of this scale are rarely possible in the Northwest. The ultimate goal of these watershed restoration activities is to return ecological integrity to the Satus and Toppenish Creek Watersheds. A restoration project such as this requires the protection of large expanses of land, many years, and a large and diverse funding strategy. Information provided below outlines the scope of the overall effort, the multiple plans guiding this large-scale restoration, and the component projects included.

The Waterfowl Management Plan for the Yakama Reservation (1989): This plan was written by the U. S. Fish and Wildlife Service under contract with the Yakama Nation. The YN properties included in this NAWCA project were originally identified as high priority areas in this plan.

The Yakama Nation's Wetlands and Riparian Restoration Project: This project, conceived in the mid-1970's, began implementation in 1992. The goal of this project is to protect, restore, manage and monitor at least 27,000 acres of wetland and riparian habitat in the valley portion of the Reservation. The Northwest Power and Conservation Council (NPCC) and the Bonneville Power Administration are cooperators in this project. National Environmental Protection Act (NEPA) requirements have been completed and the project is currently in the implementation phase. To date over 20,000 acres are under permanent protection, restoration and management due to these efforts. Much of this NAWCA project is occurring on lands secured under this effort.

Yakima River Water Enhancement Plan (1994): This planning effort began in 1990 and is designed to implement water conservation measures in the Yakima River Basin with natural resources considerations as the driving force. It was authorized by Congress (PL 96-182) and funds have been appropriated annually for its implementation. Water savings due to irrigation district conservation measures are devoted to instream flows in the Yakima River and its tributaries. An important component of this legislation is the Toppenish Creek Corridor Project, further guiding activities in the project area. This NAWCA project is being implemented under this plan's guidance as well as the plans referenced above.

Satus and Toppenish Creek Watershed Restoration projects: The Satus and Toppenish Creek projects restore habitats in the valley portion of the Reservation. They are aimed at restoring watershed conditions in the range and forested portions of the Reservation. These two watersheds make up over 20% of the total land base of the Yakima Basin and produce over 60% of the wild steelhead. Because both the Satus and Toppenish Creek watersheds are wholly contained on the Reservation, they represent a unique effort to restore ecological function from the headwaters to the mouths.

Yakima Subbasin Plan (2005): This plan was developed and approved in February 2005. In a planning effort unprecedented in the Yakima Basin, nearly all applicable governmental entities cooperated to produce this long-term plan to restore the fish and wildlife resources of the entire Yakima Basin. The major cooperating governments include the Yakama Nation, State of Washington, Yakima County, Benton County, and the cities of Yakima, Richland, Benton, Ellensburg, Granger, Kennewick, Prosser, Roslyn, Selah, Sunnyside, West Richland, and Union Gap. This plan was

adopted by the Northwest Power and Conservation Council (NPCC). It will be used to guide all future NPCC-funded activities in the Basin. The scope of this plan is also large enough to guide the funding activities of other sources. All of the activities and project areas identified for match and grant funding in this NAWCA proposal have been identified as high priority actions and locations in the Subbasin plan.

Other Plans and Projects: The YN is implementing other projects in these watersheds. Range restoration efforts have led to the reintroduction of bighorn sheep to the Satus Rangeland in the spring of 2005. The goal of this project is to restore and maintain a harvestable population of bighorn sheep on the Reservation. Greater sage-grouse population reintroduction efforts are currently underway in the Satus watershed's shrub-steppe habitats. Planning and habitat analysis for this effort began in 2000. Reintroduction of sage grouse will occur in spring of 2006 and continue for several years. The restoration activities occurring under this NAWCA project are expected to provide wintering and brood rearing habitat benefits to the reintroduced sage grouse. A wild horse management plan and reduction project is also occurring in the Satus rangeland. Horse populations are being monitored and their numbers managed to assure that quality habitat and horse health is maintained. Beaver reintroduction efforts are occurring in the upper watersheds of Satus and Toppenish Creeks. The successful floodplain habitat efforts in the agricultural portion of the Reservation are resulting in a surplus of beavers. Family units are currently being trapped and relocated to higher elevation areas where they have been extirpated. Healthy beaver populations are a key component of the Yakama Nation's watershed restoration goals. Multiple fisheries-related projects and plans are also occurring in the project area. Literally tens of millions of dollars per year are spent by the Yakama Nation, Washington Department of Fish and Wildlife, U. S. Fish and Wildlife Service, Bureau of Indian Affairs, Bureau of Reclamation, Bonneville Power Administration, U. S. Department of Agriculture, and others in the Yakima Basin to restore the fish and wildlife resources contained therein.

How is the proposal unique from, or complementary to, previously funded proposals?

This project is complementary to Phase 1 of the Lower Yakima Wetlands Protection/Restoration project, which was funded by NAWCA in 1997 and has been successfully completed. Both Phase 1 and 2 encompass approximately 40,000 acres of riparian and floodplain habitats of Satus Creek, Toppenish Creek and the Yakima River, which create a unique opportunity for conservation of entire, complex watersheds. The current project has a similar wetland restoration and management philosophy, which draws on interdisciplinary expertise and seeks to restore self-sustaining ecological function. Both projects are also driven by restoration of plants, wildlife and habitats that are culturally valuable to the Yakama people. However, Phase 1 and 2 are different in that they treat different hydrologic or habitat degradation problems in different wetland sites within the project area. The current project also proposes to restore a larger wetland acreage: Phase 1 treated approximately 7,200 acres across several sites, whereas Phase 2 (the current project) proposes to treat over 14,000 acres. In addition, the current project has greater involvement from the regional conservation community than Phase 1, with 10 matching and 3 non-matching partners. Finally, the current project also builds on the success of Phase 1 and numerous other restoration activities that have occurred in the project area and the Yakama Reservation in the past 14 years. For example, Russian olive removal and replacement with native species was initiated on the Satus Wildlife Area tract, where the hydrology had been restored in Phase 1. Multiple land acquisitions and restoration efforts in Reservation shrub-steppe rangelands and forested areas has increased the ability of the YN and partners to conserve whole watersheds, from headwaters to downstream outflows. Because of the large-scale nature of this project, it is anticipated that up to three future NAWCA proposals may be submitted to implement additional restoration activities in this project area.

How did you determine the proposal boundaries?

The efforts of the Yakama Nation, Washington Department of Fish and Wildlife, City of Grandview, and USFWS to permanently protect wetland and riparian habitats exceed 40,000 acres in the project area. The project area boundaries are the extent of permanently projected wildlife tracts, within which specific restoration activities are proposed. Because this project involves individual properties of several thousand acres each, only the portions of these properties that will be restored by the hydrologic activities of this NAWCA project are included. Upland portions of the properties are included because they are directly adjacent to the identified wetland habitats, and are ecologically integral to the wetland habitats. Cooperation among these individual jurisdictions creates a restoration success story that greatly exceeds the number of acres protected and restored.

What are the threats and special circumstances that make NAWCA funding important at this time? Will any partner match be lost if the proposal is not funded?

All properties included in this project are protected in perpetuity and managed exclusively for the benefit of wetland, riparian and upland habitats. If this project is not funded the restoration of these protected properties will be set back a number of years. Partner funding will likely also suffer in the future under this scenario. This NAWCA project includes partners that have been working toward wetland restoration for many years and new partners that have joined these efforts upon the development of this proposal. Local Pheasants Forever chapters have been partners in Phase 1 of this project as well as in Phase 2. Because of the unique partnership relations developed in this NAWCA effort, the Pheasants Forever chapters are willing to extend the efforts to raise the funds necessary. The ability of these small grass roots chapters to amass the amount needed to be a 10% partner takes numerous fund-raisers or many thousands of volunteer hours. Whether NAWCA-funded or not, however, all the partners are committed to this large-scale restoration effort. It will continue for many years to come.

What are the current public and private uses of lands in the proposal area and are you proposing any changes?

With the exception of the Tule Gun Club (127 acres), all of the properties identified in this Project proposal are open for public use. The Yakama Nation and the Washington Department of Fish and Wildlife manage portions of all of these properties for public hunting according to the rules and regulations of each jurisdiction. School tours and environmental training activities occur on these properties as does non-consumptive wildlife recreation. These activities will be enhanced by the actions proposed in this project. Traditional use of the areas by the Yakama People will also be enhanced by the native habitat restoration activities in this project. No land use changes are proposed for the project area.

Will you allow public access? Will you limit the number of people permitted access or the season of access?

Because these properties are managed for the benefit of wildlife, unrestricted public access is inappropriate, however specific uses and access are allowed. Access is permitted year-round but is controlled, especially during the spring and summer breeding seasons. Public hunting of waterfowl and upland gamebirds is allowed on all of the properties in fall and winter. The number of hunters is monitored but not controlled, and the days per week that hunting is allowed is restricted on some properties. For example, the Satus Wildlife Area is open to hunting on weekends, Wednesdays and holidays only to ensure that a higher quality hunting experience is achieved throughout the season. School and environmental tours are allowed, but reservations are required. Non-consumptive recreation is also allowed such as bird-watching, but permission is required to minimize the disturbance of the wildlife populations using the properties. There is unlimited access by Yakamas for traditional gathering activities of plant materials, but these harvests are seasonal.

Has the public been informed about the proposal? Have landowners been contacted? If applicable, what is the willingness of landowners to sell properties?

Because of the scale of this watershed effort, publicity is very important. Large projects like this have extensive borders. The proponents are extremely conscious of the need to be "good neighbors". For example, control of invasive species adjacent to private and governmental property owners to prevent spread of infestations is a high priority. Project activities have been showcased in public forums such as newspaper articles, scientific symposium presentations, and occasional television programs. Person-to-person contact is extremely important in rural communities, and information has been disseminated regularly via casual telephone conversations and fence-line interactions. The only acquisition portion of this project involves the purchase of a property that the Yakama Nation purchased from a willing seller (this is a match activity). All other properties have been previously protected into perpetuity.

BUDGET AND WORK PLAN

Is the required Budget Table submitted here or as an attachment?

It is included as an attachment.

Do you need to explain any abbreviations in the Budget Table?

- ALL = All properties
- BOR = Bureau of Reclamation
- BYRON = Byron Ponds Wildlife Area, part of Sunnyside Wildlife Area (WDFW & COG)
- COG = City of Grandview
- CWU = Central Washington University
- DU = Ducks Unlimited, Inc.
- LS = Lloyd Sak
- LSATUS = Lower Satus Wildlife Area (YN)
- MENINICK = Meninick Wildlife Area (YN)
- MIDTOPP = Mid Toppenish Creek Property (YN)
- NRCS = Natural Resources Conservation Service
- NSATUS = North Satus Wildlife Area (YN)
- OLDGOLD = Old Goldendale Road Wildlife Area (YN & Toppenish NWR)
- PF = Pheasants Forever
- PUMPH = Toppenish Creek Pumphouse Wildlife Area (YN)
- SATUS = Satus Wildlife Area (YN)
- SULPHUR = Sulphur Creek, part of Sunnyside Wildlife Area portion of the Sunnyside Wildlife Area (WDFW)
- SUNNY = Sunnyside Wildlife Area Headquarters Unit (WDFW)
- TULE = Tule Gun Club, a subset of the mid Toppenish Creek property (privately owned)
- USFWS = U. S. Fish and Wildlife Service – Toppenish National Wildlife Refuge
- WDFW = Washington Department of Fish and Wildlife
- WWA = Washington Waterfowl Association
- YBEE = Yakima Basin Environmental Education
- YN = Yakama Nation
- YVAS = Yakima Valley Audubon Society

If your grant request exceeds \$1,000,000, what is your justification?

N/A

If any match was previously approved by the Council via an Optional Matching Contributions Plan, did you include a copy of the letter approving the Matching Contributions Plan and give the following information: tracts affected, and how much of each partner’s match has been used in previous proposals, how much is being used in this proposal, and how much will remain after the current proposal is funded?

N/A

ACQUISITION BUDGET JUSTIFICATION – \$361,345 and 320 acres
Grant - \$0 Match - \$361,345 Non-Match - \$0

When will each fee tract be acquired and what are the costs? If some tracts are not yet identified, explain why and the method to be used to select tracts during proposal implementation.

Tract	Month, year when fee acquisition will occur	Total \$
Lower Satus Wildlife Area	May 2005	\$361,345

When will each fee donation occur, who are the donors and recipients, and what are the costs? N/A

Tract	Month, year when fee donation will occur	Donor	Recipient	Total \$

When will each easement tract be acquired and what are the costs? If some tracts are not yet identified, explain why and the method to be used to select tracts during proposal implementation. N/A

Tract	Month, year when easement acquisition will occur	Total \$

When will each easement donation occur, who are the donors and recipients, and what are the costs? N/A

Tract	Month, year when easement donation will occur	Donor	Recipient	Total \$

For each tract acquired or donated in fee or easement, what is the cost per acre, what method did you use to determine costs, how do you know the costs are reasonable, and explain unusually high costs or large differences between per acre value of match and grant tracts or fee and easement tracts?

One 320-acre property is included in this proposal. It was purchased by the Yakama Nation from a willing seller in the spring of 2005. The property is permanently protected for wetlands, riparian and upland habitat management and restoration. The purchase price was determined using an appraisal conforming to the federal requirements. The price per acre varied according to the uses identified on the specific portions of the property. For instance, the portions of the property identified as pasture appraised for approximately \$1,037/acre. Irrigated cropland acres appraised at \$1,920/acre. The price paid matched this appraised value. There is an old structure on the property, and this portion of the purchase cost has been excluded from the match listed above. The structure is located within an area that will be restored to active floodplain. It will be removed to allow for native habitat restoration.

If a tract is donated, how does the donation increase resource values or degree of protection/management of wetlands (NA if donation is from a private landowner to a conservation organization)?

N/A

Will acquisition of any tracts be credited to wetlands mitigation banks or be used to satisfy wetlands mitigation requirements?

No

What tract is associated with each easement? N/A

What is the term/length of each easement? N/A

What organization will monitor each easement? N/A

Who will each easement revert to in the event the primary easement holder ceases to exist? N/A

Have you adopted the Land Trust Alliance or other easement monitoring standards?

N/A

Is there a stewardship endowment dedicated to the project area for each easement? How much?

Funding is provided by the Bonneville Power Administration for the management of this property into perpetuity. Approximately \$750,000 is provided annually for the operations and maintenance of over 20,000 acres within the Yakama Nation's Wetlands and Riparian Restoration Project. The acquired property is included in this project.

What are the restrictions, allowed structures, allowed activities and reserved rights for each easement?

The acquired property has been included into the Yakama Nation’s Wetlands and Riparian Restoration Project into perpetuity. All activities occurring on the purchased property must be in accordance with the Restoration Project. Agricultural crop production is currently occurring on the property. This will continue until a management and restoration plan is developed for that portion of the property in the next few years. This acreage will then be restored to native habitats.

Tract	Term	Monitoring Organization	Reversionary Organization	Monitoring Standards	Stewardship Endowment
Lower Satus Wildlife Area	In Perpetuity	Yakama Nation	N/A	Outlined in the management plans of the Yakama Nation’s Wetlands and Riparian Restoration Project	Approximately \$12,000/yr
Restrictions: N/A Allowed structures: N/A Allowed activities: N/A Reserved rights: N/A					

What work will be done, when, and on what tract(s) through the APPRAISALS & OTHER ACQUISITION COSTS budget (e.g., contract costs, closing costs, surveys, etc.) and how did you determine the costs? If some tracts are not yet identified, explain why and the method to be used to select tracts during proposal implementation.

Appraisals were conducted in the acquisition of this property, but are not included as match for this proposal.

Item & Work	Units	\$/unit	Total \$	Schedule (month, year)	Tract
		\$/	\$		
		\$/	\$		
TOTAL COSTS	NA	NA	\$	NA	NA

How do you know the costs are reasonable and what other information justifies the APPRAISALS & OTHER ACQUISITION COSTS budget?

N/A

What work will be done, when and on what tract(s) through the NON-CONTRACT PERSONNEL & TRAVEL budget and how did you determine the costs? If some tracts are not yet identified, explain why and the method to be used to select tracts during proposal implementation.

N/A

Item & Work	Units	\$/unit	Total \$	Schedule (month, year)	Tract
		\$/	\$		
		\$/	\$		
TOTAL COSTS	NA	NA	\$	NA	NA

How do you know the costs are reasonable and what other information justifies the NON-CONTRACT PERSONNEL & TRAVEL budget?

RESTORATION BUDGET JUSTIFICATION – \$3,290,677 and 14,199 acres
Grant - \$1,000,000 Match - \$1,665,261 Non-Match - \$625,416

What work will be done, when and on what tract(s) through the CONTRACTS budget and how did you determine costs? If some tracts are not yet identified, explain why and the method to be used to select tracts during proposal implementation.

See the property specific descriptions included in the Purpose and Scope Section for an explanation of activities occurring per property.

