

Table 3-1. Marsh and Riparian Areal Cover by Polygon at Mowitch

| Vegetation Polygon | Percent Cover | Dominant Species  |
|--------------------|---------------|---|
| M1                 | 30            | <i>Triglochin maritimum, Atriplex patula</i>  |
| M2                 | 50            | <i>Eleocharis</i> sp.   |
| M3                 | 60            | <i>Eleocharis</i> sp.   |
| M4                 | 40            | <i>Eleocharis</i> sp.   |
| M5                 | 70            | <i>Eleocharis</i> sp.   |
| M6                 | 60            | <i>Atriplex patula, Carex lyngbyei, Cotula coronopifolia</i>                        |
| M7                 | 35            | <i>Eleocharis</i> sp.   |
| M8                 | 45            | <i>Cotula coronopifolia</i>   |
| M9                 | 35            | <i>Eleocharis</i> sp.   |
| M10                | 40            | <i>Eleocharis</i> sp.   |
| M11                | 35            | <i>Eleocharis</i> sp.   |
| M12                | 50            | <i>Eleocharis</i> sp.   |
| M13                | 45            | <i>Eleocharis</i> sp.   |
| M14                | 35            | <i>Triglochin maritimum</i>   |
| M15                | 35            | <i>Triglochin maritimum</i>   |
| M16                | 40            | <i>Triglochin maritimum, Cotula coronopifolia</i>                                   |
| M17                | 50            | <i>Eleocharis</i> sp.   |
| M18                | 50            | <i>Triglochin maritimum, Cotula coronopifolia, Atriplex patula</i>                  |
| R1                 | 75            | <i>Lupinus</i> sp., <i>Lolium perenne</i>   |
| R2                 | 25            | grass spp.  |
| R3                 | 90            | <i>Lupinus</i> sp.  |
| R4                 | 70            | <i>Lolium perenne</i>   |
| R5                 | 40            | <i>Epilobium</i> sp.  |
| R6                 | 75            | <i>Lotus corniculatus, Trifolium pratense</i>                                       |
| R7                 | 60            | <i>Lotus corniculatus, Melilotus alba</i>   |
| R8                 | 60            | <i>Trifolium</i> sp., <i>Lupinus</i> sp., <i>Lotus corniculatus, Melilotus alba</i> |
| R9                 | 60            | <i>Lotus corniculatus, Melilotus alba</i>   |
| R10                | 85            | <i>Lupinus</i> sp.  |
| R11                | 55            | <i>Lupinus</i> sp., <i>Melilotus alba</i>   |
| R12                | 50            | <i>Lotus corniculatus</i>   |
| R13                | 75            | <i>Lupinus</i> sp.  |
| R14                | 60            | <i>Lupinus</i> sp., <i>Melilotus alba</i>   |
| R15                | 100           | <i>Melilotus alba, Rubus discolor, Cirsium arvense, unknown mustard</i>             |
| R16                | 70            | <i>Cirsium</i> sp., <i>Lupinus</i> sp., <i>Lotus corniculatus, Melilotus alba</i>   |
| R17                | 60            | <i>Cirsium arvense, C. vulgare</i>  |
| R18                | 50            | <i>Festuca</i> sp., <i>Agrostis</i> sp., <i>Lotus corniculatus</i>                  |
| R19                | 80            | <i>Cirsium arvense, C. vulgare</i>  |
| R20                | 80            | <i>Festuca</i> spp., <i>Lotus corniculatus, Lupinus</i> sp.                         |
| R21                | 45            | <i>Lotus corniculatus, Lupinus</i> sp.  |
| R22                | 90            | <i>Cirsium arvense, Lupinus</i> sp., <i>Festuca</i> sp.                             |
| R23                | 45            | <i>Chrysanthemum leucanthemum, Festuca arundinacea, Plantago lanceolata</i>         |

