

Section C - Descriptions and Specifications

STATEMENT OF WORK

**Statement of Work for
Monitoring Services of the Purple Loosestrife Control Program
Lower Columbia River Miles 18-52 Ecosystem Restoration Effort**

1.0 DESCRIPTION OF SERVICES The Purple Loosestrife Control Program, an Ecosystem Restoration Feature of the Columbia River Channel Improvement Project is a 5-year length effort with an objective of controlling the population of this invasive, exotic weed species in the lower Columbia River between river miles 18-52 (Tongue Point, Oregon to Eureka Bar, Oregon). Control activities would occur within both Oregon and Washington. The majority of the effort would occur in Oregon as most intertidal wetland acreage in the project area occurs in Oregon. The contractor shall provide all personnel, equipment, tools, materials, licenses, vehicles, supervision, and other items and services necessary to accurately perform this service.

1.1 BACKGROUND

The initial scope for this ecosystem restoration feature proposed the use, in concert, of mechanical, herbicide, and biological control agents (insects) to address the infestation of purple loosestrife in the lower Columbia River. However, due to the extensive infestation of this plant species in the estuary, the prodigious seed production (up to 2.5 million seeds per mature plant) and thus volume of seeds in the soil bank, safety issues associated with access difficulties over the large tidally influenced action area for both herbicide or mechanical/manual control measures, ineffectiveness of hand pulling/mechanical removal due to regeneration of plant from roots, and non-target specificity of Rodeo herbicide, we have elected to pursue only biological control.

Four biological control agents have been tested and approved for use in the United States and by Oregon for controlling purple loosestrife: two leaf beetles (*Galerucella pusilla* and *G. californiensis*), a root-weevil (*Hylobius transversovittatus*), and a seed weevil (*Nanophyes marmoratus*). Releases of biological control insects have proven very effective at Baskett Slough NWR, Horseshoe Lake, the Snake River and elsewhere in Oregon plus at many sites throughout the U.S. and Canada. However, releases to date in the lower Columbia River have shown mixed results (Schooler and Garono 2002). They evaluated 42 previous biological control release sites (1997-2002) and determined that 32 of 42 sites (76%) exhibited signs of presence for the control agent. Eight of the 10 sites where biological control agents were not detected involved leaf beetles released in a tidal marsh situation. Schooler and Garono (2002) suggested that leaf-eating beetles might be ineffective in a tidal situation. They observed that releases of the root-weevil persisted in a tidal environment. They noted that continued monitoring needs to be conducted to determine whether this pattern persists for current and future releases.

Most prior biological control releases in the Columbia River estuary have involved releases of 200-700 leaf-eating beetles; four releases (2,000 at Wallace East Island -Sandy; 3,500 at Fitzpatrick Island West; 6000 at Wallace Island Sandy; and 3,800 at Wallace Island Bird Blind) exceeded the release norm (Schooler and Garono 2002). Potentially, small release numbers may have been an issue in establishment/persistence of leaf-eating beetles in the lower Columbia River and this hypothesis will be explored during the forthcoming 5-year effort for control of purple loosestrife in the tidal environments of the estuary.

The period of performance of this expected contract shall be for one year, with options renewable for four (4) additional one (1) year periods. The Government will determine if the option years will be exercised based on the results of the base year and the successes or failures of the requirements in section 5.0 of this SOW. Any additional biological control insect releases will be conducted by the Corps of Engineers, not by the contractor, and will become an additional location to the original requirement within this SOW. The additional location(s) will be mapped using GPS coordinates.

2.0 DEFINITIONS

Contracting Officer (CO): The government employee who is authorized to enter into, administer, and/or terminate contracts and make related determinations and findings for the government.

Contracting Officers Representative (COR): The Government employee who has been authorized in writing as the contracting officer's representative, acting within the limits of their authority pursuant to DFARS 201.602-2 Contracting Authority and Responsibilities.

Contract Discrepancy Report (CDR): A written record of unsatisfactory performance by the contractor due to quality of submittals/or lack of performance.

3.0 GOVERNMENT FURNISHED-PROPERTY The government will provide GPS coordinates for biological control agent releases and travel route to release locations will be provided to the contractor. The Government will not furnish any equipment to the contractor.

4.0 CONTRACTOR FURNISHED-PROPERTY The contractor shall furnish all fuel, oil, pickups and trailers, transportation, all sampling equipment and associated monitoring and data analysis supplies including computers, palm pilots, and all related software. The contractor shall contract for helicopter transportation for aerial survey of purple loosestrife at 35 transects identified by the Corps. The contractor is recommended to furnish a 16-18 foot boat with a minimum of 50 hp, but a 70 hp engine is advised for increased safety purposes. An auxiliary motor also is recommended, even if only 10 hp for safety purposes. The boat should have shallow draft capability as the operational scenario entails operations in shallow tidal waters in addition to side channels and main channel locations. Optionally, the contractor may want to have one boat devoted to primary transportation and a smaller craft to access certain shallow water locations. A canopy or hard shell on the boat is recommended for weather and operator comfort.