Item & Work	Units	\$/unit	Total \$	Schedule (month, year)	Tract
Russian Olive Removal (Piling)	1,000	\$103/acre	\$103,286	10/03-5/05	SATUS
Russian Olive Removal (Piling)	370	\$103/acre	\$38,200	10/05-9/06	SATUS
Russian Olive Removal (Burning)	1,370	\$41/acre	\$56,684	9/05-9/06	SATUS
Byron Ponds Survey, Design	1	\$40,028/project	\$40,028	1/06-12/07	BYRON
Byron Ponds Construction Managmt.	1	\$11,466/project	\$11,466	1/06-12/07	BYRON
Byron Ponds Mobilization	1	\$12,000/project	\$12,000	5/06-12/07	BYRON
Byron Ponds Misc. Excavation	1,000	\$6/cubic yard	\$6,000	5/06-12/07	BYRON
Byron Ponds Water Control Structure	1	\$6,000/structure	\$6,000	5/06-12/07	BYRON
Byron Ponds Road Fill (400' X10' X1')	222	\$12/cubic yard	\$2,667	5/06-12/07	BYRON
Byron Ponds Gravel Surfacing	148	\$60/ton	\$8,889	5/06-12/07	BYRON
Byron Ponds "Beaver Deceiver"	2	\$6,000/structure	\$12,000	5/06-12/07	BYRON
Byron Ponds Gate on Current WCS	1	\$12,000/gate	\$12,000	5/06-12/07	BYRON
Byron Ponds New Concrete WCS	1	\$90,000/WCS	\$90,000	5/06-12/07	BYRON
Byron Ponds Misc. Fill	1	\$12,000/lump sum	\$12,000	5/06-12/07	BYRON
Byron Ponds Rail Car Bridge	1	\$12,000/bridge	\$12,000	5/06-12/07	BYRON
Byron Ponds Erosion Control	1	\$10,299/lump sum	\$10,299	5/06-12/07	BYRON
Lower Satus Survey, Design	1	\$31,566/project	\$31,566	1/06-12/07	LSATUS
Lower Satus Construction Managmt.	1	\$10,322/project	\$10,322	1/06-12/07	LSATUS
Lower Satus Mobilization	1	\$12,000/lump sum	\$12,000	1/06-12/07	LSATUS
Lower Satus Creek Grade Cont. Struct.	3	\$12,000/structure	\$36,000	1/06-12/07	LSATUS
Lower Satus Side Channel Structure	3	\$7,200/structure	\$21,600	1/06-12/07	LSATUS
Lower Satus Water Control Structure	3	\$6,000/structure	\$18,000	1/06-12/07	LSATUS
Lower Satus Rock Spillway	111	\$36/cubic yard	\$3,996	1/06-12/07	LSATUS
Lower Satus Misc. Earthwork	1	\$24,000/lump sum	\$24,000	1/06-12/07	LSATUS
Lower Satus Erosion Control	1	\$8,378/lump sum	\$8,378	1/06-12/07	LSATUS
Old Goldendale Survey, Design	1	\$31,262/project	\$31,262	1/06-12/07	OLDGOLD
Old Goldendale Construct. Managmnt.	1	\$11,466/project	\$11,466	6/06-12/07	OLDGOLD
Old Goldendale Mobilization	1	\$12,000/lump sum	\$12,000	6/06-12/07	OLDGOLD
Old Goldendale Creek Grade Contr.	4	\$18,000/structure	\$72,000	6/06-12/07	OLDGOLD
Old Goldendale Water Control Struct.	3	\$6,000/structure	\$18,000	6/06-12/07	OLDGOLD
Old Goldendale Misc. Fill	1	\$12,000/lump sum	\$12,000	6/06-12/07	OLDGOLD
Old Goldendale Rock Spillway	167	\$60/cubic yard	\$10,020	6/06-12/07	OLDGOLD
Old Goldendale Misc. Excavation	1	\$8,546/lump sum	\$8,546	6/06-12/07	OLDGOLD
Meninick Survey, Design	1	\$7,648/project	\$7,648	1/06-12/07	MENINICK
Meninick Construction Managmnt.	1	\$2,408/project	\$2,408	6/06-12/07	MENINICK
Meninick Mobilization	1	\$5,000/lump sum	\$5,000	6/06-12/07	MENINICK
Meninick Misc. Excavation	1,000	\$5/cubic yard	\$5,000	6/06-12/07	MENINICK
Meninick Water Control Structure	2	\$5,000/WCS	\$10,000	6/06-12/07	MENINICK
Meninick Rock Check Structure	2	\$10,000/structure	\$20,000	6/06-12/07	MENINICK
Sulphur Ck. Survey, Design	1	\$7,232/project	\$7,232	1/06-12/07	SULPHUR
Sulphur Ck. Construction Managmnt.	1	\$7,872/project	\$7,872	6/06-12/07	SULPHUR

Sulphur Ck. Mobilization	1	\$12,000/lump sum	\$12,000	6/06-12/07	SULPHUR
Sulphur Ck. Site Prep.	1	\$3,000/lump sum	\$3,000	6/06-12/07	SULPHUR
Sulphur Ck. Compacted Fill	17,150	\$3/cubic yard	\$51,450	6/06-12/07	SULPHUR
Sulphur Ck. Water Control Structure	6	\$6,000/WCS	\$36,000	6/06-12/07	SULPHUR
Sulphur Ck. Rip Rap	460	\$30/ton	\$13,800	6/06-12/07	SULPHUR
Sulphur Ck. Erosion Protection	1	\$5,899/lump sum	\$5,899	6/06-12/07	SULPHUR
Pumphouse Wetlands Survey, Design	1	\$20,242/project	\$20,242	1/06-12/07	PUMPH
Pumphouse Wetlands Const. Mgmt.	1	\$11,582/project	\$11,582	6/06-12/07	PUMPH
Pumphouse Wetlands Mobilization	1	\$12,000/lump sum	\$12,000	6/06-12/07	PUMPH
Pumphouse Wetlands Misc. Earthwork	1	\$36,000/lump sum	\$36,000	6/06-12/07	PUMPH
Pumphouse Wetlands Water Cont. Str.	5	\$12,000/	\$60,000	6/06-12/07	PUMPH
Pumphouse Wetlands Rock Spillway	2,500	\$36/cubic yard	\$90,000	6/06-12/07	PUMPH
Pumphouse Wetlands Erosion Control	1	\$6,362/lump sum	\$6,362	6/06-12/07	PUMPH
Pumphouse Pipeline 325B Operator	400	\$28.71/hour	\$11,484	9/05-12/07	PUMPH
Pumphouse Pipeline XL5200 Operator	320	\$28.74/hour	\$9,196	9/05-12/07	PUMPH
Pumphouse Pipeline D6 Operator	320	\$24.26/hour	\$7,763	9/05-12/07	PUMPH
Pumphouse Pipeline IT28 Operator	240	\$25.36/hour	\$6,086	9/05-12/07	PUMPH
Pumphouse Pipeline D8K Operator	40	\$25.36/hour	\$1,014	9/05-12/07	PUMPH
Pumphouse Pipeline Laborer	960	\$19.54/hour	\$18,758	9/05-12/07	PUMPH
Pumphouse Pipeline Maintenance Man	320	\$26.01/hour	\$8,323	9/05-12/07	PUMPH
Pumphouse Pipeline Fusion Operator	96	\$50.00/hour	\$4,800	9/05-12/07	PUMPH
Pumphouse Pipeline Truck Driver	320	\$25.00/hour	\$8,000	9/05-12/07	PUMPH
Pumphouse Pipeline Revegetation	7.07	\$1,500/acre	\$10,604	9/05-12/07	PUMPH
Pumphouse Pipeline Eng. Services	780	\$40.00/hour	\$31,200	9/05-12/07	PUMPH
Pumphouse Pipeline Mobilization	1	14,962 lump sum	\$14,962	9/05-12/07	PUMPH
Pumphouse Pipeline Contingency	1	\$152,612 lump sum	\$152,612	9/05-12/07	PUMPH
Mid Topp Creek Survey & Design	1	\$58,587 lump sum	\$58,587	3/05-9/08	MIDTOPP
Mid Topp Construction Management	1	\$30,819 lump sum	\$30,819	3/05-9/08	MIDTOPP
Mid Topp Mobilization	1	\$15,000 lump sum	\$15,000	5/06-9/08	MIDTOPP
Mid Topp Grade Control Structures	5,393	\$30/CY	\$161,790	5/06-9/08	MIDTOPP
Mid Topp Gravel	1,079	\$25/CY	\$26,975	5/06-9/0	MIDTOPP
Mid Topp Top Soil	710	\$10/CY	\$7,100	5/06-9/0	MIDTOPP
Mid Topp Compacted Fill	750	\$5/CY	\$3,750	5/06-9/0	MIDTOPP
Mid Topp Excavation	3,750	\$3/CY	\$11,250	5/06-9/0	MIDTOPP
Mid Topp Water Control Structures	3	\$3,750/structure	\$11,250	5/06-9/0	MIDTOPP
Mid Topp Demolition	1	\$7,500 lump sum	\$7,500	5/06-9/0	MIDTOPP
N Satus Survey & Design	1	\$17,475 lump sum	\$17,475	1/05-11/05	NSATUS
N Satus Construction Management	1	\$860 lump sum	\$860	9/05-11/05	NSATUS
N Satus Rock Grade Control Installation	1	\$40,356 lump sum	\$40,356	9/05-11/05	NSATUS
N Satus Road Repair	1	\$6,000 lump sum	\$6,000	9/05-11/05	NSATUS
Tule Survey & Design	1	\$31,021 lump sum	\$31,021	3/04-11/05	TULE
Tule Construction Management	1	\$9,979 lump sum	\$9,979	5/05-11-05	TULE
Tule Mobilization	1	\$5,400 lump sum	\$5,400	5/05-11-05	TULE
Tule Clear and Grub	1	\$3,348 lump sum	\$3,348	5/05-11-05	TULE
Tule Stripping	14,117	\$2.59/CY	\$36,563	5/05-11-05	TULE
Tule Compacted Embankment	11,992	\$2.70/CY	\$32,378	5/05-11-05	TULE
Tule Berm Removal	200	\$4.05/CY	\$810	5/05-11-05	TULE
Tule Water Control Structures	4	\$6,076/structure	\$24,304	5/05-11-05	TULE

Tule 24" CMP	89	\$146.89/LF	\$13,073	5/05-11-05	TULE
Tule Concrete Cutoff Collar	4	\$81.23/collar	\$324	5/05-11-05	TULE
Tule Rip Rap	800	\$52.38/CY	\$41,904	5/05-11-05	TULE
Tule Disking	1	\$500 lump sum	\$500	5/05-11-05	TULE
TOTAL COSTS	NA	NA	\$2,081,288	NA	NA

How do you know the costs are reasonable and what other information justifies the CONTRACTS budget?

The Russian olive contract figures are based on the results of a competitive bid process. The Survey, design and construction costs are based on estimates from Ducks Unlimited engineers who have over 10 years of experience in this project area implementing, on average, 2 large restoration efforts per year. The Tule and North Satus rates are actual costs of completed projects. The Pumphouse pipeline rates are according to Federal standards for the appropriate equipment operator salaries.

What work will be done, when and on what tract(s) through the MATERIALS & EQUIPMENT budget, what will be purchased, and how did you determine costs? For plantings of seeds or seedlings are to be planted, what seed or plant species will be planted and what percentage of each species is in the total planting?

The table below represents the material costs for the contract activities in the above table, and for other projects described in the Purpose and Scope section of this proposal. The source of the grass seed mixture is from seed collected from the Satus watershed and cultivated at a native grass nursery. The native grass seed mixture used consists of the following according to percent based on weight: Great Basin wildrye – 47%, Bluebunch wheatgrass – 46%, Sandberg’s bluegrass – 7%. This cool season bunchgrass mixture represents native species adapted to an arid environment such as that in the Middle Yakima Basin where precipitation rarely exceeds 12 inches per year.

Item & Work	Units	\$/unit	Total \$	Schedule (month, year)	Tract
Russian Olive Removal (herbicide)	3,063	\$25/gallon	\$76,574	10/04-12/07	SATUS
Pumphouse Pipeline Pipe (42" HDPE)	4,400	\$75/ft	\$330,000	9/05-12/07	PUMPH
Pumphouse Pipeline Fittings	1	5% of total pipe cost	\$16,500	9/05-12/07	PUMPH
Pumphouse Pipeline 2X60 hp Low Head Pump	1	\$100,000/pump	\$100,000	9/05-12/07	PUMPH
Pumphouse Pipeline Rip Rap	2,000	\$6/cubic yard	\$12,000	9/05-12/07	PUMPH
Pumphouse Pipeline Excavator (325B)	400	\$129.25/hour	\$51,700	9/05-12/07	PUMPH
Pumphouse Pipeline XL5200	320	\$114.34/hour	\$36,588.80	9/05-12/07	PUMPH
Pumphouse Pipeline D6 Bulldozer	320	\$62.6/hour	\$20,032	9/05-12/07	PUMPH
Pumphouse Pipeline IT28	240	\$35.93/hour	\$8623.20	9/05-12/07	PUMPH
Pumphouse Pipeline D8K	40	\$161.85/hour	\$6474	9/05-12/07	PUMPH
Pumphouse Pipeline Misc Small Machinery	320	\$25/hour	\$8000	9/05-12/07	PUMPH
Pumphouse Pipeline Fusion Machine 900	96	\$112.5/day	\$10,800	9/05-12/07	PUMPH
Pumphouse Pipeline Dump Truck (10CY)	320	43.39/hour	\$13,884.80	9/05-12/07	PUMPH
Pumphouse Pipeline Concrete Inlet & Outlet Structures	65	\$250/cubic yard	\$16,250	9/05-12/07	PUMPH
Old Goldendale USFWS Excavator 690E	70	\$150/hour	\$10,500	9/05-12/07	OLDGOLD
Old Goldendale USFWS Bulldozer/crawler 850	80	\$115/hour	\$9,200	9/05-12/07	OLDGOLD
Old Goldendale USFWS Tractor 4WD 350HP	40	\$100/hour	\$4,000	9/05-12/07	OLDGOLD
Old Goldendale USFWS Dump Truck 12 yard	20	\$90/hour	\$1,800	9/05-12/07	OLDGOLD
Old Goldendale USFWS Backhoe – Loader	20	\$80/hour	\$1,600	9/05-12/07	OLDGOLD
Russ. Olive Removal (Rent Excavator)	320	\$75/hour	\$24,000	7/03-12/07	SUNNY
Russ. Olive Removal (WDFW JD 450 Bulldozer Cleanup)	96	\$75/hour	\$7,200	7/03-12/07	SUNNY
Russ. Olive Removal (WDFW Backhoe For Piling)	96	\$32/hour	\$3,072	7/03-12/07	SUNNY
Disc Seedbed (WDFW JD 450 Bulldozer) (Native grass restoration is conducted at Russ. Olive control sites and other weed infested areas)	220	\$75/hour	\$16,500	7/03-12/07	SUNNY
Herbicide application for Russ. Olive resprouts & noxious weed control (WDFW Spray Equipment)	100	\$25/hour	\$2,500	7/03-12/07	SUNNY
Herbicide for Russ. Olive Resprouts & noxious weed control to protect new native grass seedings	235	\$50/gallon	\$11,750	7/03-12/07	SUNNY
Seed Native Grasses (WDFW	110	\$75/hour	\$8,250	7/03-12/07	SUNNY

Tractor & Seed Drill)					
Beaver Deceivers (Corrugated Steel Culverts, Treated Fence Posts & 2x4's, 16 foot galvanized hog panels, hardware to secure)	5	\$1200/Structure	\$6,000	7/03-12/07	SUNNY
Riparian Shrub/Tree Purchase	38,240	\$0.80/tree	\$30,592	3/04-10/04	SUNNY
Riparian Planting	38,240	\$0.40/tree	\$15,296	3/04-10/04	SUNNY
Site Preparation	38,240	\$0.08/tree	\$3,059	3/04-10/04	SUNNY
Weed Control	38,240	\$0.06/tree	\$2,294	3/04-10/04	SUNNY
Native Grass Seed	12,500	\$8.00/LB	\$100,000	7/03-12/07	ALL
TOTAL COSTS	NA	NA	\$965,040	NA	NA

Are costs pro-rated and how do you know that costs are reasonable? What other information justifies the MATERIALS & EQUIPMENT budget?

Costs are based on actual purchases, price quotations, or rental rates in the case of equipment use. Equipment rental rates do not include operator costs; those rates are included in the contract table. The Miscellaneous Restoration Materials represent the materials used in 2004/2005 and budgeted for purchase in 2005/2006 at the Sunnyside Wildlife Area for restoration purposes, not for routine maintenance. The cost figures were derived from actual costs spent in 2004/2005 and the amount approved in the budget for 2005/2006. The grass seed mixture rate was developed according to the price currently paid for the mixture.

What work will be done, when and on what tract(s) through the NON-CONTRACT PERSONNEL budget and how did you determine the costs? If some tracts are not yet identified, explain why and the method to be used to select tracts during proposal implementation.

Though much work is occurring on the project areas by non-contract personnel, only a small amount of this activity has been included as match in this application. This was done to try to keep the match portion of this proposal as simple as possible. The match listed below consists of personnel time used in administering the Russian olive removal contracts, developing the plans for removal, delineating and flagging the project boundaries, etc. The costs are based on figures actually spent in FY 04 and those budgeted in FY 05.

Item & Work	Units	\$/unit	Total \$	Schedule (month, year)	Tract
Russian Olive Removal Admin.	1	\$182,709/lump sum	\$182,709	10/03-12/07	SATUS
YVAS Wildlife Planning/Monitoring	1,712	\$20/hour	\$34,240	3/04-3/08	All
YBEE Native Vegetation Collection Planning and oversight	120	\$25/hour	\$3,000	4/06-9/08	SATUS LSATUS SUNNY
YBEE Native Vegetation Collection	500	\$8/hour	\$4,000	4/06-9/08	SATUS LSATUS SUNNY
WWA Vegetation Planting and Management	160	\$15/hour	\$2,400	5/06-9/08	SATUS MIDTOPP
CWU Hydrologic Planning and Monitoring	2,250	\$8/hour	\$18,000	3/04-9/08	MENINICK
TOTAL COSTS	NA	NA	\$244,349	NA	NA

How do you know costs are reasonable and what other information justifies the NON-CONTRACT PERSONNEL budget?

Personnel costs are based on rates paid according to the personnel policies manual of the Yakama Nation.

Will restoration of any tracts be credited to wetlands mitigation banks or be used to satisfy wetlands mitigation requirements?

No

Are there any other restoration costs shown in the Budget Table that are not described above?

No

**ENHANCEMENT BUDGET JUSTIFICATION – \$449,373 and 133 (546) acres
Grant - \$0 Match - \$449,373 Non-Match - \$0**

What work will be done, when and on what tract(s) through the CONTRACTS budget and how did you determine costs? If some tracts are not yet identified, explain why and the method to be used to select tracts during proposal implementation.

Contracts are used to provide the infrastructure development to allow for waterfowl forage availability on the Sunnyside Wildlife Area. One contract was completed in 2004. The actual costs of the contract are included in the table. The cost of a second contract to be let in 2006 is based on the approved budget appropriation for that activity.

Item & Work	Units	\$/unit	Total \$	Schedule (month, year)	Tract
Waterfowl Forage Enhancement	1	\$128,955/ lump sum	\$128,955	7/04-12/07	SUNNY
TOTAL COSTS	NA	NA	\$128,955	NA	NA

How do you know the costs are reasonable and what other information justifies the CONTRACTS budget?

These contracts are let according to the rules and regulations of the State of Washington.

What work will be done, when and on what tract(s) through the MATERIALS & EQUIPMENT budget, what will be purchased, and how did you determine costs? For plantings of seeds or seedlings are to be planted, what seed or plant species will be planted and what percentage of each species is in the total planting? If some tracts are not yet identified, explain why and the method to be used to select tracts during proposal implementation.

The City of Grandview has purchased equipment used to deliver water to the wetland portions of the Grandview Wastewater Treatment Facility portion of the Byron tract. Because of the high cost of this equipment, the City is paying for it over the course of several years. The costs reported are actual amounts spent and scheduled to be spent on this equipment in 2003-2007. It represents only a portion of the total cost of this equipment. The carp removal materials include the chemicals and control structures needed to remove carp from the Byron Ponds Wildlife Area.

Item & Work	Units	\$/unit	Total \$	Schedule (month, year)	Tract
Payments on Water Delivery Equip.	4	\$67,855/year	\$271,418	7/03-7/07	BYRON
Carp Removal Material	1	\$37,000/lump sum	\$37,000	1/06-12/07	BYRON

TOTAL COSTS	NA	NA	\$308,418	NA	NA
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Are costs pro-rated and how do you know that costs are reasonable? What other information justifies the MATERIALS & EQUIPMENT budget?

The costs are based on actual expenses and budgeted figures obligated for the materials presented.

What work will be done, when and on what tract(s) through the NON-CONTRACT PERSONNEL budget and how did you determine the costs? If some tracts are not yet identified, explain why and the method to be used to select tracts during proposal implementation.

The non-contract work involves the planning for the carp removal activities at the Byron Ponds Wildlife Area. The travel includes the mileage associated with driving to the site over the course of the project.

Item & Work	Units	\$/unit	Total \$	Schedule (month, year)	Tract
Carp Removal Planning	686	\$14.86/hour	\$10,000	1/06-12/07	BYRON
Carp Removal Travel (mileage)	3,000	\$0.33/mile	\$2,000	1/06-12/07	BYRON
TOTAL COSTS	NA	NA	\$12,000	NA	NA

How do you know costs are reasonable and what other information justifies the NON-CONTRACT PERSONNEL budget?

These planning costs are based on current salary rates of the State of Washington. The mileage rates are estimated using the current cost of gasoline and the average fuel mileage of a pickup truck.