**Note:** In Vegetation Polygon column, M=Marsh polygon; R=Riparian polygon

Table 3-2. Quadrat Locations Along Marsh and Riparian Transects at Mowitch

| Marsh Transect 1 |                              | Riparian Transect 2 |                              |
|------------------|------------------------------|---------------------|------------------------------|
| Quadrat          | Distance Along Transect (ft) | Quadrat             | Distance Along Transect (ft) |
| 1                | 37                           | 1                   | 37                           |
| 2                | 39                           | 2                   | 41                           |
| 3                | 80                           | 3                   | 80                           |
| 4                | 86                           | 4                   | 86                           |
| 5                | 137                          | 5                   | 136                          |
| 6                | 142                          | 6                   | 142                          |
| 7                | 158                          | 7                   | 158                          |
| 8                | 165                          | 8                   | 165                          |
| 9                | 171                          | 9                   | 171                          |
| 10               | 206                          | 10                  | 206                          |
| 11               | 243                          | 11                  | 243                          |
| 12               | 245                          | 12                  | 247                          |
| 13               | 272                          | 13                  | 272                          |
| 14               | 274                          | 14                  | 276                          |
| 15               | 315                          | 15                  | 315                          |
| 16               | 354                          | 16                  | 354                          |
| 17               | 366                          | 17                  | 366                          |
| 18               | 370                          | 18                  | 370                          |
| 19               | 375                          | 19                  | 375                          |
| 20               | 440                          | 20                  | 440                          |
| 21               | 444                          | 21                  | 444                          |
| 22               | 446                          | 22                  | 448                          |
| 23               | 472                          | 23                  | 472                          |
| 24               | 474                          | 24                  | 476                          |
| 25               | 481                          | 25                  | 481                          |
| 26               | 483                          | 26                  | 485                          |
| 27               | 519                          | 27                  | 519                          |
| 28               | 536                          | 28                  | 536                          |
| 29               | 552                          | 29                  | 552                          |
| 30               | 573                          | 30                  | 573                          |
| 31               | 588                          | 31                  | 588                          |
| 32               | 640                          | 32                  | 640                          |
| 33               | 656                          | 33                  | 656                          |
| 34               | 669                          | 34                  | 669                          |
| 35               | 674                          | 35                  | 674                          |
| 36               | 690                          | 36                  | 690                          |
| 37               | 695                          | 37                  | 695                          |
| 38               | 718                          | 38                  | 718                          |
| 39               | 734                          | 39                  | 734                          |
| 40               | 748                          | 40                  | 748                          |
| 41               | 758                          | 41                  | 758                          |
| 42               | 770                          | 42                  | 770                          |
| 43               | 803                          | 43                  | 803                          |
| 44               | 859                          | 44                  | 859                          |
| 45               | 861                          | 45                  | 863                          |
| 46               | 898                          |                     |                              |



Table 3-4. Marsh Development at Mowitch - Cover (Daubenmire Method)

| Common Name                               | Scientific Name                | Total Canopy | Canopy Cover (%) | Frequency (%) | Species Composition |
|---|--------------------------------|--------------|------------------|---------------|---------------------|
| <b>American glasswort, pickleweed</b>     | <i>Salicornia virginica</i>    | 2.5          | 0.05             | 2.2           | 0.01%               |
| colonial bentgrass                        | <i>Agrostis tenuis</i>         | 2.5          | 0.05             | 2.2           | 0.01%               |
| fireweed                                  | <i>Epilobium angustifolium</i> | 7.5          | 0.16             | 6.5           | 0.03%               |
| <b>Lyngby's sedge</b>                     | <i>Carex lyngbyei</i>          | 35           | 0.76             | 8.7           | 0.15%               |
| <b>orache, fat-hen saltbush</b>           | <i>Atriplex patula</i>         | 180          | 3.91             | 47.8          | 0.77%               |
| <b>seaside arrow-grass</b>                | <i>Triglochin maritimum</i>    | 80           | 1.74             | 6.5           | 0.34%               |
| <b>seaside plantain</b>                   | <i>Plantago maritima</i>       | 45           | 0.98             | 8.7           | 0.19%               |
| <b>seashore saltgrass</b>                 | <i>Distichlis spicata</i>      | 17.5         | 0.38             | 4.3           | 0.07%               |
| spike-rush                                | <i>Eleocharis sp.</i>          | 2.5          | 0.05             | 2.2           | 0.01%               |
| <b>tufted hairgrass</b>                   | <i>Deschampsia cespitosa</i>   | 5            | 0.11             | 4.3           | 0.02%               |
| <i>Subtotal</i>                           |                                | 377.5        | 8.21             |               | 1.61%               |
| <b>Non-Native or Invasive<sup>1</sup></b> |                                |              |                  |               |                     |
| brass buttons                             | <i>Cotula coronopifolia</i>    | 70           | 1.52             | 19.6          | 0.30%               |
| English plantain                          | <i>Plantago lanceolata</i>     | 15           | 0.33             | 2.2           | 0.06%               |
| hairy catsear                             | <i>Hypochaeris radicata</i>    | 2.5          | 0.05             | 2.2           | 0.01%               |
| white sweet-clover                        | <i>Melilotus alba</i>          | 10           | 0.22             | 8.7           | 0.04%               |
| unclassified-grass                        | unknown                        | 32.5         | 0.71             | 17.4          | 0.14%               |
| unclassified-herb                         | unknown                        | 2.5          | 0.05             | 2.2           | 0.01%               |
| <i>Subtotal</i>                           |                                | 132.5        | 2.88             |               | 0.56%               |
| <b>TOTAL</b>                              |                                | <b>510</b>   | <b>11.09</b>     |               |                     |

**Notes:**

1: Unknown species are assumed to be weeds or invasives.