5.0 REQUIREMENTS

Purple loosestrife monitoring efforts will be comprised of three elements. Element one specifically pertains to populations of the biological control insect at each release location, element two pertains to habitat variables at each release location, and element three pertains to assessing the population of purple loosestrife in the lower Columbia River between river miles 18 and 52. Elements 1 and 2 will be measured along transects established at each release location; a minimum of 100 square meters along transects will be measured at each location.

Parameters to be measured for element one:

- a. Presence/absence:
Document the presence/absence of the biological control agent at each location based upon observations of adults, larvae, and/or egg masses;
- b. Population levels:
Estimate the number of adults, larvae, and/or egg masses present using a standardized sampling procedure;
- c. Plant damage:
Estimate the level of damage to purple loosestrife using a standardized sampling procedure.

The timeframe for measuring element one is May and July. Photographic documentation shall be obtained at each sampling location.

Parameters to be measured for element two:

- a. Release site elevation:
Including gradient along transects if applicable

- b. Distance to riparian forest/shrub cover that would provide refuge to biological control agents during high tides/winter storm tides.
This may be physically measured in the field, determined from GPS locations obtained in the field, or from aerial photography if necessary.
- c. Distance to high ground (above the high tide line):
This may be physically measured in the field, determined from GPS locations obtained in the field or from aerial photography if necessary.
- d. Tidal Stage Elevation:
Determine mean lower low water, mean higher high water and maximum water elevation for each sampling location by month for 2005 through all subsequent years a release location is sampled. Graph daily highs by month for 2005 through all subsequent years a release location is sampled. This information would be provided in the draft and final reports but is not required for the monthly reports.

The timeframe for measuring element two is May to September (inclusive). Photographic documentation will be obtained at each sampling location.

Parameters to be measured for helicopter surveys of purple loosestrife plants to assess the population trend of purple loosestrife in the lower Columbia River between river miles 18 and 52:

- a. Estimate number of purple loosestrife plants in each of 35 strip transects, each 1,500 feet in length by 10-20 feet in width
- b. GPS coordinates for each strip transect will be supplied by the COE;
- c. Density of purple loosestrife will be calculated for each strip transect and graphically represented for each survey year to determine change in population density.
- d. Video taping of aerial survey transects is recommended.

The timeframe for helicopter surveys is late July to early August. Photographic documentation will be obtained at each sampling location.

GPS coordinates for the 35 helicopter transects follow this paragraph. To the extent practicable, the Corps has tried to ensure that each transect occurs over tidal marsh rather than open water and/or mudflat habitat. The contractor may adjust transects in the field if observation indicates that a proposed transect is outside tidal marsh habitat. The contractor will furnish the Corps the new GPS coordinates for any transect that is modified based upon field observations.

Transect number and corresponding start and end GPS coordinates for purple loosestrife survey effort.

| Transect | X1 | Y1 | X2 | Y2 |
|----------|--------------|-------------|--------------|-------------|
| 1 | -123.7456589 | 46.19762739 | -123.7495112 | 46.20075124 |
| 2 | -123.7489408 | 46.19247614 | -123.7528234 | 46.19558189 |
| 3 | -123.7254542 | 46.17778827 | -123.7313676 | 46.17798849 |
| 4 | -123.7036009 | 46.17478249 | -123.6976925 | 46.17452173 |
| 5 | -123.6806874 | 46.1799567 | -123.6862641 | 46.17857633 |
| 6 | -123.6564319 | 46.18957586 | -123.6623552 | 46.18958812 |
| 7 | -123.6389166 | 46.19860852 | -123.6448352 | 46.19844861 |
| 8 | -123.6340116 | 46.18314234 | -123.6399022 | 46.18272408 |
| 9 | -123.6308074 | 46.18865827 | -123.6301148 | 46.19274289 |
| 10 | -123.5984168 | 46.20434173 | -123.6043397 | 46.20431945 |
| 11 | -123.6064798 | 46.20753158 | -123.611871 | 46.20582717 |
| 12 | -123.633935 | 46.21189187 | -123.6398556 | 46.21177799 |
| 13 | -123.6532188 | 46.25350748 | -123.6474848 | 46.25455566 |
| 14 | -123.6167329 | 46.23698084 | -123.6226119 | 46.23646275 |
| 15 | -123.5766015 | 46.24938391 | -123.5824741 | 46.24994384 |
| 16 | -123.5861486 | 46.2210479 | -123.5808584 | 46.22290153 |
| 17 | -123.5367942 | 46.24728397 | -123.5309219 | 46.24784655 |
| 18 | -123.5328544 | 46.24186559 | -123.526927 | 46.24183709 |
| 19 | -123.5389916 | 46.23034114 | -123.5404474 | 46.23432818 |
| 20 | -123.5658115 | 46.22614066 | -123.5602294 | 46.22752048 |
| 21 | -123.5725162 | 46.23475183 | -123.5680044 | 46.23741978 |
| 22 | -123.4862541 | 46.25710306 | -123.4804286 | 46.25634022 |
| 23 | -123.4998917 | 46.26276902 | -123.4940539 | 46.26205071 |
| 24 | -123.5053101 | 46.24759507 | -123.5043647 | 46.24353482 |
| 25 | -123.4173248 | 46.20713858 | -123.4183929 | 46.21118418 |
| 26 | -123.4362511 | 46.21043501 | -123.4336905 | 46.21414367 |
| 27 | -123.3176629 | 46.15174651 | -123.323572 | 46.15196747 |
| 28 | -123.3509033 | 46.16887658 | -123.3470678 | 46.16574382 |
| 29 | -123.231716 | 46.16170746 | -123.2264239 | 46.1635516 |
| 30 | -123.240173 | 46.14956996 | -123.2459432 | 46.14866176 |
| 31 | -123.2640368 | 46.14357612 | -123.2584838 | 46.14499572 |
| 32 | -123.6575392 | 46.21394523 | -123.6624974 | 46.21169299 |
| 33 | -123.7188455 | 46.30249401 | -123.7243384 | 46.30094076 |
| 34 | -123.694287 | 46.30280881 | -123.690032 | 46.30567428 |
| 35 | -123.6782819 | 46.28572254 | -123.6785152 | 46.28983211 |