Will enhancement of any tracts be credited to wetlands mitigation banks or be used to satisfy wetlands mitigation requirements?

No

Are there any other enhancement costs shown in the Budget Table that are not described above?

No

INDIRECT COSTS BUDGET JUSTIFICATION - \$100,000
Grant \$0 Match \$100,000 Non-match \$0

Did you attach your current approved negotiated indirect cost rate agreement signed by your cognizant agency to the proposal or ascertain that the Council Coordinator has a copy of your current agreement?

The Council Coordinator has a copy of DU's current agreement with the cognizant agency.

Items in Base	Specific Budget Items to Which Indirect Cost is Applied	Budget Item Cost	Match or Grant	Approved Indirect Cost Rate to be Applied*/ Agreement Date	Indirect Cost
Byron	Contracts, Materials and Equipment, Personnel and travel	\$235,348	Grant	10%	\$23,535
Lower Satus	Contracts, Materials and Equipment, Personnel and travel	\$165,861	Grant	10%	\$16,586
Old Goldendale	Contracts, Materials and Equipment, Personnel and travel	\$175,293	Grant	10%	\$17,529
Pumphouse	Contracts, Materials and Equipment, Personnel and travel	\$236,189	Grant	10%	\$23,619
Meninick	Contracts, Materials and Equipment, Personnel and travel	\$50,056	Grant	10%	\$5,006
Sulphur Creek	Contracts, Materials and Equipment, Personnel and travel	\$137,253	Grant	10%	\$13,725

TECHNICAL ASSESSMENT QUESTION 1

How does the proposal contribute to the conservation of waterfowl habitat?

HIGH PRIORITY SPECIES Tule Greater White-fronted Goose, Dusky Canada Goose, Cackling Canada Goose, Southern James Bay Canada Goose, Northern Pintail, Mottled Duck, American Black Duck, Mallard, Lesser Scaup, Greater Scaup. (Underlined species are present within the project area and are addressed below.)

How proposal will aid in meeting objectives of waterfowl conservation plans:

Intermountain West Joint Venture (IWJV) Implementation Plan (1995, 2004): In the 1995 IWJV plan, the Yakima Basin was identified as one of seven Focus Areas in Washington state for conservation of waterfowl and other bird species. In 2004, the Washington Steering Committee of the IWJV completed a Coordinated Implementation Plan for Bird Conservation in Eastern Washington. In this new state plan for the IWJV, the Lower Yakima Valley was designated as one of 43 Bird Habitat Conservation Areas in eastern Washington for waterfowl as well as other migratory birds.

The Waterfowl Management Plan for the Yakama Reservation (1989): This plan was written by the U. S. Fish and Wildlife Service under contract with the Yakama Nation. The YN properties included in this NAWCA project were originally identified as high priority areas in this plan.

The Yakama Nation's Wetlands and Riparian Restoration Project: This project, conceived in the mid-1970's, began implementation in 1992. The goal of this project is to protect, restore, manage and monitor at least 27,000 acres of wetland and riparian habitat in the valley portion of the Reservation. The Northwest Power and Conservation Council (NPCC) and the Bonneville Power Administration are cooperators in this project. National Environmental Protection Act (NEPA) requirements have been completed and the project is currently in the implementation phase. To date over 20,000 acres are under permanent protection, restoration and management due to these efforts. Much of this NAWCA project is occurring on lands secured under this effort.

Yakima River Water Enhancement Plan (1994): This planning effort began in 1990 and is designed to implement water conservation measures in the Yakima River Basin with natural resources considerations as the driving force. It was authorized by Congress (PL 96-182) and funds have been appropriated annually for its implementation. Water savings due to irrigation district conservation measures are devoted to instream flows in the Yakima River and its tributaries. An important component of this legislation is the Toppenish Creek Corridor Project, further guiding activities in the project area. This NAWCA project is being implemented under this plan's guidance as well as the plans referenced above.

Satus and Toppenish Creek Watershed Restoration projects: The Satus and Toppenish Creek projects restore habitats in the valley portion of the Reservation. They are aimed at restoring watershed conditions in the range and forested portions of the Reservation. These two watersheds make up over 20% of the total land base of the Yakima Basin and produce over 60% of the wild steelhead. Because both the Satus and Toppenish Creek watersheds are wholly contained on the Reservation, they represent a unique effort to restore ecological function from the headwaters to the mouths.

Yakima Subbasin Plan (2005): This plan was developed and approved in February 2005. In a planning effort unprecedented in the Yakima Basin, nearly all applicable governmental entities cooperated to produce this long-term plan to restore the fish and wildlife resources of the entire Yakima Basin. The major cooperating governments include the Yakama Nation, State of Washington, Yakima County, Benton County, and the cities of Yakima, Richland, Benton, Ellensburg, Granger, Kennewick, Prosser, Roslyn, Selah, Sunnyside, West Richland, and Union Gap. This plan was adopted by the Northwest Power and Conservation Council (NPCC). It will be used to guide all future NPCC-funded activities in the Basin. The scope of this plan is also large enough to guide the funding activities of other sources. One of the focal species identified in this plan is the mallard. All of the activities and project areas identified for match and grant funding in this NAWCA proposal have been identified as high priority actions and locations in this plan.

Waterfowl Redistribution Plan (1983): This plan was completed by the USFWS, WDFW and Yakama Nation in response to the sharp reduction in wintering waterfowl numbers in the project area. It called for measures to be implemented to redistribute these birds. The activities of this NAWCA project mirror some of the implementation measures identified in this plan as necessary for increasing the amount of wintering waterfowl in the project area.

How many individuals/pairs will use the proposal area and for what life cycle stage and whether this is an improvement in population numbers over the current situation:

Because of the many factors affecting waterfowl populations outside of the project area, it is with great caution that the following predictions are made. While wetland restoration is expected to benefit avian populations, the restoration goals of this project are explicitly habitat based. We do not feel it is wise to set population goals that may be influenced by outside factors to a greater extent than by the restoration activities occurring in this project. Predictions are admittedly conservative and based on those observed in the project area as a result of previous protection and restoration efforts.

Mallard: Mallards are the most abundant of the breeding ducks in the project area. The YN and WDFW have been conducting waterfowl breeding surveys in the project area since 1955. The results of these long-term surveys show a steady to increasing breeding population of mallards in the project area. Estimates of adult breeding numbers currently range from 10,000 to 15,000. Studies conducted independently by the YN and Toppenish National Wildlife Refuge show mallard Mayfield nest success rates ranging from 35-60% throughout the project area averaged in restored and non-restored areas. This high success rate is unusual in non-predator controlled environments. Mallard production surveys on restored wetland areas show excellent production of up to 1.2 mallard pairs per acre. Much of this project involves restoring hydrology to wetland areas where it has been completely removed in the past. An example of this is the Lower Satus Wildlife Area where levee development has disconnected the hydrology of more than 3 stream miles of floodplain wetland habitats; these areas currently do not contribute to mallard production at all. A conservative estimate would predict that this NAWCA project has the potential to increase the mallard production in the total project area by 1,000 to 2,000 pairs.

Mallards also make up the majority of the wintering ducks in the project area. Wintering waterfowl counts have been conducted in the project area since the late 1940s. Peak wintering duck numbers in the project area during the late 1960's exceeded 250,000. The majority of these were mallards. Today, surveys indicate that this number has declined substantially. Current surveys show peak mallard numbers between 40,000 and 50,000 in the project area. Evidence suggests that these wintering mallards have shifted their concentrations to the Columbia River just southeast of the project area. This shift occurred in the late 1970s and early 1980s due to a loss of wintering forage habitat in the project area and an increase in these opportunities to the immediate southeast. Wetland restoration activities conducted under this NAWCA project will increase the abilities of the wetland areas to produce winter forage. Although a return to historic mallard numbers is unrealistic, an increase in seasonal waterfowl habitat will contribute to maintaining current winter populations and allow for limited increases.

Northern Pintail: Pintail production is rare in the project area, and has generally been low since surveys began in the 1950s. Production surveys indicate a current breeding population of less than 50 pairs. The only areas showing consistent pintail breeding activity are the restored wetland sites in the project area. This gives some hope that increased pintail breeding may result from this NAWCA project. Summer banding activities, however, show an early movement of adult drake pintails to the area during August of each year. Wintering numbers in the project area peak at 4,000 to 5,000; the majority of these birds occur on restored wetland properties along Toppenish Creek. Restoration activities occurred on the Mid-Toppenish Creek unit under Phase 1 of this project, and pintail numbers now exceed mallard numbers by January each year on this property. Restoration activities conducted under this NAWCA project will certainly increase the amount of quality wetland habitat for wintering pintails by as much as 2,000 acres. However, it is nearly impossible to predict the resulting numbers of wintering pintails as many other factors north of the project area have a greater influence on these populations.

Lesser Scaup: Lesser scaup occur in the project area infrequently during fall and spring migration. Most of the wintering scaup habitat in the Northwest occurs on the Columbia River. The project area contains much more dabbling duck habitat than diving duck habitat. Waterfowl nest searches have identified scaup nests in the project area, but they are extremely rare. Actual breeding pairs in the project area likely do not exceed 30. This NAWCA project will not affect scaup numbers to any meaningful degree.

Tule Greater White-fronted Goose: This species has not yet been documented in the project area; however, it has been identified as a region where these geese could occur. Because of this potential, annual spring surveys are conducted.

These surveys concentrate on the restored wetland properties of the project as these areas have seen an increase in Pacific greater white-fronted goose numbers in the past 10 years.

Cackling Canada Goose: This subspecies, now incorporated into the cackling goose species assemblage, is not surveyed in the project area. Cackling geese of all size ranges winter in the project area, although they primarily represent the Taverners subspecies. Approximately 20,000 to 40,000 of these birds enter the project area in late December each year and stay until the middle of April. Because they leave at such a late date, the project area is considered an extremely important wintering site for these birds. Much of the energy they amass for their long migration north and their immediate breeding is gained within the project area.

How proposal will impact species and improve habitat quality (describe before- and after-proposal environment):

Please see the answer to the previous question, which contains information pertinent to effects on species and habitats.

Spp ¹	Status	TRACT						
		LSATUS	SATUS NSATUS	SUNNY	BYRON	MENINICK	OLDGOLD MIDTOPP TULE	PUMPH
MALL	Before	Minimal production & winter habitat	Extensive production & winter habitat	Wetlands degraded by white water lily; uplands degraded by Russ. Olives	Historic breeding & wintering habitat degraded by loss of water	Connected channels provide excellent breeding & migrating habitat	Same as MALL at MENINICK	Hydrologic disconnection decreased winter use from 40k to 5k, production has suffered also
	After	>600 acres of wetland & >300 acres of upland	Additional ~1000 acres improved by removal of Russ. Olives	Sulfur Crk reconnected will improve wetlands; Russ. Olive removal will improve uplands	Water enhancement will improve breeding & wintering habitat	Reconnection of additional channels will provide several new acres of breeding & migrating habitat	Same as MALL at MENINICK	Piping water into old channels should yield immediate response from breeding & wintering dabblers
NOPI	Before	No habitat	Extensive winter habitat	Same as MALL	Same as MALL	Same as MALL	Same as MALL	Same as MALL
	After	Same as MALL	Same as MALL	Same as MALL	Same as MALL	Same as MALL	Same as MALL	Same as MALL
LESC	Before	No habitat	Potential migrating habitat degraded by Russ. Olives	Russ. Olives choke migrating habitat	Historic wintering & migrating habitat degraded by loss of water	Minimal use	Some documented production at Toppenish NWR	Minimal to zero use

Spp ¹	Status	TRACT						
		LSATUS	SATUS NSATUS	SUNNY	BYRON	MENINICK	OLDGOLD MIDTOPP TULE	PUMPH
	After	Shallow wetlands may be used	~1000 acres improved habitat	Removal of Russ. Olive will improve wetlands	Water enhancement will improve wintering & migrating habitat	Reconnection of channels may increase invertebrate forage	Reconnection of channels may increase production	Shallow waters will not likely improve diver habitat
TG WFGO	Before	No habitat	Potential winter habitat	Potential winter habitat	Same as LESC	Forested channels provide minimal habitat	Potential habitat exists, no documented use	Same as at OLDGOLD
	After	Same as LESC	~1000 acres improved habitat	Additional potential winter habitat	Same as LESC	May improve potential winter habitat	Potential habitat will be increased	Same as at OLDGOLD
CCGO	Before	No habitat	If present, extensive migrating habitat	Same as at SATUS	Same as LESC	Same as TG WFGO	Same as TG WFGO	Same as TG WFGO
	After	If present will increase migrating habitat	~1000 acres of improved habitat	Forage enhancement will improve winter habitat	Same as LESC	Same as TG WFGO	Same as TG WFGO	Same as TG WFGO

¹Species abbreviations are: MALL=Mallard, NOPI=Northern Pintail, LESC=Lesser Scaup, TG WFGO=Tule Greater White-fronted Goose, CCGO=Cackling Canada Goose

Importance of each tract or logical groupings of tracts shown on maps in the proposal to the species (if tracts are not yet identified, explain what procedure will be used to ensure that high quality habitat is targeted):

Please see the answer to the previous question, which contains pertinent information.

OTHER PRIORITY SPECIES Pacific Greater White-fronted Goose, Wrangel Island Snow Goose, Atlantic Brant, Pacific Brant, Wood Duck, Redhead, Canvasback, Ring-necked Duck, Common Eider, American Wigeon. (Underlined species are present within the project area and are addressed below.)

How proposal will aid in meeting objectives of waterfowl conservation plans:

Please see the answer written in the High Priority Species section of this question beginning on page 23 above.

How many individuals/pairs will use the proposal area and for what life cycle stage and whether this is an improvement in population numbers over the current situation:

Because of the many factors affecting waterfowl populations outside of the project area, it is with great caution that the following predictions are made. While wetland restoration is expected to benefit avian populations, the restoration goals of this project are explicitly habitat based. We do not feel it is wise to set population goals that may be influenced by outside factors to a greater extent than by the restoration activities occurring in this project. Predictions are admittedly conservative and based on those observed in the project area as a result of previous protection and restoration efforts.

Wood Duck The project area contains arguably some of the most important wood duck production habitat in eastern Washington. This is due to the fact that agricultural development in the arid portion of the state has resulted in the removal of nearly all of the broad, diverse cottonwood-dominated floodplain areas. However, this development has not occurred to a great extent in the project area. The portion of this project area along the Yakima River contains wetlands, side channels, and healthy cottonwood forests important for wood duck breeding and wintering use. The project's management and restoration activities focus on restoration of these habitats instead of the use of wood duck boxes. Cottonwood floodplain management, however, requires the protection of large acreages of floodplain areas with conditions such as seasonal flooding and flows that are suitable for cottonwood regeneration. This project includes management of inundation and flows that promote cottonwood regeneration.

Estimating wood duck breeding and wintering numbers is very difficult. Breeding pairs are common in ground surveys in cottonwood forests. During winter aerial surveys, they are hidden under overhanging vegetation and not visible. Managers instead use indices to monitor wood duck trends. In the project area, wood duck numbers are recorded during the general waterfowl pair counts each year, but these data do not appear to accurately reflect the local population. Summer banding activities in the project area suggest that healthy numbers of young are produced each year. These activities also suggest high survival rates, even though the Yakima Basin contains some of the highest wood duck harvest numbers in the Pacific Flyway outside of California's Central Basin. Harvest of locally-banded wood ducks occurs equally in the project area and in California.

Though wood duck numbers are difficult to estimate, the protection and restoration activities of this project should result in increased wood duck numbers. Much of the Toppenish and Satus Creek floodplain areas have had their cottonwood forests removed over the past 100 years. As these habitats are restored, we are finding immediate use by wood ducks. Wetland restoration in the areas along the Yakima River, where there are cottonwood forests, will also result in immediate increases in wood duck use.

Redhead Because much of the habitat in the project area is suited for dabbling ducks, redhead numbers are relatively low. Specific areas, however, contain excellent redhead production. The best redhead production in the Yakima Basin has traditionally occurred at Byron Ponds Wildlife Area. The altered hydrology of this area in the last 10 years has reduced the numbers on this property. This restoration effort should result in the return of redhead production to this area. Currently less than 100 pairs of redhead breed in the project area. With the restoration of the Byron Ponds property, this number could increase three or four fold. Wintering numbers are nearly non-existent in the project area, as much better wintering habitat occurs on the nearby Columbia River.

American Wigeon Though there seems to be adequate habitat in the project area, wigeon breeding numbers are very low. Breeding pair numbers likely are less than 100 each spring. Wintering wigeon, however, are much more common. All properties within the project area that currently contain wetlands hold wintering wigeon. Wintering numbers peak at 5,000 to 6,000 birds. Each year birdwatchers identify several Eurasian wigeon mixed with the American wigeon along Toppenish Creek. Wintering wigeon appear to respond to wetland restoration in the project area very well. An increase in wetland habitats should result in increased wintering wigeon. It is anticipated that the restoration actions of this project could increase wintering wigeon populations by 1,000-2,000.

Pacific Greater White-fronted Goose Migrating white-fronted geese numbers are on the increase in the project area. They are first observed in September of each year almost exclusively on properties that have previously been restored. Though nearly non-existent in the project area 20 years ago, groups of several hundred are observed each year on the Satus Wildlife Area and Mid-Toppenish Creek tract. Both of these areas were the focus of wetland restoration activities in Phase 1 of this NAWCA project. Increased wetland restoration should allow for increased numbers of white-fronted geese in the project area. Current estimates of wintering white-fronted geese in the project area range from 500-2,000. The restoration activities of this project could increase these numbers by 500-1,000.

Ring-necked Duck Ring-necked duck production is also low in the project area. They are most commonly observed breeding on the same properties that contain breeding redheads. Pair counts show similar breeding numbers to redheads, probably less than 100 pairs. It is anticipated that ring-necked duck production will mirror that described for redheads above. Ring-necked ducks are more common during migration and wintering seasons. Currently 1,000-2,000 ring-necked ducks can be seen at their peak each winter. Like the redhead, they tend to concentrate in specific areas along the Yakima River, and one or two locations along Toppenish Creek. Restoration efforts will likely increase their breeding numbers in a similar manner to the redhead. Wintering numbers could increase by 500-1,000.

Canvasback Canvasback are relatively rare in the Yakima Basin. There have been no documented breeding records of this species in the recent decades. Most canvasback wintering occurs along the nearby Columbia River. Wintering canvasbacks have been observed at the Mid-Toppenish Creek tract on occasion. This project will likely not increase the numbers of this rare bird to the project area.