**Bold** indicates planted native species, underline indicates volunteer native species

Total canopy: Obtained by counting the number of quadrats in each of six cover class (by species), multiplying this value times the midpoint of the appropriate cover class, and totalling the products for all cover classes by species.

Canopy cover: Obtained by dividing the total canopy by the total number of quadrats sampled on the transect.

Frequency: Obtained by dividing the number of occurrences of a plant species (the number of quadrats in which a plant species was observed) by the total number of quadrats sampled along the transect.

Species composition: Obtained by dividing the percent canopy cover of each plant species by the total canopy cover of all plant species.

See Appendix B for a complete description of the Daubenmire method.





Table 3-7. Riparian Coverage at Mowitch - Percent Cover

| Common Name                     | Scientific Name                    | No. of Quadrats Found 1 | Percent Cover (range) | Percent Cover (mean) |
|---------------------------------|------------------------------------|-------------------------|-----------------------|----------------------|
| <b>Herbs, Forbs and Grasses</b> |                                    |                         |                       |                      |
| bentgrass                       | <i>Agrostis sp.</i>                | 1                       | 1%                    | 1.0                  |
| birds-foot trefoil              | <i>Lotus corniculatus</i>          | 40                      | Trace to 25%          | 6.5                  |
| black medick                    | <i>Medicago lupulina</i>           | 19                      | Trace to 2%           | 0.5                  |
| bluegrass                       | <i>Poa sp.</i>                     | 2                       | Trace                 | 0.1                  |
| brome                           | <i>Bromus sp.</i>                  | 10                      | Trace to 2%           | 0.6                  |
| bull thistle                    | <i>Cirsium vulgare</i>             | 2                       | 1 to 3%               | 2.0                  |
| Canada thistle                  | <i>Cirsium arvense</i>             | 5                       | Trace to 5%           | 1.4                  |
| cheatgrass                      | <i>Bromus tectorum</i>             | 1                       | Trace                 | 0.1                  |
| colonial bentgrass              | <i>Agrostis tenuis</i>             | 2                       | 2%                    | 2.0                  |
| common dandelion                | <i>Taraxacum officinale</i>        | 5                       | Trace to 1%           | 0.2                  |
| common plantain                 | <i>Plantago major</i>              | 3                       | Trace to 3%           | 1.0                  |
| common stork's-bill             | <i>Erodium cicutarium</i>          | 1                       | 1%                    | 1.0                  |
| common velvet-grass             | <i>Holcus lanatus</i>              | 16                      | Trace to 2%           | 1.0                  |
| creeping bentgrass              | <i>Agrostis alba</i>               | 2                       | 3 to 5%               | 4.0                  |
| creeping buttercup              | <i>Ranunculus repens</i>           | 6                       | Trace to 1%           | 0.2                  |
| curly dock                      | <i>Rumex crispus</i>               | 1                       | 2%                    | 2.0                  |
| hairy catsear                   | <i>Hypochaeris radicata</i>        | 17                      | Trace to 1%           | 0.3                  |
| knotweed                        | <i>Polygonum sp.</i>               | 3                       | Trace to 1%           | 0.7                  |
| <b>lupine</b>                   | <b><i>Lupinus sp.</i></b>          | 26                      | Trace to 30%          | 7.2                  |
| oxeye daisy                     | <i>Chrysanthemum leucanthemum</i>  | 1                       | 1%                    | 1.0                  |
| <b>perennial ryegrass</b>       | <b><i>Lolium perenne</i></b>       | 43                      | 2 to 35%              | 12.8                 |
| pineapple weed                  | <i>Matricaria discoidea</i>        | 4                       | Trace to 3%           | 0.8                  |
| <u>purple-leaved willowherb</u> | <u><i>Epilobium ciliatum</i></u>   | 20                      | Trace to 15%          | 2.9                  |
| quackgrass                      | <i>Agropyron repens</i>            | 1                       | 2%                    | 2.0                  |
| rabbitfoot clover               | <i>Trifolium arvense</i>           | 3                       | Trace to 2%           | 1.0                  |
| red clover                      | <i>Trifolium pratense</i>          | 9                       | Trace to 2%           | 0.6                  |
| English plantain                | <i>Plantago lanceolata</i>         | 20                      | Trace to 5%           | 1.6                  |
| Siberian bitter-cress           | <i>Cardamine oligosperma</i>       | 2                       | 1%                    | 1.0                  |
| speedwell                       | <i>Veronica sp.</i>                | 3                       | 1 to 3%               | 2.0                  |
| thistle                         | <i>Cirsium sp.</i>                 | 14                      | 1 to 5%               | 2.4                  |
| <u>toad rush</u>                | <u><i>Juncus bufonius</i></u>      | 5                       | Trace to 5%           | 1.2                  |
| western dock                    | <i>Rumex occidentalis</i>          | 1                       | Trace                 | 0.1                  |
| white clover                    | <i>Trifolium repens</i>            | 9                       | Trace to 1%           | 0.2                  |
| white sweet-clover              | <i>Melilotus alba</i>              | 42                      | 1 to 17%              | 3.9                  |
| willowherb                      | <i>Epilobium sp.</i>               | 29                      | Trace to 7%           | 2.8                  |
| <b>yarrow</b>                   | <b><i>Achillea millefolium</i></b> | 44                      | Trace to 3%           | 0.8                  |
| yellow parentucellia            | <i>Parentucellia viscosa</i>       | 2                       | Trace                 | 0.1                  |
| unclassified-composite          | unclassified-composite             | 6                       | Trace to 3%           | 1.5                  |
| unclassified-grass              | unclassified-grass                 | 4                       | Trace to 2%           | 0.8                  |
| unclassified-herb               | unclassified-herb                  | 28                      | Trace to 3%           | 0.5                  |
| <b>Shrubs</b>                   |                                    |                         |                       |                      |
| <b>beaked hazelnut</b>          | <b><i>Corylus cornuta</i></b>      | 4                       | 5 to 15%              | 8.5                  |
| <b>common snowberry</b>         | <b><i>Symphoricarpos albus</i></b> | 15                      | 3 to 15%              | 6.3                  |