Note: Geographic coordinates are
NAD83.

Contract Basis for Payment

The contractual basis for payment will be based upon the costs associated with completion of the required sampling efforts at a biological control insect release location. For the 2006 contract period (base period), these biological control insect release locations are scattered at 15 distinct locations between Columbia River mile 18 and 52. The number of biological control insect release locations to be sampled each subsequent calendar year is expected to vary and will be identified per number and location in the task order.

Mobilization/demobilization costs will be incurred each year during the 5-year monitoring effort. Similarly, helicopter survey costs for 35 locations will accrue annually from 2006-2010. These costs should be imbedded in the cost per sample when determining the price schedule.

An additional, but unknown number of biological control insect releases by the Corps are anticipated each year from 2006-2009. Subsequent releases may involve different biological control agents or methods but the sampling criteria would remain the same. Locations where insect releases have been documented as failures would be dropped from the monitoring effort in subsequent years. Thus, the number of locations to be monitored annually will fluctuate and can not be predetermined.

Locations

The 15 release locations to be monitored in 2006 are only accessible via boat. Their site names and GPS locations follow; each release location was marked with a steel T-post marked in orange. Steel T-posts may be missing in the field due to any number of factors. The boat travel route GPS coordinates will be made available to the contractor as a suggested means of travel between release locations.

2005 *Galerucella Pusilla* Release Locations By Site Name, Latitude And Longitude

| Site No. | Name | Coordinates |
|----------|------------------------|--|
| 1 | Mott Island: | Latitude 46.1981; Longitude 123.74313 |
| 2 | Svenson Island u/s end | Latitude 46.18235; Longitude 123.63263 |
| 3 | Karlson Island | Latitude 46.2052; Longitude 123.61588 |
| 4 | Marsh Island | Latitude 46.22412; Longitude 123.56878 |
| 5 | Devils Elbow | Latitude 46.23323; Longitude 123.55457 |
| 6 | Pillar Rock Island d/s | Latitude 46.2512; Longitude 123.58865 |
| 7 | Pillar Rock Island u/s | Latitude 46.25165; Longitude 123.5875 |
| 8 | Miller Sands Spit u/s | Latitude 46.25002; Longitude 123.64223 |
| 9 | Miller Sands Spit d/s | Latitude 46.25365; Longitude 123.65667 |
| 10 | Fitzpatrick Island | Latitude 46.26377; Longitude 123.50086 |
| 11 | Tenasillahe Island | Latitude 46.21503; Longitude 123.43733 |
| 12 | Drydock | Latitude 46.20125; Longitude 123.44153 |
| 13 | Eureka Bar d/s | Latitude 46.16055; Longitude 123.23057 |
| 14 | Eureka Bar u/s | Latitude 46.16135; Longitude 123.22755 |
| 15 | Wallace Island u/s | Latitude 46.15055; Longitude 123.2307 |

Submittals

Monthly reports shall be provided to the COR no later than the 15th of the month after the sampling month. The reports shall identify the status of the monitoring effort applying the sampling methodology from the requirements specified in section 5.0 as the minimum information.

Supporting photo documenting shall also be provided indicating survival/loss of biological control agents, field damage to purple loosestrife or the lack thereof, release (biological control agents) site conditions, field equipment used and pictures of it in use, purple loosestrife plant density, and habitat associations of purple loosestrife and biological control agents. Digital cameras should be employed and pictures with appropriate caption information (date, time, location).

An annual summary report will be prepared and submitted to the Corps, initially in draft form. The Corps will have two weeks to review and edit the draft. The contractor will then have one month to complete the final annual report and submit it to the Corps.