How proposal will impact species and improve habitat quality (describe before- and after-proposal environment):

Spp ¹	Status	TRACT						
		LSATUS	SATUS NSATUS	SUNNY	BYRON	MENINICK	OLDGOLD MIDTOPP TULE	PUMPH
WODU	Before	Minimal use due to lack of cottonwoods	High production	Minimal use due to lack of cottonwoods	Few present due to lack of cottonwoods	Extensive high quality breeding & wintering habitat	Minimal use due to lack of cottonwoods	Same as OLDGOLD
	After	Reconnection of channels should encourage cottonwoods	Short-term loss due to Russ. Olive removal, long-term native shrub restoration will improve habitat	Reconnection of channels should encourage cottonwoods	Increased water may increase winter use	Reconnection of channels should increase high quality habitat	Reconnection of channels should encourage cottonwoods improving breeding & wintering habitat	Same as OLDGOLD

Spp ¹	Status	TRACT						
		LSATUS	SATUS NSATUS	SUNNY	BYRON	MENINICK	OLDGOLD MIDTOPP TULE	PUMPH
REDH	Before	Minimal use, low numbers 2-3 miles away	Phase 1 increased open water & use	Minimal use	Historically highest breeding density in project area, lost water has reduced numbers	Minimal use	Minimal use, but potential exists	Same as OLDGOLD
	After	Restoration could attract to property	Russ. Olive removal will provide more open water & use	Hydrologic restoration should increase open water habitat	Restored water levels will improve important breeding habitat	No change expected	Restoration of wetland habitat should increase breeding habitat	Same as OLDGOLD
AMWI	Before	Minimal use, restored lands <7 miles away are used	High winter & migrating numbers	Moderate abundances in winter	Moderate to high abundances in winter	Moderate to high abundances in winter	Moderate to high abundances in winter when water present	Same as OLDGOLD
	After	Winter habitat will be improved & attract AMWI	Russ. Olive removal should increase use	Hydrologic restoration should increase winter habitat	Hydrologic restoration should increase winter habitat	Hydrologic restoration should increase winter habitat	Hydrologic restoration should increase winter habitat	Same as OLDGOLD
PG WFGO	Before	Lack of water precludes use	Relative high numbers in migration	Migrants use upland forage	Minimal use	Minimal use	Minimal use	Same as OLDGOLD
	After	Restoration of hydrology should attract PG WFGO	Russ. Olive removal should increase use	Hydrologic restoration should increase winter habitat	Hydrologic restoration should increase winter habitat	No change expected	Hydrologic restoration should increase winter habitat	Same as OLDGOLD
RNDU	Before	Same as PG WFGO	Same as REDH	Moderate abundances in winter	Same as REDH	Moderate to high abundances in winter	Moderate abundance when water present	Same as OLDGOLD
	After	Same as PG WFGO	Same as REDH	Hydrologic restoration should increase winter habitat	Same as REDH	Hydrologic restoration should increase winter habitat	Reconnected hydrology should increase breeding & wintering habitat	Same as OLDGOLD

Spp ¹	Status	TRACT						
		LSATUS	SATUS NSATUS	SUNNY	BYRON	MENINICK	OLDGOLD MIDTOPP TULE	PUMPH
CANV	Before	Same as PG WFGO	Occasional migrant	Occasional migrant	Occasional migrant	Occasional migrant	Occasional migrant	Occasional migrant
	After	Same as PG WFGO	No change expected	No change expected	No change expected	No change expected	No change expected	No change expected

¹Species abbreviations are: WODU=Wood Duck, REDH=Redhead, AMWI=American Widgeon, PG WFGO=Pacific Greater White-fronted Goose, RNDU=Ring-necked Duck, CANV=Canvasback

Importance of each tract or logical groupings of tracts shown on maps in the proposal to the species (if tracts are not yet identified, explain what procedure will be used to ensure that high quality habitat is targeted):

Please see the answer to the previous question, which contains pertinent information.

OTHER WATERFOWL

Species and narrative:

Blue-winged and Cinnamon Teal Breeding pair surveys have shown that the project area contains the most important habitat in the lower Yakima Basin for blue-winged/cinnamon teal production. The average number of breeding pairs is estimated at 1,200 to 2,000. These birds prefer the restored floodplain wetlands over other wetland areas associated with agricultural activity; this NAWCA project will increase available breeding habitat. These breeding teal leave the area by the end of September.

Gadwall Gadwall production has undergone a marked increase in the last 15 years. Though previously a very small component of the local production, current estimates list them at 1,000-2,000 pairs. It is also believed that their increase is still occurring. Gadwall numbers in the winter are much lower; peak winter numbers average in the low thousands. The activities planned for this NAWCA project will benefit gadwall production. In addition, gadwall found in the project area appear to be genetically unique. Jeffery Peters, a doctoral candidate at the University of Maryland has been studying the genetic characteristics of gadwalls throughout the northern hemisphere, and has shown that the gadwall of the project area are genetically distinct from other populations on the continent. Because this work is very recent, the implications of it are still unknown.

Tundra/Trumpeter Swan These swans are present in the project area from late fall until late spring each year. Surveys show their numbers to peak in the spring at 250 to 300. Though tundra swans are most abundant, trumpeters are also sighted each year. This NAWCA project, especially the work at the Toppenish Creek Pumphouse property, will increase swan wintering habitat.

TECHNICAL ASSESSMENT QUESTION 2

How does the proposal contribute to the conservation of other wetland-associated migratory birds?

BIRD CONSERVATION REGIONS AND PRIORITY BIRDS

Bird Conservation Region number, title, and species: The Project is located within **Bird Conservation Region 9 — Great Basin**. The following are NAWCA priority species from BCR9:

American White Pelican—Up to 600 migrating, breeding and non-breeding birds use the larger wetlands and lacustrine habitats within the project. Habitat for this species will be improved at BYRON, SULPHUR, SUNNY, SATUS, NSATUS and MENINICK tracts. See technical question 6 for more detail.

White-faced ibis—A few sightings have occurred within the Project this year. Suitable nesting habitat is presently available and will be improved on the BYRON, SULPHUR, SUNNY, LSATUS, OLDGOLD, MIDTOPP, and TULE tracts.

Northern Harrier—A common breeding bird in the Project. Nesting and feeding habitat for this species is expected to improve at all restoration/enhancement tracts. Commonly winters in the Project.

Yellow Rail—Not present/No change.

Sandhill Crane—An uncommon migrant and occasional post-fledging visitor with no known current nesting in Project. Restoration at PUMPH, MIDTOPP, TULE, and OLDGOLD tracts will improve potential for nesting. See technical question 6 for more detail.

Black-bellied Plover—An uncommon migrant that is unlikely to be significantly affected by the Project.

American Golden Plover—An uncommon migrant that is unlikely to be significantly affected by the Project.

Snowy Plover—Not present/No change.

American Avocet—A common migrant and breeder in the Project. Habitat will be significantly improved at all tracts.

Solitary Sandpiper—A rarely observed migrant that is unlikely to be significantly affected by the Project.

Whimbrel—Not present/No change.

Long-billed Curlew—A common species that nests in grassy uplands in the Project. Nesting habitat will be improved at BYRON, SULPHUR, SUNNY, SATUS, NSATUS, LSATUS, OLDGOLD, MIDTOPP, TULE and PUMPH tracts.

Marbled Godwit—Not present/No change.

Sanderling—An uncommon migrant that is unlikely to be significantly affected by the Project.

Wilson's Phalarope—A common but not abundant breeding species in the Project. Habitat will be improved in shallow wetlands restored and enhanced at BYRON, SULPHUR, SUNNY, SATUS, NSATUS, OLDGOLD, MIDTOPP, TULE, PUMPH and MENINICK tracts.

Yellow-billed Cuckoo—Not present/No change.

Short-eared Owl—A common but not abundant migrating, breeding and wintering species in the vicinity of uplands and marshes in the Project. Habitat will be improved for this species at BYRON, OLDGOLD, MIDTOPP, TULE, PUMPH and LSATUS tracts.

Black Swift—Not present/No change.

Black-chinned Hummingbird—An uncommon migrant that is unlikely to be significantly affected by the Project.

Calliope Hummingbird—A migrant that is seen occasionally and is unlikely to be significantly affected by the Project.

Lewis' Woodpecker—A common but not abundant breeding and wintering bird in the Project. Habitat will be significantly improved at SULPHUR, SUNNY, SATUS, NSATUS, LSATUS, MENINICK and PUMPH tracts where riparian habitat will be restored and enhanced.

Willow Flycatcher—A common breeding species in the Project. Habitat will be significantly improved at SULPHUR, SUNNY, LSATUS, MENINICK and PUMPH tracts where riparian habitat will be restored and enhanced.

Marsh Wren—A common breeding and wintering species in the Project. Habitat will be significantly improved at all tracts.

MacGillivray's Warbler—An uncommon migrant that is unlikely to be significantly affected by the Project.

Tri-colored Blackbird—Not present/No change.

OTHER WETLAND-DEPENDENT BIRDS (includes waterfowl not covered in Technical Question Number 1)

Wetland Dependent Species

Species	Plan	Project Area Concern/Use	Breeding Migrating Wintering	How project aids in meeting habitat conservation objectives of migratory bird conservation plans
Baird's Sandpiper	USSCP	Low Concern	M	Occasional fall migrant—no Project impacts.
Black-crowned Night Heron	IWWCP NAWCP	Moderate Concern	B/M	Restoration/enhancement of palustrine emergent marsh and woody riparian zones— at all tracts
Black-necked stilt	USSCP	High Concern	B/M	Restoration/enhancement of palustrine emergent marsh— at all tracts
Caspian Tern	IWWCP NAWCP	Moderate Concern	M	Uncommon migrant—improved foraging habitat at all tracts
Common Loon	IWWCP NAWCP	High Concern	M	Seen only a few times a season—no Project impact
Cinnamon Teal	NAWMP	High Concern	B/M	Restoration/enhancement of palustrine emergent marsh— at all tracts
Common Snipe	USSCP	High Concern	B/M	Restoration/enhancement of palustrine emergent marsh— at all tracts
Common Tern	USSCP	Low Concern	M	Rare—not seen every year—no Project impact
Dunlin	USSCP	Low Concern	M	Rare—not seen every year—no Project impact
Eared Grebe	IWWCP	High	M	Seen only a few times a season—no Project

Species	Plan	Project Area Concern/Use	Breeding Migrating Wintering	How project aids in meeting habitat conservation objectives of migratory bird conservation plans
	NAWCP	Concern		impact.
Forster's Tern	IWWCP NAWCP	Moderate concern	M	Rare-not seen every year—no Project impact
Greater Yellowlegs	USSCP	Low Concern	M	Common migrant—Protection/restoration of mudflats at Byron, Satus, NSatus, OldGold, Midtopp, Tule tracts
Hooded Merganser	NAWMP	High Concern	M	Common migrant—seen only a few times a year—likely to benefit from Project elements
Killdeer	USSCP	Low Concern	B/M	Common and abundant—will benefit from all Project elements
Least Sandpiper	USSCP	Low Concern	M	Uncommon migrant—unlikely to significantly benefit from Project elements
Lesser Yellowlegs	USSCP	Low Concern	M	Common migrant—Protection/restoration of mudflats at Byron, Satus, NSatus, OldGold, Midtopp, Tule tracts
Long-billed Dowitcher	USSCP	High Concern	M	Common—likely to benefit from restoration and enhancement of palustrine wetlands—Byron, Sulphur, Sunny, NSatus, Satus, LSatus, Pumph, Midtopp, Tule Meninick
Pectoral Sandpiper	USSCP	Low Concern	M	Seen only a few times a year—unlikely to significantly benefit from Project elements
Red-necked Phalarope	USSCP	Low Concern	M	Seen only a few times a year—unlikely to significantly benefit from Project elements
Ruddy Duck	NAWMP	High Concern	B/M	Common but not abundant—will benefit from habitat improvements on Byron, Sulphur, Midtopp, Sunny, North Satus, and Satus tracts.
Sanderling	USSCP	Low Concern	M	Seen only a few times a year—unlikely to significantly benefit from Project elements
Semi-palmated Plover	USSCP	Low Concern	M	Seen only a few times a year—unlikely to significantly benefit from Project elements
Solitary Sandpiper	USSCP	Low Concern	M	Seen only a few times a year—unlikely to significantly benefit from Project elements
Spotted Sandpiper	USSCP	High Concern	B/M	Most common summer sandpiper—likely to benefit from all Project elements
Stilt Sandpiper	USSCP	Low Concern	M	Seen only a few times a year—unlikely to significantly benefit from Project elements
Tundra Swan	NAWMP	Moderate Concern	M	Common migrant—likely to benefit from all Project elements
Western Sandpiper	USSCP	Low Concern	M	Seen only a few times a year—unlikely to significantly benefit from Project elements
Western Grebe	IWWCP NAWCP	High Concern	M	Seen only a few times a year—unlikely to significantly benefit from Project elements
White-faced Ibis	IWWCP NAWCP	Moderate Concern	B/M	A few birds recently sighted—breeding status in Project unknown—improved nesting habitat will be provided by Lower Satus, Pumphouse, Midtopp, Tule, and Old Goldendale tracts.
Wilson's Phalarope	USSCP	High Concern	B/M	Common but not abundant—likely to benefit from restoration and enhancement of

Species	Plan	Project Area Concern/Use	Breeding Migrating Wintering	How project aids in meeting habitat conservation objectives of migratory bird conservation plans
				palustrine emergent marsh—Byron, Sulphur Creek, Satus, North Satus, Lower Satus, Pumphouse, Midtopp, Tule, Meninick and Old Goldendale tracts

IWWCP - Intermountain West Waterbird Conservation Plan
NAWCP – North American Waterbird Conservation Plan
NAWMP- North American Waterfowl Management Plan and IWJV
PIFCP - Partners in Flight Columbia Plateau Conservation Plan
USSCP - US Shorebird Conservation Plan and Intermountain West Regional Shorebird Plan

Narrative (impact of the proposal on each species or group of species; how the proposal will aid in meeting objectives of migratory bird conservation plans; whether the proposal area will be used as breeding, migrating, and/or wintering habitat; and importance of each tract or logical groupings of tracts shown on maps in the proposal to the species):

The project proposal is within the **Partners in Flight (PIF)** physiographic region 89—the Columbia Plateau. Two priority habitats identified in the Columbia Plateau are shrub steppe (native bunchgrass interspersed with native shrubs) and shrubby riparian zones with an abundance of large mature cottonwoods. Both of these priority habitats have suffered severe adverse impact in this area. Conversion to cultivated cropland and intensive livestock grazing has severely altered native upland plant communities and riparian zones. Habitat improvements on all of the tracts in this proposal will contribute to the restoration and enhancement of priority habitats in this PIF regional plan. In addition to the improvement of wetland habitats, upland habitat will be improved on the BYRON, SULPHUR, SUNNY, SATUS and LSATUS tracts. Riparian habitat, including the planting and protection of cottonwoods, is a planned for SULPHUR, SATUS, LSATUS, PUMPH, MENINICK and OLDGOLD tracts.

Improved shrub steppe habitat on the LSATUS tract will serve as nesting, brood rearing and winter range for the greater sage-grouse that are planned to be re-introduced into this recovery unit in the spring of 2006. Other priority shrub steppe species in the Columbia Plateau ecoregion that will benefit from habitat improvements on tracts identified in this project proposal include Swainson’s hawk, prairie falcon, California quail, long-billed curlew, black-chinned hummingbird, gray flycatcher, sage thrasher, Brewer’s sparrow and sage sparrow. Other PIF priority wetlands/grasslands species will benefit from habitat improvements include the western grebe, trumpeter swan and sandhill crane.

In the PIF regional plan **Conservation Strategy For Landbirds In The Columbia Plateau of Eastern Washington and Oregon**, potential Bird Conservation Areas for both shrub steppe and riparian habitats are identified as occurring on Toppenish Ridge and in the Toppenish Wildlife Refuge, both of which are within the Project. Nearly all of the tracts identified for improvement in this proposal occur in close proximity to Toppenish Ridge and Toppenish National Wildlife Refuge and contain similar wetland, upland and riparian plant communities.

The **North American Waterbird Conservation Plan** has identified twelve species that will benefit from this proposal. The Plan identified the loss of emergent marsh habitat as a critical concern in the Intermountain West Region. One of the highest priority goals of the plan is the protection and restoration of all potential emergent marshes throughout the region. One of the highest threats to colonial waterbirds in the region is the management practices employed on privately owned emergent marsh habitats. Typically, seasonal wetlands are dewatered in June to promote hay production for livestock. This timing is prior to normal fledging dates for most waterbirds, resulting in low survival rates. The restoration and protection of these habitats in the Project will allow the maintenance of water levels throughout the summer, significantly increasing survival rates for colonial nesting waterbirds.

Another significant concern identified in this plan is the intense competition for water in the arid Intermountain West, which is certainly the case in the project area. Many wetlands and riparian habitats in the project area were historically or

still are currently adversely impacted by upstream water diversions. This project will not only restore wetland and riparian habitats in all tracts but also assure relatively stable, long-term water supplies to maintain the restored habitats.

Species identified by the Plan that will receive significant benefits from this project include the black-crowned night heron, great blue heron and American bittern.

The **U.S. Shorebird Conservation Plan** and more specifically the **Intermountain West Regional Shorebird Plan** identified several species of shorebirds that will benefit from Project activities. The Intermountain West region is North America's most important region for breeding American avocets (common breeder in project area), black-necked stilts (a common breeder in project area), long-billed curlew (a common breeder in grassy uplands), common snipe (a common breeder), Wilson's phalarope (a common but not abundant breeder), and spotted sandpiper (a common breeder in both wetland and riparian habitats). All of these species will benefit from habitat improvements in the Project proposal.

While there are no large concentrations of shorebirds in the project area, important habitat with the potential for migrating and breeding exists at numerous locations, including numerous freshwater and saline wetlands on the Yakama Nation, Toppenish National Wildlife Refuge and Sunnyside Wildlife Area; along the Yakima River, Satus Creek and Toppenish Creek as well as hundreds of miles of irrigation and drainage ditches; and in irrigated croplands particularly surface flooded pastures and hayfields.

There is significant competition for water in this arid region to support thousands of acres of high value, irrigated agricultural crops and several threatened and endangered salmon and steelhead runs. Thousands of acres of wetlands and riparian habitats in the Project have been adversely impacted by diverting streams for irrigation and draining historic palustrine emergent wetlands to produce forage for livestock. All tracts in the Project have the benefit of firm water supplies, which insures the year-round and long-term integrity of wetland and riparian habitat on these tracts.

TECHNICAL ASSESSMENT QUESTION 3

How does the proposal location relate to the geographic priority wetlands described by the North American Waterfowl Management Plan, Partners In Flight, the U.S. Shorebird Conservation Plan, and/or the North American Waterbird Conservation Plan?

NOTE: The polygon of the “Columbia Basin” included in the NAWCA guidelines (see attached map) is grossly inaccurate because it fails to include the Yakima River watershed in the Columbia Basin ecoregion, which is one of the largest tributaries to the Columbia River. The incorrect polygon also does not include important wetland habitat within this region, including tributaries to the Yakima River, floodplains, and extensive irrigated lands in the Yakima River drainage that contain an abundance of ditches, drains, reservoirs and seeps. This region is critical to waterfowl and other water dependent migratory and breeding birds, as described in the responses to technical questions 1, 2 and 3 above. Toppenish National Wildlife Refuge and the State Sunnyside Wildlife Area, and extensive areas of wetlands restored and enhanced on the Yakama Nation are examples of the critically important wetlands that occur in the Yakima Basin and in the project area. Conversely, much of the area in this existing polygon is steep, mountainous terrain of southeastern Washington (the Blue Mountains) which contains little wetland habitat.

This project is centered in the heart of the Intermountain West Joint Venture BHCA 21. Likewise, it is centered in the Columbia Basin Ecoregion planning unit used by WDFW in their Comprehensive Wildlife Conservation Strategy. All of the project components in this proposal are adjacent to perennial streams or irrigation conveyance systems and have guaranteed water rights that will maintain the long-term integrity of the wetlands. The scarcity of water needed to maintain wetlands in the arid west, and competition for water, is a key issue identified in all of the major bird conservation plans for this region. See the attached map for the location of the project area relative to the Columbia Basin Ecoregion and BHCA 21.

Eastern Washington, and hence the project area within the Yakima River basin, is in the rain shadow of the Cascade Mountains. Precipitation in this region ranges from 6 to 12 inches per year. Wetlands occurred naturally only in areas where water was concentrated such as in streams, floodplains or infrequent depressions with sufficient run-in to create wetland hydrology. Numerous additional wetlands have been created in this region within the past 60 years with the development of large irrigation projects and extensive areas of irrigated farmland. These “new” wetlands are associated with drainage and irrigation ditches, water storage reservoirs and irrigation-induced high water tables.

We believe that this proposal should receive scores for wetlands of national and regional significance that reflect the conservation value of wetlands in the Yakima basin. Scores should be based on a polygon that accurately portrays the critically important wetland habitats of the Columbia Basin, particularly the Yakima River watershed.

A. NATIONAL PRIORITY WETLAND AREAS. Briefly describe how the proposed grant and match activities will address the national and/or continental geographic priorities for wetland habitat conservation as outlined in the four major migratory bird conservation plans (Partners In Flight (songbirds), U.S. Shorebird Conservation Plan, North American Waterbird Conservation Plan and the North American Waterfowl Management Plan). Separate geographic priority maps for these bird groups are located at:

<http://birdhabitat.fws.gov/NAWCA/USstandgrantsmaps.html>.

Exact project location will be based on the proposal coordinates you provide on the Project Officer’s page.

Do NOT include benefits from non-match work.

The project is located within the Intermountain West Avifaunal Biome in the **Partners in Flight (PIF) North American Landbird Conservation Plan**. Two of the primary habitats identified in this biome are western shrublands and riparian. The PIF plan concludes that riparian habitats support the highest bird diversity of any western habitat type, while being one of the rarest. Riparian areas are sensitive to disturbance and have been substantially degraded by development in the region, including dewatering and alteration of water flows, road construction, invasive species encroachment, severe overgrazing and recreation. Such is the case in the project area. Hundreds of acres of riparian habitat along the Yakima

River, Toppenish Creek, Satus Creek, along with numerous oxbows, sloughs and side channels, have been cleared, overgrazed, dewatered and channelized for agricultural production and other human development. Significant improvement and long-term protection of riparian habitat is proposed for the SULPHUR, SUNNY, SATUS, LSATUS, PUMPH, MENINICK and OLDGOLD tracts. Western shrublands are also critical: "Shrub nesting species comprise the largest number of Species of Continental Importance in this biome." The PIF plan identifies conversion for agriculture, invasion of non-native grasses, overgrazing of grasses and forbs, development, sagebrush eradication, and changes in fire regimes as factors which have resulted in considerable loss and degradation of habitat, with subsequent declines of associated bird populations. This description correctly describes much of the shrub steppe in the project area. "Shrub steppe was identified as the highest priority habitat for conservation based on trends in bird populations and habitat in the Interior Columbia Basin." The LSATUS tract is situated at the lowest elevation of that portion of the Reservation slated for Greater Sage-Grouse reintroduction. Its position and relatively abundant water resources make it ideal for breeding, brood rearing and wintering sage grouse. As such, it is a unique landscape feature that will contribute significantly to sage grouse recovery particularly with restoration of its shrub steppe and wet meadow habitats.

The **Intermountain West Regional Shorebird Plan** identifies the Great Basin, which includes the project area, as one of the six BCR's in this region, and that it "stands out enormously important for both breeding and migrating shorebirds." While the project area does not contain any large shorebird concentration areas, it contains a wide variety of freshwater and saline palustrine, riverine and lacustrine wetlands, an abundance of irrigated croplands, and extensive wetland wildlife management areas. These habitats are distributed throughout the Lower Yakima Basin and occur in all of the tracts in this proposal, as well as several private hunting clubs, Toppenish National Wildlife Refuge and the State Sunnyside Wildlife Management Area. The Intermountain West plan concludes that finding ample high quality freshwater will be the greatest challenge faced by future shorebird conservation interests. Adequate, long-term water supplies are secure for improvement and maintenance of habitat quality on all tracts in this project. High priority species that breed within the Great Basin that will benefit from habitat improvements in the project area include long-billed curlew, American avocet, black-necked stilt, killdeer, spotted sandpiper, Wilson's phalarope and common snipe.

The project is included in the Intermountain West Region in the **North American Waterbird Conservation Plan (NAWCP)**. Twelve species identified in this plan also occur in the project area and all will receive some degree of benefit from wetland and riparian habitat improvements on all project tracts, particularly the American white pelican, eared grebe, white-faced ibis, western grebe, black-crowned night heron, and great blue heron. The major concern expressed in this plan is shortage and competition for high quality water to support high quality habitat for waterbirds. In the plan, high quality water is described as "life giving, yet transient, oases for aquatic birds." The competition for water is also intense in the project area, and while not extensive, each wetland and riparian habitat in the project is in fact an oasis in an otherwise arid landscape. Water conservation practices being implemented in the surrounding agricultural landscape continue to decrease the abundance of agricultural wetland habitats outside of the project tracts. Fortunately all of the tracts within the project have secure supplies of freshwater to grow wetland and riparian plant communities and to allow managers to maintain hydrologic regimes necessary for migrating and nesting waterbirds.

The project is also included in the Columbia Basin ecoregion of the **North American Waterfowl Management Plan (NAWMP)**. This arid region, in the rain shadow of the Cascade Mountains, receives 6 to 9 inches of rainfall per year. Reservoirs have been created and huge diversion dams built across every major stream including the Yakima River, Satus Creek and Toppenish Creek to supply irrigation water to thousands of acres of high value cropland. Most of the natural wetlands were palustrine emergent or riparian types associated with the stream corridors. Many of these historically valuable areas have been severely degraded by channelizing and de-watering the streams, clearing woody riparian vegetation and severe overgrazing. Many of the wetlands that occur in the area today are "irrigation induced" irrigation ditches and canals, drainage ditches and depressions that receive tailwater from irrigation. By insuring an adequate, long-term supply of water, extensive areas of wetland and riparian habitat are included in the project for restoration and protection. All tracts in this proposal will improve and preserve shallow emergent marshes and woody riparian habitat. Many high priority species listed in this plan, such as mallard, wood duck, northern pintail, canvasback, cinnamon teal, redhead, and hooded merganser, will benefit from proposed habitat improvements. Riparian habitat improvements, particularly along Satus and Toppenish Creeks, will significantly benefit endangered salmon and steelhead.

B. REGIONAL IMPORTANT WETLAND AREAS. Briefly describe how the proposed grant and match activities will address the current regional geographic priorities based on Joint Venture science and planning information. To access this information or contact plan coordinators, click below:
North American Waterfowl management Plan Joint Venture Coordinators (<http://birdhabitat.fws.gov/NAWMP/jvdir.htm>) or Joint Venture plans (<http://birdhabitat.fws.gov/links.htm>).
Do NOT include benefits from non-match work.

The project area occupies much of Bird Habitat Conservation Area 21—the Lower Yakima Valley—as described in the Intermountain West Joint Venture **Coordinated Implementation Plan for Bird Conservation in Eastern Washington**. Priority habitat types in eastern Washington were divided into three categories—Priority A being the highest priority. Priority A habitats listed in the plan includes Eastside Grasslands, Shrub Steppe, Eastside Riparian-Wetlands, and Herbaceous Wetlands. In all cases the goal as stated in this plan is to stop the loss and degradation of these highest priority habitats and to institute aggressive restoration activities. All protection, restoration and enhancement activities proposed for all tracts within the project are specifically targeted at significantly improving and maintaining the integrity of these four Priority A habitats. Reasonably secure water supplies for all of these tracts will help to maintain the integrity of these habitats into perpetuity. Numerous species of waterfowl, shorebirds, and waterbirds listed in this plan and described in the tables and narratives above will significantly benefit from proposed habitat improvements in the project.

TECHNICAL ASSESSMENT QUESTION 4

How does the proposal relate to the national status and trends of wetlands types?

Importance of any Stable or Increasing types to wetland-associated migratory birds:

This project involves only a small amount of stable and increasing wetland types. These habitats occur in the general project area, but they were not targeted for restoration in this NAWCA project. This project is emphasizing the restoration of predominantly emergent wetland types. Much of the Russian olive removal acreage consisted of palustrine shrub wetland habitat types before they were disturbed and infested. These have been included as upland habitat types in this project because the boundary between the palustrine shrub and upland areas is obscured by the thick olive growth. After the Russian olive infestations are removed, portions of these lands will be restored to shrub habitats and portions will be restored to grassland habitats depending on their hydrology. Native shrub habitats in the project area are important components of the floodplain landscape. They provide habitats for warblers and other riparian and wetland dependent bird species. When they occur adjacent to emergent wetlands, they also provide excellent cover for wood ducks. The Russian olive infestation areas promote magpie nests and little else.

Evidence to justify the status and importance of any wetland types (including subsidiary types not listed below) to wetland-associated migratory birds that have a different regional or local status than shown below:

This project involves the protection and restoration of floodplain habitats. These habitats have been extremely altered and disturbed in the arid west. Agricultural development, urbanization, reservoir construction, irrigation withdrawal, levee placement, land leveling, inappropriate grazing, and other activities over the course of the last century have caused all of the floodplain wetland and upland habitat types to decrease. In most watersheds, this extensive disturbance renders true floodplain restoration impossible. This project is unique in that large, landscape sized properties are being protected. This large-scale protection effort allows for the restoration of the ecological functions of these watersheds. Wetland-associated migratory bird response to this wholesale restoration is found to be at a much larger extent and diversity than that which occurs in piecemeal efforts on disconnected properties.

Types of uplands (e.g., cropland, grassland, forest) and describe the relationship of the uplands to wetlands and migratory bird conservation (i.e., reason for including in proposal):

The majority of the upland habitats identified in this project consist of lands that historically contained native grasslands dominated by Great Basin wildrye. These grasslands grow to over six feet in height when mature and provide excellent nesting cover for wetland-associated migratory birds. Floodplain habitats are composed of extremely diverse landscapes that were formed by meander processes of the rivers and creeks upon which they reside. The result of this is a mosaic of emergent wetland, side channel, riparian forest, riparian shrub and grassland habitats totally intermingled with each other. The juxtaposition of these many habitat types allows for a landscape that is much more than the sum of its parts. Wildlife diversity in these areas, when they are restored to native conditions, is among the highest of any in the arid west. The protection and restoration efforts undertaken by this project are achieving these habitat conditions and the wildlife response is being realized.

ACTIVITY AND TRACTS/GROUPS OF TRACTS IN THE PROPOSAL	STATUS, TYPES, AND ACRES OF WETLANDS								UPLANDS	TOTAL
	Note: Types subsidiary to types listed below have the same status.									
	DECREASING			STABLE			INCREASING	NO TREND DATA		
PEM	PFO	E2Veg	E2AB, E2US	L	R	M2, PAB, PUB/POW, PSS, PUS	E1, PML, PRB			
Fee Acquired	110	10						200	320	
Fee Donated										
Easement Acquired										
Easement Donated										
Lease Acquired										
Lease Donated										
ACQUIRED	110	10						200	320	
RESTORED	5654	1075			17		109	7344	14,199	
ENHANCED	(495)						(51)	133	133 (546)	
CREATED										
OTHER										
TYPE TOTALS	5764	1085			17		109	7677	14,652	
STATUS TOTALS			6849		17		109	6701	14,652	
GRAND TOTALS							6975	7677	14,652	
Tract: BYRON	495						51	1232	1778	
Tract: SULPHUR	112	15			17		58	179	381	
Tract: SUNNY	150							213	363	
Tract: SATUS	1925	499						2068	4492	
Tract: MENINICK	347	347						79	773	
Tract: OLDGOLD	203							137	340	
Tract: PUMPH	662	21						1387	2070	
Tract: LSATUS	1033	168						1406	2607	
Tract: NSATUS	137	25						77	239	
Tract: MIDTOPP	610	10						862	1482	
Tract: TULE	90							37	127	

E1=estuarine subtidal, **E2AB**=estuarine intertidal aquatic bed, **E2US**=estuarine intertidal unconsolidated shore, **E2Veg**=estuarine intertidal vegetated (E2EM, intertidal emergent marsh, and E2SS, estuarine intertidal scrub-shrub), **L**=lacustrine, **M2**=marine intertidal, **PAB**=palustrine aquatic bed, **PEM**=palustrine emergent, **PFO**=palustrine forested, **PML**=palustrine moss-lichen, **PRB**=palustrine rock bottom, **PSS**=palustrine scrub-shrub, **PUB/POW**=palustrine unconsolidated bottom/palustrine open water, **PUS**=palustrine unconsolidated shore, **R**=riverine

TECHNICAL ASSESSMENT QUESTION 5

How does the proposal contribute to long-term conservation of wetlands and associated uplands?

ACTIVITY	ACRES BY TENURE (years) OF BENEFITS CATEGORY * Includes water control structures made of material other than wood. ** Includes wood water control structures and pumps.				TOTAL ACRES
	<u>PERPETUIT</u> <u>Y</u>	*26-99	**10-25	< 10	
Fee Acquired	320				320
Fee Donated					
Easement Acquired					
Easement Donated					
Lease Acquired					
Lease Donated					
ACQUIRED	320				320
RESTORED		14,199			14,199
ENHANCED			133	(546)	133 + (546)
CREATED					
OTHER					
Tract: BYRON		1778		(546)	1778
Tract: SULPHUR		381			381
Tract: SUNNY		230	133		363
Tract: SATUS		4492			4492
Tract: MENINICK		773			773
Tract: OLDGOLD		340			340
Tract: PUMPH		2070			2070
Tract:LSATUS		2287			2287
Tract: NSATUS		239			239
Tract: MIDTOPP		1482			1482
Tract: TULE		127			127
TOTAL	320	14,199	133	(546)	14,652 (546)

Narrative needed to explain the table information:

All of the properties included in this NAWCA project have been protected in perpetuity for wildlife habitat restoration and management. Funds from a great variety of sources are used each year for protection and restoration on the properties

included in this proposal. Large, complex protection and restoration efforts such as this require a level of organization in terms of funding sources. The partners in this proposal feel that NAWCA funds can best be used to provide hydrologic restoration activities on these previously protected properties. Other funds are used for land purchase, operation and maintenance, monitoring and public access management. Because the restoration emphasis is on native ecological processes, the restoration efforts do not necessarily rely on structural components to maintain their quality. These restoration actions, though initially structural in nature, are designed to allow the floodplain processes to return to a normative state. Once this is achieved, normal floodplain dynamics can proceed long into the future in a sustainable manner. Cut and fill alluviation, beaver activity, flood action, fire incidences, and other processes not necessarily controlled by management will be allowed to occur to maintain habitat values as they have been maintained for thousands of years. The removal of the disturbances preventing these normative processes from functioning is the key to the success of this sustainable restoration style. To adequately remove these disturbances, large contiguous acreages must be protected. This project is unique in eastern Washington due to its ability to protect whole floodplains throughout large portions of these watersheds.

Significance of the proposed work on each tract and the cumulative work in the completed proposal to long-term wetlands conservation in terms of 1) how work on each tract complements work on other tracts; 2) threats to wetlands values (address acquisition of water rights, if applicable); 3) conservation or management of larger wetland areas; and 4) objectives of wetlands conservation plans:

- 1) With the exception of the Byron Ponds tract, these properties are all hydrologically connected. The Pumphouse restoration will compliment the Mid-Toppenish, Tule, and Old Goldendale Road restoration projects by allowing hydrologic reconnection to a portion of the floodplain which eventually connects with these tracts downstream. The Meninick Wildlife area is upstream of the Satus and Sunnyside tracts. Lower Satus, contrary to what its name implies, is located upstream of the Satus Wildlife Area. All of these restoration projects, and others not included in this NAWCA proposal, are pieces of a larger process.
- 2) The partners are working to remove all threats to the wetland values necessary for restoration of these watersheds. On Satus Creek, for instance, the Yakama Nation has purchased all of the irrigation water rights. It is now the only major tributary of the Yakima River totally undiverted for irrigation purposes. On Toppenish Creek, the Yakama Nation has organized a cooperative process with all of the other land owners/leasors in the project area to manage the creek flows in a manner that will ensure adequate creek hydrology is maintained for cultural and natural resources protection. As creek flows drop due to drought conditions, all entities along the creek now voluntarily reduce or cease diversion activities until the creek flows return adequately. Activities upstream of the project area such as mountain wet meadow restoration further protect the water resources necessary to maintain the values of this restoration.
- 3) This NAWCA project is one component of a large effort to protect, restore and manage the cultural and natural resource values of the entire Satus and Toppenish Creek watersheds, and the middle portion of the Yakima River. Numerous protection and restoration activities in addition to the match projects described here, occur each year in and upstream of this project area. One example of this is a project currently funded by the Wetlands Reserve Program to restore the floodplain wetland on over four miles of Mid-Toppenish Creek floodplain between the Pumphouse and Old Goldendale Road Wildlife Areas. New activities occur each year.
- 4) This project is implementing the wetland and floodplain priorities identified in the following local conservation projects and plans: The Yakama Nation's Wetlands and Riparian Restoration Project, The Yakama Nation's Waterfowl Management Plan, The Toppenish National Wildlife Refuge Management Plan, The Sunnyside Wildlife Area Management Plan (including the Headquarter, Sulphur Creek, and Byron Units), The Yakima River Basin Water Enhancement Plan, and The Yakima Subbasin Plan. Descriptions of these plans are found elsewhere in this proposal.

Justification for modifying existing wetlands from one type to another:

N/A

For proposed restoration and enhancement activities, how long results will last and when maintenance or additional work will be needed:

As stated above, this project emphasizes the protection and restoration of the large-scale ecological conditions needed to provide native wetland, riparian and associated upland habitats in the floodplains of the Middle Yakima River Basin. The guiding philosophy behind this effort is to conduct the restoration in such a manner that minimal maintenance will be required to retain the values in the long term. The partners of this proposal are not interested in developing habitats that require extensive annual activities to maintain the values restored. Annual activities such as mowing, weed control, pumping, irrigating, etc are minimized. Restoring conditions conducive to the long term sustainability of native vegetation communities requires little annual maintenance. These native communities existed for thousands of years without much assistance from humans. Ecological restoration allows these communities to thrive with little management.

Reliability and success of proposed vegetation control techniques:

Normative ecological conditions promoting native vegetation communities also provide the best means of combating many exotic vegetation infestations. Waterlily infestations will be controlled using techniques developed during the Phase 1 project. Russian olive, however, infests wetlands and displaces native vegetation under natural wetland conditions. Russian olive control methods used in this project have been developed and used widely in the region, which include initial treatment, follow-up of control of resprouting and germinating seedlings, and removal of Russian olive removal via burning or chipping. Vegetation reestablishment techniques in wetlands are much more simple, as native wetland vegetation recolonizes naturally with adequate hydrologic conditions and when free from competition of non-native plants. Restoration activities emphasize recreation of natural flow regimes, using rock spillways and grade control structures to guide flow direction, duration and volume. Native wetland and riparian vegetation response to these activities, used by partners in the project area for over 15 years, has been beyond our expectations. Though the native wetland plant communities of the project area were nearly completely removed from floodplains, restoration has allowed plants to reestablish without the need for planting. As the hydrology is restored to these areas, the native wetland and riparian vegetation returns otherwise unaided. Traditional wetland vegetation harvest by Yakama tribal members is occurring on restored properties which had been converted to agricultural production decades ago.

Summary of the long-term conservation and management plan for the proposal area:

The long term protection and management strategy for this area is to restore ecological conditions and function to hydrology and vegetation communities, from the headwaters to the mouth of Satus and Toppenish Creeks, and in the Middle Yakima River floodplains. Due to landscape alterations and current human development pressures, including competition for water, historic pre-settlement conditions are likely not possible, however, crucial wetland and riparian conditions and functions can be approximated using modern restoration techniques. Restoration is planned to create self-sustaining, low-maintenance ecological communities. It is also the goal of the partners to manage the project area not as museum pieces, but for traditional use by the Yakama People and for recreational and educational purposes for all citizens.

Plans to sell any tracts in the proposal area:

All of the properties identified in this project are protected into perpetuity. None will be sold.

How easement restrictions and reserved rights serve to ensure long-term wetland conservation and health:

The partners control all the rights associated with the properties identified in this proposal. All activities on the properties must conform to the plans guiding the protection and management of the cultural and natural resources restored therein.

TECHNICAL ASSESSMENT QUESTION 6

How does the proposal contribute to the conservation of habitat for wetland associated federally listed, proposed, and candidate endangered species; wetland associated state-listed species; and other wetland-associated fish and wildlife that are specifically involved with the proposal?

Federally Threatened, Endangered, Proposed or Category I candidate species:

Within the project area 2 federally threatened species occur, the Bald Eagle and Steelhead (Middle Columbia River ESU). In addition, 1 federal candidate species, the Columbia Basin Distinct Population Segment of the Greater Sage-Grouse, is slated for reintroduction on the Yakama Reservation in fall 2005. An existing breeding population occurs on the Army's Yakima Training Center approximately 20 miles north of the release site.

How many individuals/pairs will use the proposal area and for what life cycle stage and whether this is an improvement in population numbers over the current situation:

Bald Eagles..For the first time in over 100 years 1 bald eagle pair was documented to have successfully nested and fledged young within the project area in the year 2000. Since 2000, a minimum of 4 bald eagle pairs has been documented attempting to nest on the Lower Yakima River with at least 2 of them fledging young. During the winter, 20-50 individuals occupy the Lower Yakima River and are frequently observed roosting and foraging within the project boundaries. It is anticipated that protection and restoration of nesting and foraging habitat resulting from this project will directly contribute to increasing numbers of nesting and wintering bald eagles.

Steelhead (threatened).. Approximately 60-75% of the spawning Mid-Columbia River Steelhead ESU depends on the Yakima River tributaries Toppenish and Satus Creeks. Adult steelhead pass through the Satus, North Satus, Lower Satus, Old Goldendale Mid-Toppenish, Tule and Toppenish Creek Pumphouse tracts as they migrate upstream. Out migrating steelhead smolts move into wetlands and channels located on these same tracts November through May. Surveys conducted by YN and USFWS have documented that smolts gain substantial body weight while rearing in these wetlands, side channels and creeks. Therefore protection and restoration of additional wetlands at these tracts will directly contribute to weight gaining ability of juvenile steelhead. Weight gain by steelhead smolts is an important factor contributing to survival and therefore population size.

Greater Sage-Grouse (candidate)..Sage grouse will be reintroduced on the Yakama Reservation rangeland in fall 2005. Approximately 100 to 150 individuals (roughly equal sex ratio) will be released. This reintroduced population will rely on Lower Satus for late brood rearing and winter habitat. Survival of juvenile sage grouse during these 2 life stages is critical to population growth. Therefore, restoration of Lower Satus will contribute towards the return of this culturally significant species and to regional recovery efforts.

How proposal will improve habitat quality (describe the before- and after-proposal environment):

Bald Eagles - Nesting and roosting habitat will be improved along Lower Satus, Satus, North Satus, Sunnyside, Sulphur and Meninick. New riparian habitat will be created when channels currently disconnected from the main stream channels are reconnected. Flooding and natural drawdown will encourage large trees (e.g., cottonwoods, alders, willows) suitable for nest placement and roosting to naturally recover. Wetlands at Lower Satus, Mid-Toppenish, Toppenish Pumphouse, Meninick, Sunnyside, Sulphur Creek and Byron that are currently either dry or choked with emergent vegetation will be protected and restored to provide a diversity of wetland vegetation. Both waterfowl and fish populations are anticipated to increase in response. As a result, forage abundance for nesting and wintering bald eagles will increase.

Steelhead - Reconnecting side channels that are currently cut off from the stream will provide critical refugia for out migrating smolts. Wetland restoration at Lower Satus, Satus, North Satus, Old Goldendale, Meninick, Mid-Toppenish, Tule and Toppenish Pumphouse will improve rearing habitat for smolts migrating to the Columbia River. Adult steelhead migrating up the Yakima River to spawn typically stage between North Satus and Sunnyside prior to migrating up Satus and Toppenish Creeks. Restoration of native cottonwoods, willows and other riparian shrubs adjacent to the Yakima River at Satus, North Satus, Sulphur and Sunnyside will assist in improving water quality by acting as sediment deposition zones. Riparian and wetland restoration will assist in augmenting water quantity by slowing surface runoff. These trapped waters will seep downward, recharge groundwater and eventually flow into the river. Overtime, cottonwood restoration will contribute to woody debris in the main stem Yakima and tributaries. Currently the river reach between Sunnyside and Satus is largely devoid of this important salmon and steelhead habitat component.

Greater Sage-Grouse - Protecting and reconnecting old, currently dry channels to Lower Satus Creek will provide important wet meadow habitat for late summer, brood rearing female sage grouse. Hens with broods seek these areas when surrounding sagebrush steppe vegetation desiccates in late summer. The transition zone between wetlands and uplands contain protein rich forbs and insects critical for juvenile sage grouse development. Currently, several acres of uplands adjacent to Lower Satus are dominated by the invasives cheatgrass and Russian knapweed. Eradication of invasives and restoration of native bunchgrass (e.g., basin wild rye, bluebunch wheatgrass) and shrubs (e.g., big sagebrush, black greasewood) in these areas will provide additional nesting, foraging and wintering habitat. During winter, sage grouse migrate to lower elevations to seek forage and shelter provided by big sagebrush and other native shrubs. The Lower Satus is the portion lowest in elevation of the Yakama Rangeland targeted for sage grouse recovery. Restoration of big sagebrush and other shrubs in this area will provide important winter habitat.

Whether proposed actions and proposal area are identified in a recovery plan or other species plan:

The Lower Yakima Basin is included within the Columbia Plateau Ecoregional Strategy addressed in the new draft Comprehensive Wildlife Conservation Strategy (CWCS) for Washington state. Within this ecoregional strategy, streams and riparian habitat, as well as their associated wildlife, are identified as a priority for conservation activities funded by the new State Wildlife Grants program. The draft CWCS was posted on the WDFW website in June 2005; the final strategy will be submitted to the US Fish and Wildlife Service in August 2005.

The Northwest Power and Conservation Council adopted the Yakima Subbasin Plan in 2004. Two of the four focal wildlife habitats selected for management emphasis within the Subbasin Plan were Interior Riparian/Wetlands and Shrub Steppe/Interior Grasslands. Several of the objectives and strategies developed to reduce limiting factors identified within the Plan will be addressed at all of the project tracts. Both steelhead and sage grouse were selected as focal species within the Plan. NOAA fisheries is using the Yakima Subbasin Plan to guide recovery efforts of Mid-Columbia Steelhead. Satus, North Satus, Lower Satus, Meninick, Old Goldendale, Mid-Toppenish, Tule and Toppenish Pumphouse have been identified as critical to this recovery. WDFW completed a Greater Sage-Grouse Recovery Plan in May 2004. Eastern Washington was divided into sage grouse recovery management units. The Yakama Reservation's Toppenish Ridge management unit, which includes the Lower Satus tract, was identified as a population reintroduction site. Habitat protection and restoration resulting from this project will, therefore, directly contribute to statewide sage grouse conservation efforts.

Whether the completed proposal will relieve the need for any special protective status for the species:

Bald eagles are currently under review by the USFWS for consideration of removal from the federal list. The potential contribution of this project towards the upward trend of nesting eagles in the Lower Yakima Basin may factor into decisions being made to "delist" the species. Without the protection and restoration of critical wetland acres within the project area the steelhead may suffer further declines. These natural rearing and migrating areas are particularly important because this steelhead ESU is completely wild with no artificial augmentation by hatcheries. By supporting the reintroduction of sage grouse through habitat restoration this project may contribute to the recovery of sage grouse in Washington. Recovery of the species will reduce the likelihood of its status changing from candidate to threatened or endangered.

Importance of each tract or logical groupings of tracts shown on maps in the proposal to the species (if tracts are not yet identified, explain what procedure will be used to ensure that high quality habitat is targeted):

Tract importance to species with federal status according to life stage.

Tract Name	Bald Eagle	Steelhead	Greater Sage- Grouse
BYRON	Foraging	None	None
LSATUS	Nesting & Foraging	Migrating & Rearing	Nesting, Brood-rearing & Winter
MENINICK	Nesting & Foraging	Migrating & Rearing	None
OLDGOLD	Foraging	Migrating & Rearing	None
MIDTOPP	Foraging	Migrating & Rearing	None
TULE	Foraging	Migrating & Rearing	None
PUMPH	Nesting & Foraging	Migrating & Rearing	None
SATUS	Nesting & Foraging	Migrating & Staging	None
NSATUS	Nesting & Foraging	Migrating & Rearing	None
SULPHUR	Nesting & Foraging	Migrating & Staging	None
SUNNY	Nesting & Foraging	Migrating & Staging	None

Additional information:

State-listed endangered or threatened species (not included above):

The American white pelican and the sandhill crane are listed as threatened by Washington State.

How many individuals/pairs will use the proposal area and for what life cycle stage and whether this is an improvement in population numbers over the current situation:

Up to 600 American white pelicans have been enumerated along the Lower Yakima River during aerial surveys. Each year they frequent the project area from late February through November. A large percentage of these pelicans forage and roost at Satus, Sunnyside, Byron, Meninick and the Yakima River adjacent to these tracts. The only known nesting colony is at Badger Island (near Burbank, WA) within the McNary Pool of the Columbia River. The Island is approximately 40 miles east of Byron. The species has been documented traveling over 50 miles from nesting colonies to forage. It is likely that some nesting and chick rearing pairs rely on the wetland resources within the project area for food. Protection and restoration of healthy diverse wetlands will support migrating, breeding and non-breeding pelicans, and will therefore likely contribute to population stability and increase.

Sandhill cranes currently only nest at Conboy Lake NWR/Panakanic Valley, Klickitat County, on the Yakama Reservation in Upper Toppenish Creek Watershed, and Deer Creek on Washington Department of Natural Resources land, Yakima County. In 2000, a total of 53 cranes summered in Washington and 19 territorial pairs were documented. The project area is located within 10 miles of a known 1996 sandhill crane nest. Cranes use Toppenish Pumphouse, Mid-Toppenish, and Old Goldendale Road tracts during post fledging and migrating periods. We expect cranes could nest in the project area in the future with increased habitat protection and restoration.

How proposal will improve habitat quality (describe the before- and after-proposal environment):

There are numerous wetlands at Byron, Sulphur, Satus, and Meninick that are either dry or choked with decadent palustrine emergent vegetation. Several projects at these tracts involving increasing water level and vegetation management abilities will permit us to diversify foraging opportunities for pelicans. Sandhill cranes require large intact wetlands for breeding. By reconnecting currently dry channels at Toppenish Pumphouse, Old Goldendale and Lower

Status the diversity and abundance of wetlands will increase. Protection and restoration of these wetlands will provide additional crane nesting opportunities. Migrating cranes will benefit from protection and restoration activities at all tracts.

Whether proposed actions and proposal area are identified in a recovery plan or other species plan:

WDFW will be developing a status review and recovery plan for American white pelicans in the next few years. The Yakima River and associated tributaries and wetlands will likely be identified as critical foraging areas for migrating, breeding and non-breeding pelicans.

Wetland restoration in support of nesting sandhill cranes is a “priority 1” category in the Pacific Flyway Management Plan for the Central Valley Population of greater sandhill cranes. WDFW completed a recovery plan for sandhill cranes in 2002. Within the recovery plan, the project area is encompassed by the south-central Washington recovery area. One recovery strategy identified in the plan was to restore degraded wetland ecosystems by plugging drains, removing dams (includes dikes, levees) or restoring hydrology. Sandhill cranes were selected as a focal species within the Yakima Subbasin Plan.

Whether the completed proposal will relieve the need for any special protective status for the species:

Wetland habitat protection and restoration in the project area will contribute to recovery efforts for these 2 state endangered species.

Importance of each tract or logical groupings of tracts shown on maps in the proposal to the species (if tracts are not yet identified, explain what procedure will be used to ensure that high quality habitat is targeted):

Tract importance to Washington State threatened or endangered species according to life stage.

Tract Name	American White Pelican	Sandhill Crane
BYRON	Foraging & Roosting	Migrating
LSATUS	None	Migrating
MENINICK	Foraging & Roosting	Migrating
OLDGOLD	None	Migrating, Post-fledging, Future nesting
MIDTOPP	Foraging & Roosting	Migrating, Post-fledging, Future nesting
TULE	Foraging & Roosting	Migrating, Post-fledging, Future nesting
PUMPH	None	Migrating, Post-fledging, Future nesting
SATUS	Foraging & Roosting	Migrating
NSATUS	Foraging & Roosting	Migrating
SULPHUR	Foraging & Roosting	Migrating
SUNNY	Foraging & Roosting	Migrating

Additional information:

Other wetland-dependent fish and wildlife species and narrative:

Loggerhead shrike (State Candidate), sage thrasher (State Candidate), sage sparrow (State Candidate) will benefit from restoration of uplands associated with wetlands. Loggerhead shrikes nest in the black greasewood/bunchgrass cover type. Both sage thrashers and sparrows forage in riparian/wetland areas. Bobolinks nest on the Toppenish Pumphouse tract. This is the only nesting occurrence of this species in southeastern Washington. The Yakama Nation and Yakima Valley Audubon Society are drafting a management plan for this unique species.

Because the project area lies within the boundaries of the Yakama Indian Reservation and Ceded Lands of the Yakama Nation, many culturally-significant species of plants and animals will benefit from the project. The mid-Columbian

Indians were and continue to be closely linked to the seasonal cycles of the regions' wetlands, rivers, and riparian habitats. Numerous plants and animals of significance occur in these habitats, although they are too numerous to list in this application. The following table lists those species of note that will benefit from this project:

Selected Culturally-Significant Species of the Yakama Indian Nation in the project area.

Yakama Name	English Name	Habitats Used
Plants		
Saak	Wild Onion	Palustrine Forested, Palustrine Emergent, Wetland-Associated Uplands
Swict	Giant Wild Rye	Palustrine Forested, Palustrine Emergent, Wetland-Associated Uplands
numerous	Lomatiums	Palustrine Forested, Palustrine Emergent, Wetland-Associated Uplands
Skapasway	Wild Rose	Palustrine Forested
Hahaw	Peach Leaf Willow	Palustrine Forested, Riverine
Sciw	Cattail	Palustrine Emergent
Xmaas or Wakamu	Camas	Palustrine Forested, Palustrine Emergent, Wetland-Associated Uplands
Tmis	Chokecherry	Palustrine Forested, Palustrine Emergent, Riverine, Wetland-Associated Uplands
Xan	Golden Currant	Palustrine Forested, Palustrine Emergent, Riverine, Wetland-Associated Uplands
Wiwal	Dogwood	Palustrine Forested, Palustrine Emergent, Riverine, Wetland-Associated Uplands
Pinus	Gooseberry	Palustrine Forested, Palustrine Emergent, Riverine, Wetland-Associated Uplands
Wapay-wapay	Horsetail (Scouring Rush)	Palustrine Forested, Palustrine Emergent, Riverine
Ccaa	Serviceberry	Palustrine Forested, Palustrine Emergent, Riverine, Wetland-Associated Uplands
Taxus	Indian Hemp	Palustrine Forested, Palustrine Emergent, Riverine, Wetland-Associated Uplands
Wapay	Common Reed	Palustrine Emergent
Kalamat	Waterlily	Palustrine Emergent
Yawastakins	Spiked Watermilfoil	Palustrine Emergent
Ttaxsttaxs	Willow	Palustrine Forested, Palustrine Emergent, Riverine
Xapxap	Black Cottonwood	Palustrine Forested, Palustrine Emergent, Riverine
Tku	Bulrush	Palustrine Emergent
Animals		
Susayns	Steelhead Trout	Riverine, Palustrine Forested (shade)

Muqa	Great Blue Heron	Riverine, Palustrine Forested, Palustrine Emergent
Xat-xat	Mallard	Palustrine Emergent, Riverine
Akak	Canada Goose	Palustrine Emergent, Uplands
Kamamul	Bald Eagle	Palustrine Emergent, Uplands
Qilus	Buteo Hawks	Uplands, Palustrine Forested
Pa ax-li	Sandhill Crane	Palustrine Emergent, Uplands
Wawqiluk	Swan	Palustrine Emergent, Riverine
Tas-tas	Wood Duck	Palustrine Emergent, Riverine
Tastaas-ya	Common Merganser	Palustrine Emergent, Riverine
Taxt	Flicker	Palustrine Forested, Palustrine Emergent, Riverine
Qiqinu-yay	Osprey	Palustrine Forested, Palustrine Emergent, Riverine
Yaamas	Mule Deer	Uplands, Palustrine Forested, Palustrine Emergent

TECHNICAL ASSESSMENT QUESTION 7

How does the proposal satisfy the partnership purpose of the North American Wetlands Conservation Act?

Ratio of the Non-Federal Match to the Grant Request: >2.5:1

10% Matching Partners: 5

Partner Categories (includes non-match)

State agencies: 1

Non-governmental conservation organizations: 5

Local governments, counties or municipalities: 1

Private landowners: 1

Profit-making corporations: 0

Native American governments or associations: 1

Federal agencies: 3

Other partner groups: 1 (Central Washington University)

Important Partnership Aspects (new grant recipient, significant new partners, unique partners, large numbers of partners under any category in C. above, non-financial contributions):

New Partners:

City of Grandview: The City of Grandview is a small agricultural community in the Lower Yakima Valley. Much of the economy of the area is related to fruit production and processing. To manage the large amount of wastewater associated with the fruit processing industry, the city constructed a treatment facility several decades ago. This facility, thanks to the foresight of early city leaders, has been managed not only for sewage treatment, but also as an important wildlife area these many years. The importance of this area prompted the state of Washington to purchase lands adjacent to the facility to compliment these wildlife resources. This area, with its cooperative management, has for years been a showcase property for how creative ways can be used to provide multiple benefits. When the partners approached the city to enlist their support or possible partnership, the city council, without hesitation, pledged to be a 10% partner. The City of Grandview is unique in their commitment to wetland and wildlife restoration and management. Their partnership in this NAWCA project is a testimony to other communities as to how small municipalities can have a large positive impact on our resources.

Pheasants Forever: The Yakima and Skagit Valley Chapters of Pheasants Forever have been funding restoration activities in the project area for nearly 20 years. These chapters participated as 10% match partners in Phase 1 of this NAWCA project. Phase 2 brings in a chapter that has not been involved in the project area until now. The Vancouver Chapter of Pheasants Forever is located in southwest Washington, across the Columbia River from Portland, Oregon. This chapter's officers contacted the partners recently to see how they could contribute to wildlife restoration in the Yakima Valley. Because the project area provides some of the most important pheasant and quail hunting opportunities in the state of Washington, many of their members travel here to recreate. The chapter officers were told of this NAWCA project and very quickly decided to participate. The commitment of these three small PF chapters to participate as a 10% partner is not entered into lightly. All of the funds they provide are generated locally through their annual fundraising activities. Many volunteer hours are spent to raise the relatively large amounts required to be a 10% partner. Their contribution involves the purchase of native grass seed to compliment the wetland restoration occurring in the project area.

Yakima Basin Environmental Education: The Yakima Basin Environmental education program has been involved in providing teacher and student training activities in the area since 1991 (website: ybeep.org). Each year four workshops are conducted involving 50 local teachers. These workshops include wetlands education training. Multiple field and classroom activities affect over 8,000 students each year. Their partner contribution to this NAWCA project will involve conducting two work days of approximately 50 students each. These workshops will be used to collect native vegetation materials for propagation and replanting on restored sites.

Yakima Valley Audubon Society: The Yakima Valley Audubon Society is very active in the local project area. They conduct educational and recreational tours and programs multiple times of the year. They have been instrumental in the development of public outreach at the Toppenish NWR. Their planning and monitoring activities have also assisted the Yakama Nation in wetlands restoration. Their contribution to this project has been, and continues to be their efforts monitoring bird use at restoration sites, assisting in the planning of the restoration activities, and in documenting the unique nesting needs of bobolinks within the project area. The bobolink colony along Toppenish Creek is the westernmost colony in North America.

Washington Waterfowl Association: The Washington Waterfowl Association is a statewide organization which addresses waterfowl needs. Though much of their activity in the past has involved work on the west side of the Cascade Mountains, they have been eager to become a partner in this NAWCA effort, expanding their involvement into eastern Washington. Their contribution to this effort will consist of two workdays of approximately 10 volunteers each. These work days will involve activities such as planting vegetation, controlling weeds, and conducting minor hydrologic restoration. This NAWCA project is instrumental in attracting this partner into the Yakima Basin.

Central Washington University: The Geography Department of Central Washington University has been assisting the Yakama Nation in wetland restoration planning and monitoring for several years. The expertise they have been providing relates to hydrologic issues. They have developed pre- and post-restoration monitoring protocols for the project area. Their contribution to this effort has been and continues to be the planning and monitoring required at the Meninick Wildlife Area and on the Toppenish Creek properties.

Lloyd Sak: Lloyd Sak is a farmer in the Mabton area. He has been assisting the Washington Department of Fish and Wildlife in wetland and riparian management and restoration. His work has involved a cooperative relationship with the Conservation Reserve Enhancement Program (CREP) on a portion of the Sunnyside Wildlife Area. Under this program, Lloyd has funded a large portion of the restoration of this CREP project.

Natural Resources Conservation Agency (NRCS): Two Wetlands Reserve Program (WRP) projects are currently underway in the project area. These are located within the mid-Toppenish Creek and Tule Gun Club properties. These two properties are adjacent to one another and hydrologically inseparable. The WRP projects on these properties are restoring over three miles of Toppenish Creek floodplain habitats. These projects are non-Match, but are included to represent a total picture of the extent of the restoration activities currently being implemented in the project area.

Bureau of Reclamation (BOR): The Bureau of Reclamation has been funding wetland restoration activities on Yakama Nation lands for nearly 10 years. The project included here is one involving the construction of grade control structures at the North Satus Wildlife Area. This project compliments the work accomplished under Phase 1 of this NAWCA effort in 1997. Restoration work completed at that time affects several thousand acres. Though this restoration was highly successful, the BOR project was deemed necessary to provide stable flow to the restoration sites during low flow events. This project has been completed and is successfully providing the necessary hydrology to the project area.

Unique Partners:

Yakama Nation: The Yakama Nation employs the largest natural resources staff of any tribe in the United States. The YN is considered to be among the leaders in fish and wildlife restoration and management in the Northwest. Their commitment to natural resources is largely due to their strong adherence to their traditional ways and cultures. The YN has approximately 10,000 enrolled tribal members and the Yakama Reservation, located in south central Washington, is the largest in the state. Under the treaty of 1855, they also retained their fishing, hunting and gathering rights to lands they ceded to the federal government. This Ceded Area encompasses nearly a third of the state of Washington. A Reservation and Ceded Area of this size requires the Yakama Nation to work cooperatively with many different agencies and publics. Because of this, it was the logical choice for the Yakama Nation to act as the grant recipient in this NAWCA project.

Washington Department of Fish and Wildlife: WDFW has owned and managed the Sunnyside Wildlife Area since the 1950's. This collection of properties is unique compared with the surrounding landscape outside of the boundaries of the

Yakama Reservation. It is the only publicly owned land dedicated to wetland management and outdoor recreation in the Lower Yakima Valley. Moreover, almost all surrounding privately owned land is dedicated to intensively irrigated orchards, vineyards and row crops. Irrigation practices are very efficient leaving minimal water for wetlands and wetland dependent wildlife. As a result, the importance of the Sunnyside Wildlife Area to wetland dependent wildlife increases each year. This NAWCA partnership is a key effort to assist WDFW in protecting, restoring, and enhancing these very important areas for wildlife and the public for generations to come.

Ducks Unlimited Inc.: Ducks Unlimited has been a very important partner for restoration in the project area for over 10 years. The Yakama Nation and WDFW have used their engineering expertise in the implementation of thousands of acres of wetland restoration. Since 1995, DU has been involved in 1-3 wetlands projects per year in the project area. These projects are all considered to be successes. Currently DU is under contract with the Yakama Nation to implement a large restoration of Toppenish Creek wetlands and side channels in a four mile stretch of floodplain between the Pumphouse and Old Goldendale Wildlife Areas. This is not included as match for this NAWCA proposal because it is utilizing USDA Wetlands Reserve Program funds. They are also implementing a project installing a structure to better control the water source for the Satus Wildlife Area. This is also not included as match because it is utilizing funds from the Bureau of Reclamation. The partners consider Ducks Unlimited to be an important component of the present and future wetlands restoration efforts in the project area.

Why each non-matching partner listed in the Proposal Summary is important to the proposal and what work they will do to support and complement the match- and grant-funded work:

Toppenish National Wildlife Refuge: Toppenish NWR is a small, 2,000 acre refuge located on Toppenish Creek in the vicinity of the Old Goldendale and Pumphouse Wildlife Areas. Phase 1 of this NAWCA project highlighted work on this refuge. Phase 2 continues this work on a portion of their lands that lie adjacent to Yakama Nation wildlife land. This activity emphasizes the cooperative relationship that is building between Toppenish NWR and the other partners. They will be providing equipment and operator time as a non-match component of the Old Goldendale restoration effort. Though it is not identified in the budget tables, it is likely that they may be able to provide assistance on a portion of the Pumphouse Wildlife Area restoration as well.

Natural Resource Conservation Service (NRCS): See New Partners above.

Bureau of Reclamation (BOR): See New Partners above.

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ATTACHMENTS

Budget Table

Tract Table

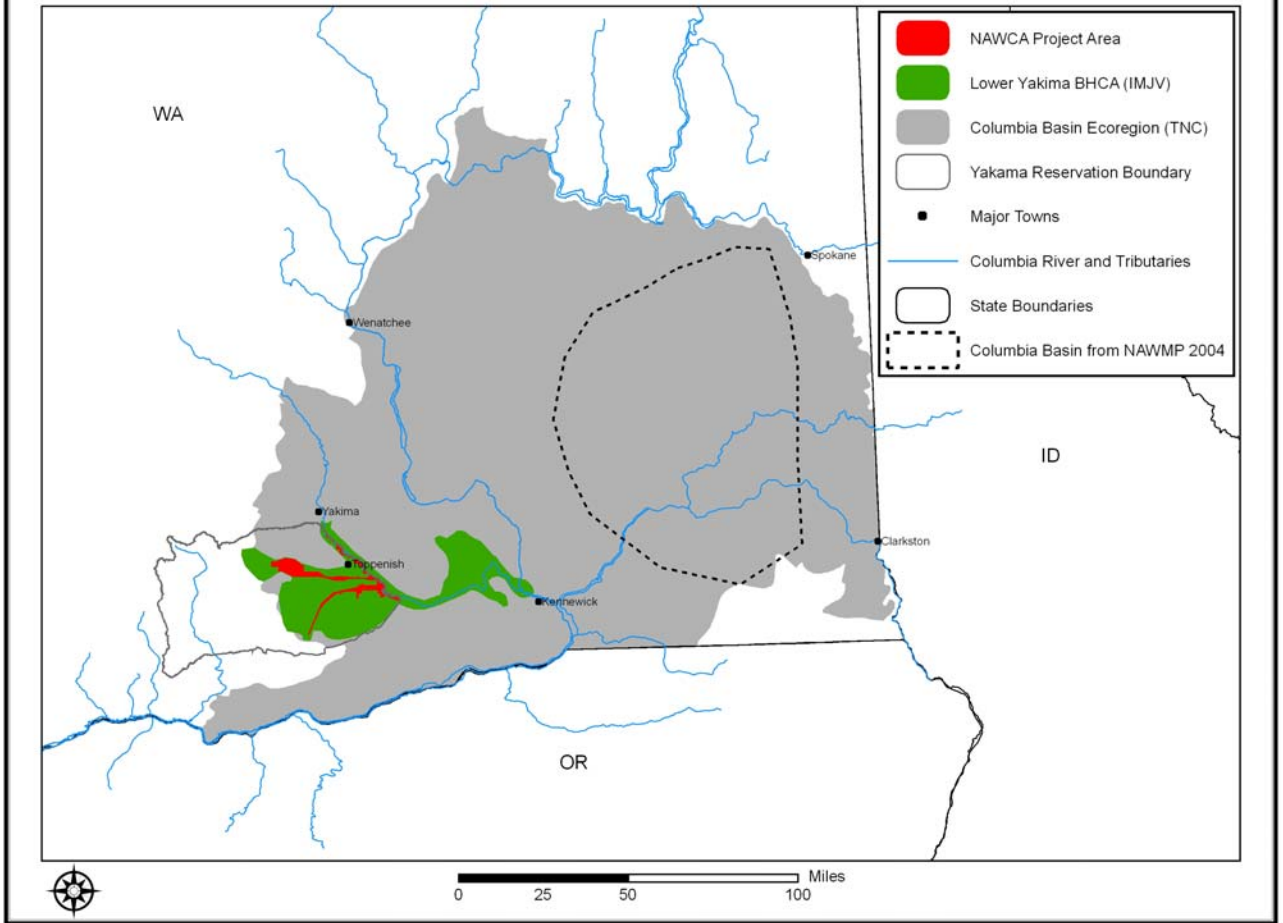
Partner Contribution Forms

Project Area Properties Map

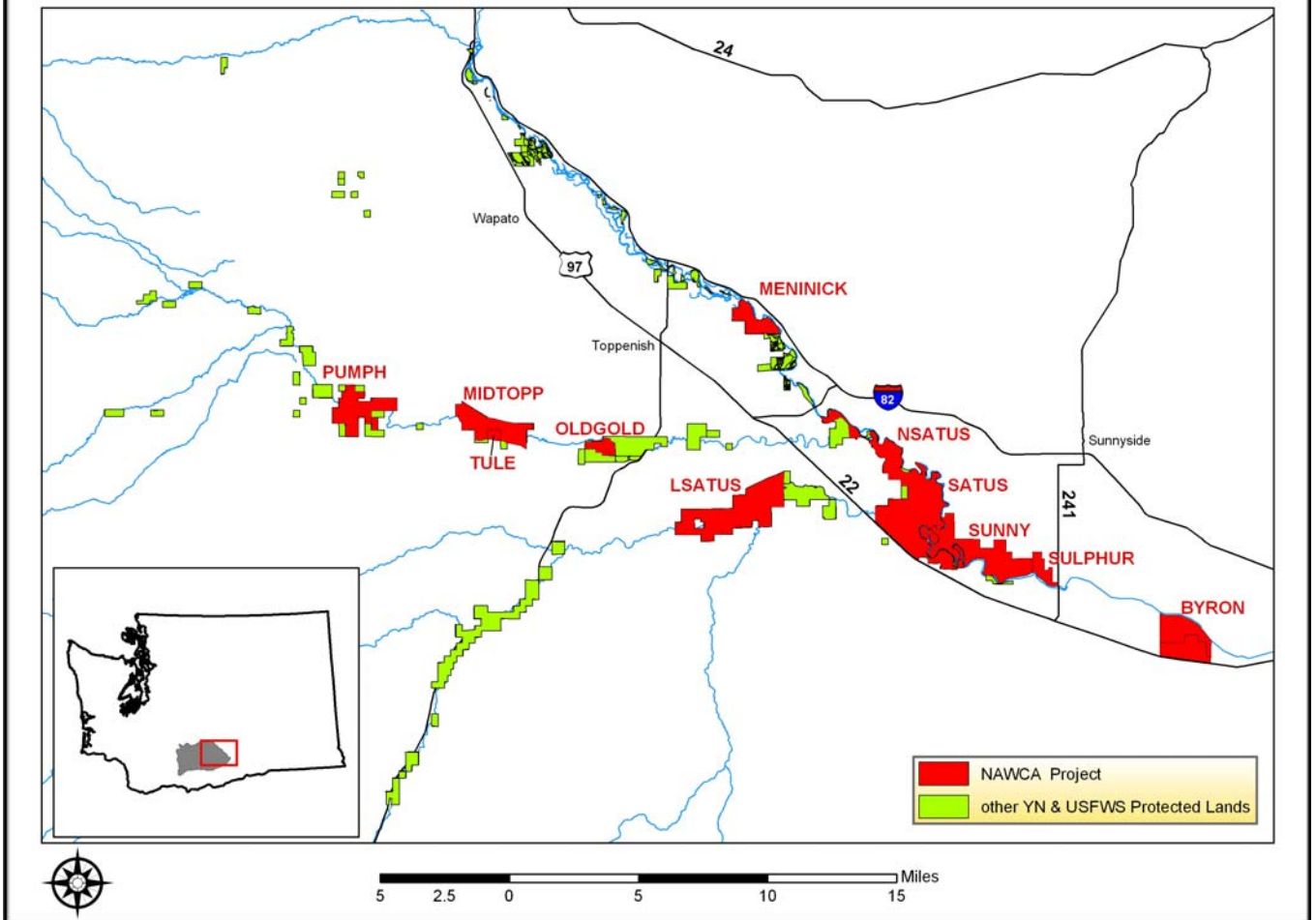
Selected Tract Aerial Photo Maps

Standard Form 424 and Assurances B and/or D (NA to U.S. Fish and Wildlife Service applicants)?

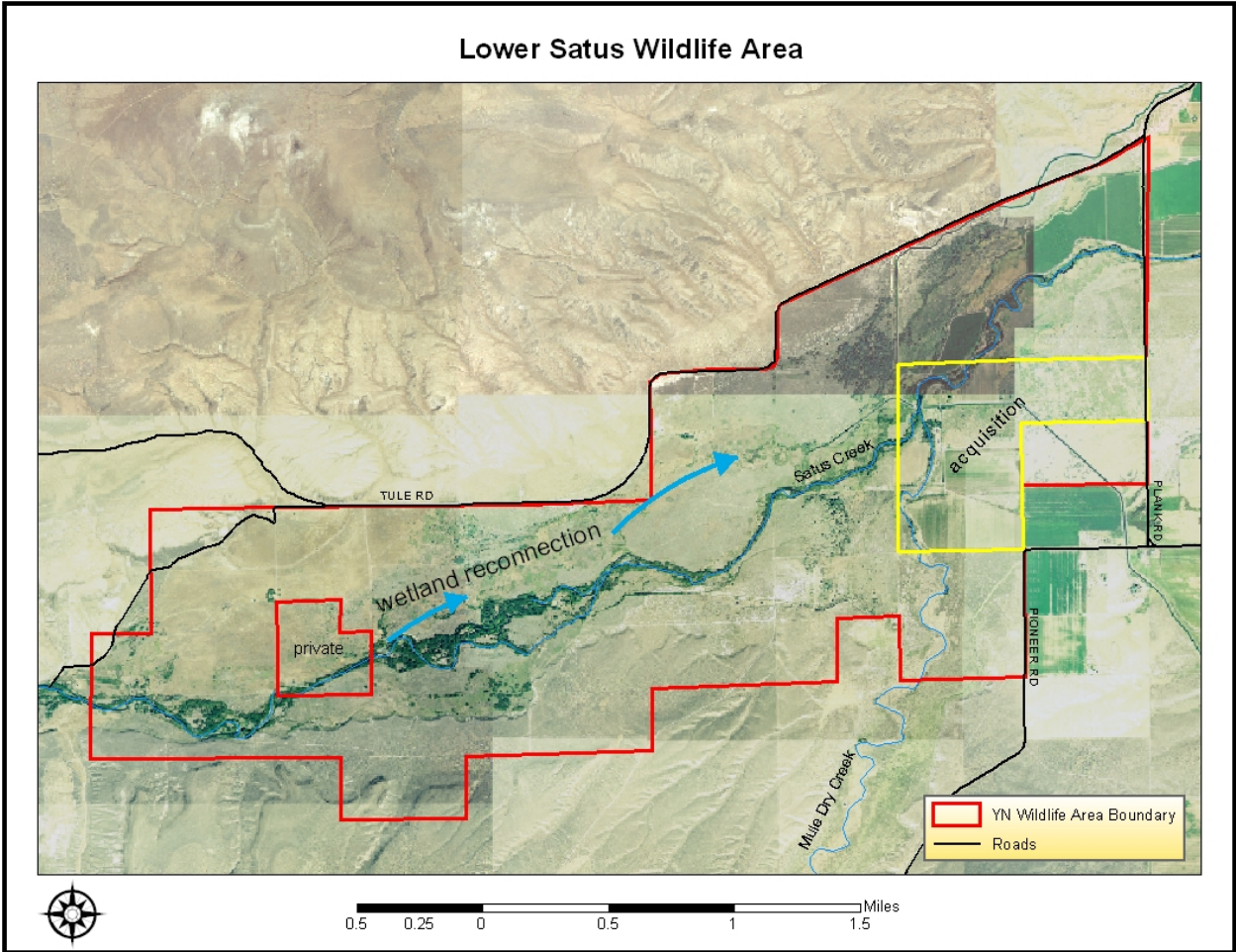
Lower Yakima Wetlands Protection/Restoration II



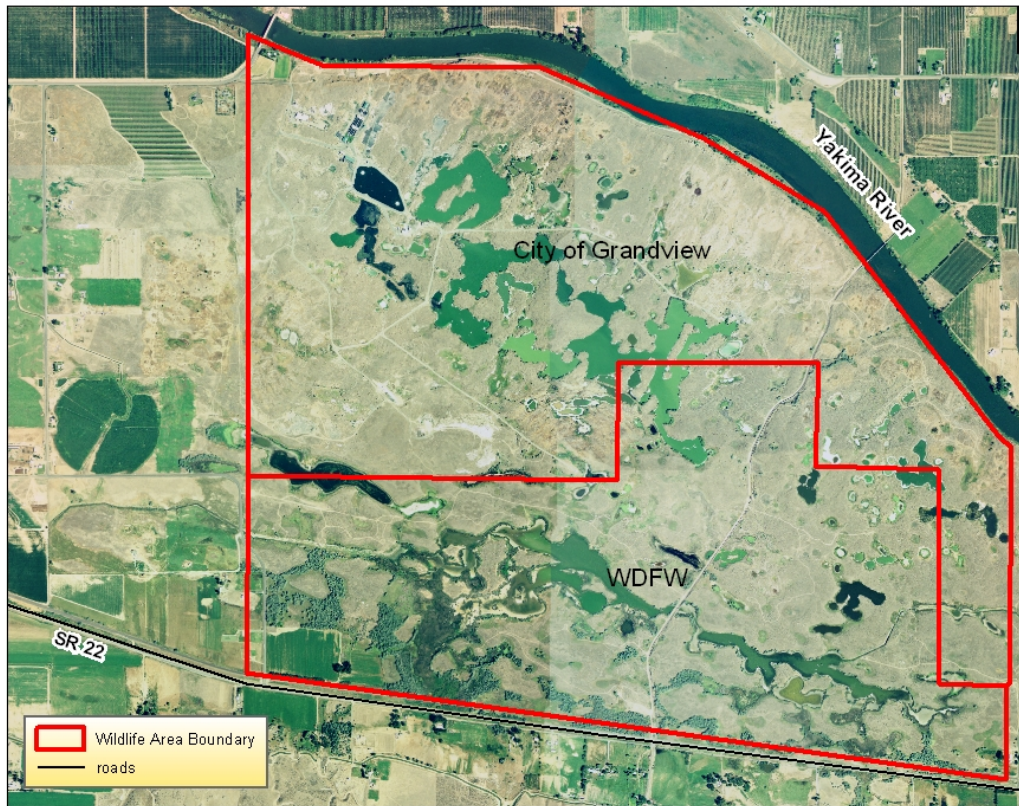
Lower Yakima Wetlands Protection/Restoration II



Lower Satus Wildlife Area



Byron Wildlife Area



0.5 0.25 0 0.5 1 Miles



Appendix C

List of the species observed on the Toppenish-Pumphouse Management unit on the by Yakima Valley Audubon Society volunteers.

Species	Scientific Name
Mallard	<i>Anas platyrhynchos</i>
Ring-necked Pheasant	<i>Phasianus colchicus</i>
California Quail	<i>Callipepla californica</i>
Great Blue Heron	<i>Ardea herodias</i>
Turkey Vulture	<i>Cathartes aura</i>
Northern Harrier	<i>Circus cyaneus</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>
American Kestrel	<i>Falco sparverius</i>
Sora	<i>Porzana carolina</i>
Killdeer	<i>Charadrius vociferus</i>
Wilson's Snipe	<i>Gallinago delicata</i>
Rock Pigeon	<i>Columba livia</i>
Mourning Dove	<i>Zenaida macroura</i>
Barn Owl	<i>Tyto alba</i>
Belted Kingfisher	<i>Ceryle alcyon</i>
Northern Flicker	<i>Colaptes auratus</i>
Say's Phoebe	
Western Kingbird	<i>Tyrannus verticalis</i>
Black-billed magpie	<i>Pica pica</i>
American Crow	<i>Corvus brachyrhynchos</i>
Common Raven	<i>Corvus corax</i>
Tree Swallow	<i>Tachycineta bicolor</i>
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>
Barn Swallow	<i>Hirundo rustica</i>
Black-capped Chickadee	<i>Poecile atricapillus</i>
House Wren	<i>Thryomanes</i>
Bewick's Wren	<i>Thryomanes</i>
Ruby-crowned Kinglet	<i>Regulus calendula</i>
American Robin	<i>Turdus migratorius</i>
European Starling	<i>Sturnus vulgaris</i>
Yellow Warbler	
Yellow-rumped Warbler	<i>Dendroica coronata</i>
Common Yellowthroat	<i>Geothlypis trichas</i>
Savannah Sparrow	<i>Passerculus sandwichensis</i>
Song Sparrow	<i>Melospiza melodia</i>
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>
Golden-crowned Sparrow	<i>Zonotrichia atricapilla</i>
Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>
Red-winged Blackbird	<i>Agelaius phoeniceus</i>
Yellow-headed Blackbird	<i>Xanthocephalus xanthocephalus</i>
House Finch	<i>Carpodacus mexicanus</i>
American Goldfinch	<i>Carduelis tristis</i>

List of the species observed on the East Lateral C Management unit on the Yakama Reservation by Yakima Audubon Society volunteers.

Species	Scientific Name
Wood Duck	<i>Aix sponsa</i>
Mallard	<i>Anas platyrhynchos</i>
Cinnamon Teal	<i>Anas cyanoptera</i>
Northern Pintail	<i>Anas acuta</i>
Ring-necked Pheasant	<i>Phasianus colchicus</i>
California Quail	<i>Callipepla californica</i>
Great Blue Heron	<i>Ardea herodias</i>
Turkey Vulture	<i>Cathartes aura</i>
Cooper's Hawk	<i>Accipiter cooperii</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>
American Kestrel	<i>Falco sparverius</i>
Virginia Rail	<i>Rallus limicola</i>
Sora	<i>Porzana carolina</i>
Killdeer	<i>Charadrius vociferus</i>
Wilson's Snipe	<i>Gallinago delicata</i>
Mourning Dove	<i>Zenaida macroura</i>
Great Horned Owl	<i>Bubo virginianus</i>
Belted Kingfisher	<i>Ceryle alcyon</i>
Downy Woodpecker	<i>Picoides pubescens</i>
Northern Flicker	<i>Colaptes auratus</i>
Western Wood-Pewee	
Pacific-slope Flycatcher	
Eastern Kingbird	<i>Tyrannus tyrannus</i>
Black-billed magpie	<i>Pica pica</i>
Common Raven	<i>Corvus corax</i>
Tree Swallow	<i>Tachycineta bicolor</i>
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>
Barn Swallow	<i>Hirundo rustica</i>
Black-capped Chickadee	<i>Poecile atricapillus</i>
House Wren	
Bewick's Wren	<i>Thryomanes bewickii</i>
Marsh Wren	<i>Cistothorus palustris</i>
Ruby-crowned Kinglet	<i>Regulus calendula</i>
American Robin	<i>Turdus migratorius</i>
European Starling	<i>Sturnus vulgaris</i>
Orange-crowned Warbler	<i>Vermivora celata</i>
Townsend's Warbler	
Spotted Towhee	<i>Pipilo maculatus</i>
Chipping Sparrow	
Lark Sparrow	
Savannah Sparrow	<i>Passerculus sandwichensis</i>

Fox Sparrow	
Song Sparrow	<i>Melospiza melodia</i>
Lincoln's Sparrow	
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>
Golden-crowned Sparrow	<i>Zonotrichia atricapilla</i>
Dark-eyed Junco	<i>Junco hyemalis</i>
Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>
Lazuli Bunting	
Red-winged Blackbird	<i>Agelaius phoeniceus</i>
Western Meadowlark	<i>Sturnella neglecta</i>
Yellow-headed Blackbird	<i>Xanthocephalus xanthocephalus</i>
Brown-headed Cowbird	<i>Molothrus alter</i>
Bullock's Oriole	
House Finch	<i>Carpodacus mexicanus</i>
American Goldfinch	<i>Carduelis tristis</i>

List of the species observed on the South Lateral A Management unit on the Yakama Reservation by Yakima Audubon Society volunteers.

116 species

Species	Scientific Name
Greater-White Fronted	<i>Anser albifrons</i>
Snow Goose	<i>Chen caerulescens</i>
Canada Goose	<i>Branta canadensis</i>
Cackling Canada Goose	
Mute Swan	<i>Cygnus Olor</i>
Trumpeter Swans	<i>Cygnus buccinator</i>
Tundra Swan	<i>Cygnus columbianus</i>
Wood Duck	<i>Aix sponsa</i>
Gadwall	<i>Anas strepa</i>
American Wigeon	<i>Anas americanus</i>
Mallard	<i>Anas platyrhynchos</i>
Blue-winged Teal	<i>Anas discors</i>
Cinnamon Teal	<i>Anas cyanoptera</i>
Northern Shovler	<i>Anas clypeata</i>
Northern Pintail	<i>Anas acuta</i>
Green-winged Teal	<i>Anas crecca</i>
Ring-necked Duck	<i>Aythya collaris</i>
Greater Scaup	<i>Aythya marila</i>
Lesser Scaup	<i>Aythya affinis</i>
Bufflehead	<i>Bucephala albeola</i>
Common Goldeneye	<i>Bucephala clangula</i>
Hooded Merganser	<i>Lophodytes cucullatus</i>
Common Merganser	<i>Mergus merganser</i>
Ruddy Duck	<i>Oxyura jamaicensis</i>
Ring-necked Pheasant	<i>Phasianus colchicus</i>
California Quail	<i>Callipepla californica</i>
Pied-billed Grebe	<i>Podilymbus podiceps</i>
Horned Grebe	<i>Podiceps auritus</i>
American White Pelican	<i>Pelecanus erythrorhynchos</i>
Double-crested Cormorant	<i>Phalacrocorax auritus</i>
American Bittern	<i>Botaurus lentiginosus</i>
Great Blue Heron	<i>Ardea herodias</i>
Great Egret	<i>Ardea alba</i>
Black-Crowned Night-heron	<i>Nycticorax nycticorax</i>
White-faced Ibis	<i>Plegadis chihi</i>
Turkey Vulture	<i>Cathartes aura</i>
Osprey	<i>Pandion haliaetus</i>
Bald Eagle	<i>Haliaeetus leucocephalus</i>
Northern Harrier	<i>Circus cyaneus</i>

Sharp-shinned Hawk	<i>Accipiter striatus</i>
Cooper's Hawk	<i>Accipiter cooperii</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>
Rough-legged Hawk	<i>Buteo lagopus</i>
American Kestrel	<i>Falco sparverius</i>
Peregrin Falcon	<i>Falco peregrinus</i>
Virginia Rail	<i>Rallus limicola</i>
Sora	<i>Porzana carolina</i>
American Coot	<i>Fulica Americana</i>
Sandhill Crane	<i>Grus canadensis</i>
Killdeer	<i>Charadrius vociferus</i>
Black-necked Stilt	<i>Himantopus mexicanus</i>
American Avocet	<i>Recurvirostra americana</i>
Spotted Sandpiper	<i>Actitis macularia</i>
Dunlin	<i>Calidris alpina</i>
Long-billed Dowitcher	<i>Limnodromus scolopaceus</i>
Wilson's Snipe	<i>Gallinago delicata</i>
Ring-billed Gull	<i>Larus delawarensis</i>
Black Tern	<i>Chlidonias niger</i>
Rock Pigeon	<i>Columba livia</i>
Mourning Dove	<i>Zenaida macroura</i>
Barn Owl	<i>Tyto alba</i>
Great Horned Owl	<i>Bubo virginianus</i>
Long-eared Owl	<i>Asio otus</i>
Short-eared Owl	<i>Asio flammeus</i>
Common Nighthawk	<i>Chordeiles minor</i>
Belted Kingfisher	<i>Ceryle alcyon</i>
Downy Woodpecker	<i>Picoides pubescens</i>
Northern Flicker	<i>Colaptes auratus</i>
Western Kingbird	<i>Tyrannus verticalis</i>
Eastern Kingbird	<i>Tyrannus tyrannus</i>
Loggerhead Shrike	<i>Lanius ludovicianus</i>
Black-billed magpie	<i>Pica pica</i>
American Crow	<i>Corvus brachyrhynchos</i>
Common Raven	<i>Corvus corax</i>
Tree Swallow	<i>Tachycineta bicolor</i>
Violet-green Swallows	<i>Tachycineta thalassina</i>
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>
Barn Swallow	<i>Hirundo rustica</i>
Black-capped Chickadee	<i>Poecile atricapillus</i>
Bewick's Wren	<i>Thryomanes bewickii</i>
Marsh Wren	<i>Cistothorus palustris</i>
Ruby-crowned Kinglet	<i>Regulus calendula</i>
American Robin	<i>Turdus migratorius</i>

European Starling	<i>Sturnus vulgaris</i>
American Pipit	<i>Anthus rubescens</i>
Orange-crowned Warbler	<i>Vermivora celata</i>
Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>
Yellow-rumped Warbler	<i>Dendroica coronata</i>
Common Yellowthroat	<i>Geothlypis trichas</i>
Western Tanager	<i>Piranga ludoviciana</i>
Spotted Towhee	<i>Pipilo maculatus</i>
Savannah Sparrow	<i>Passerculus sandwichensis</i>
Song Sparrow	<i>Melospiza melodia</i>
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>
Golden-crowned Sparrow	<i>Zonotrichia atricapilla</i>
Dark-eyed Junco	<i>Junco hyemalis</i>
Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>
Bobolink	<i>Dolichonyx oryzivorus</i>
Red-winged Blackbird	<i>Agelaius phoeniceus</i>
Western Meadowlark	<i>Sturnella neglecta</i>
Yellow-headed Blackbird	<i>Xanthocephalus xanthocephalus</i>
Brewer's Blackbird	<i>Euphagus carolinus</i>
Brown-headed Cowbird	<i>Molothrus alter</i>
House Finch	<i>Carpodacus mexicanus</i>
American Goldfinch	<i>Carduelis tristis</i>
House Sparrow	<i>Passer domesticus</i>

List of the species observed on the Campbell Road Management unit on the Yakama Reservation by Yakima Audubon Society volunteers.

Species	Scientific Name
Gadwall	<i>Anas strepera</i>
Mallard	<i>Anas platyrhynchos</i>
Northern Harrier	<i>Circus cyaneus</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>
Rock Pigeon	<i>Columba livia</i>
Mourning Dove	<i>Zenaida macroura</i>
Vaux's Swift	
Black-billed magpie	<i>Pica pica</i>
American Crow	<i>Corvus brachyrhynchos</i>
Common Raven	<i>Corvus corax</i>
N. Rough-winged Swallow	<i>Tachycineta</i>
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>
Barn Swallow	<i>Hirundo rustica</i>
Black-capped Chickadee	<i>Poecile atricapillus</i>
American Robin	<i>Turdus migratorius</i>
European Starling	<i>Sturnus vulgaris</i>
Common Yellowthroat	<i>Geothlypis trichas</i>
Red-winged Blackbird	<i>Agelaius phoeniceus</i>
Brown-headed Cowbird	<i>Molothrus alter</i>

List of the species observed on the Satus Management unit on the Yakama Reservation by Yakima Audubon Society volunteers.

Species	Scientific Name
Canada Goose	<i>Branta canadensis</i>
Wood Duck	<i>Aix sponsa</i>
Gadwall	<i>Anas strepa</i>
Mallard	<i>Anas platyrhynchos</i>
Cinnamon Teal	<i>Anas cyanoptera</i>
Northern Shovler	<i>Anas clypeata</i>
Green-winged Teal	<i>Anas crecca</i>
Ring-necked Pheasant	<i>Phasianus colchicus</i>
California Quail	<i>Callipepla californica</i>
Pied-billed Grebe	<i>Podilymbus podiceps</i>
American White Pelican	<i>Pelecanus erythrorhynchos</i>
Double-crested Cormorant	<i>Phalacrocorax auritus</i>
American Bittern	<i>Botaurus lentiginosus</i>
Great Blue Heron	<i>Ardea herodias</i>
Great Egret	<i>Ardea alba</i>
Black-Crowned Night-heron	<i>Nycticorax nycticorax</i>
Turkey Vulture	<i>Cathartes aura</i>
Osprey	<i>Pandion haliaetus</i>
Bald Eagle	<i>Haliaeetus leucocephalus</i>
Northern Harrier	<i>Circus cyaneus</i>
Sharp-shinned Hawk	<i>Accipiter striatus</i>
Cooper's Hawk	<i>Accipiter cooperii</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>
American Kestrel	<i>Falco sparverius</i>
Virginia Rail	<i>Rallus limicola</i>
American Coot	<i>Fulica Americana</i>
Sandhill Crane	<i>Grus canadensis</i>
Killdeer	<i>Charadrius vociferus</i>
Black-necked Stilt	<i>Himantopus mexicanus</i>
American Avocet	<i>Recurvirostra americana</i>
Greater Yellowlegs	<i>Tringa melanoleuca</i>
Lesser Yellowlegs	<i>Tringa flavipes</i>
Spotted Sandpiper	<i>Actitis macularia</i>
Least Sandpiper	<i>Calidris minutilla</i>
Wilson's Snipe	<i>Gallinago delicata</i>
Mourning Dove	<i>Zenaida macroura</i>
Great Horned Owl	<i>Bubo virginianus</i>
Vaux's Swift	<i>Chaetura vauxi</i>
Belted Kingfisher	<i>Ceryle alcyon</i>
Downy Woodpecker	<i>Picoides pubescens</i>

Northern Flicker	<i>Colaptes auratus</i>
Western Wood-pewee	<i>Contopus sordidulus</i>
Willow Flycatcher	<i>Empidonax traillii</i>
Western Kingbird	<i>Tyrannus verticalis</i>
Eastern Kingbird	<i>Tyrannus tyrannus</i>
Loggerhead Shrike	<i>Lanius ludovicianus</i>
Cassin's Vireo	<i>Vireo cassinii</i>
Warbling Vireo	<i>Vireo gilvus</i>
Black-billed magpie	<i>Pica pica</i>
American Crow	<i>Corvus brachyrhynchos</i>
Common Raven	<i>Corvus corax</i>
Tree Swallow	<i>Tachycineta bicolor</i>
N. Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>
Bank Swallow	<i>Riparia riparia</i>
Barn Swallow	<i>Hirundo rustica</i>
Black-capped Chickadee	<i>Poecile atricapillus</i>
Red-breasted Nuthatch	<i>Sitta canadensis</i>
Bewick's Wren	<i>Thryomanes bewickii</i>
House Wren	<i>Troglodytes aedon</i>
Marsh Wren	<i>Cistothorus palustris</i>
Ruby-crowned Kinglet	<i>Regulus calendula</i>
American Robin	<i>Turdus migratorius</i>
Gray Catbird	<i>Dumetella carolinensis</i>
European Starling	<i>Sturnus vulgaris</i>
Cedar Waxwing	<i>Bombycilla cedrorum</i>
Orange-crowned Warbler	<i>Vermivora celata</i>
Nashville Warbler	<i>Vermivora ruficapilla</i>
Yellow Warbler	<i>Dendroica petechia</i>
Yellow-rumped Warbler	<i>Dendroica coronata</i>
Townsend's Warbler	<i>Dendroica townsendi</i>
MacGillivray's Warbler	<i>Oporomis tolniei</i>
Common Yellowthroat	<i>Geothlypis trichas</i>
Western Tanager	<i>Piranga ludoviciana</i>
Savannah Sparrow	<i>Passerculus sandwichensis</i>
Song Sparrow	<i>Melospiza melodia</i>
Lincoln's Sparrow	<i>Melospiza lincolni</i>
White-throated Sparrow	<i>Zonotrichia albicollis</i>
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>
Red-winged Blackbird	<i>Agelaius phoeniceus</i>
Western Meadowlark	<i>Sturnella neglecta</i>
Yellow-headed Blackbird	<i>Xanthocephalus xanthocephalus</i>
Brown-headed Cowbird	<i>Molothrus alter</i>
House Finch	<i>Carpodacus mexicanus</i>
American Goldfinch	<i>Carduelis tristis</i>