Table 3-7. Riparian Coverage at Mowitch - Percent Cover

| Common Name                  | Scientific Name              | No. of Quadrats Found | Percent Cover (range) | Percent Cover (mean) |
|------------------------------|------------------------------|-----------------------|-----------------------|----------------------|
| <b>dull Oregon-grape</b>     | <i>Mahonia nervosa</i>       | 1                     | 3%                    | 3.0                  |
| Himalayan blackberry         | <i>Rubus discolor</i>        | 1                     | Trace                 | 0.1                  |
| <b>oceanspray</b>            | <i>Holodiscus discolor</i>   | 6                     | 2 to 10%              | 5.7                  |
| <b>red-flowering current</b> | <i>Ribes sanguineum</i>      | 2                     | 3 to 5%               | 4.0                  |
| <b>red-osier dogwood</b>     | <i>Cornus stolonifera</i>    | 3                     | 10%                   | 10.0                 |
| <b>rose</b>                  | <i>Rosa sp.</i>              | 21                    | 1 to 25%              | 8.0                  |
| <b>salal</b>                 | <i>Gaultheria shallon</i>    | 9                     | 3 to 15%              | 7.0                  |
| Scot's broom                 | <i>Cytisus scoparius</i>     | 4                     | 1%                    | 1.0                  |
| <b>Trees</b>                 |                              |                       |                       |                      |
| <b>bigleaf maple</b>         | <i>Acer macrophyllum</i>     | 1                     | 2%                    | 2.0                  |
| <b>Douglas-fir</b>           | <i>Pseudotsuga menziesii</i> | 7                     | 1 to 25%              | 18.0                 |
| <b>red alder</b>             | <i>Alnus rubra</i>           | 3                     | 3 to 10%              | 6.0                  |
| <b>western hemlock</b>       | <i>Tsuga heterophylla</i>    | 6                     | 5 to 15%              | 10.8                 |

**Notes:** There were a total of 45 quadrats

1: No. of Quadrats Found = Number of quadrats in which the species was observed

**Bold** are planted native species, underline indicates volunteer native species. (All other entries are non-native or invasive.)

Mean percent cover is calculated for the number of quadrats where the plant was observed.

Table 3-8. Riparian Coverage at Mowitch - Cover (Daubenmire Method)

| Common Name                      | Scientific Name                    | Canopy       |           |               |                     |
|----------------------------------|------------------------------------|--------------|-----------|---------------|---------------------|
|                                  |                                    | Total Canopy | Cover (%) | Frequency (%) | Species Composition |
| <b>Herbs, Forbes and Grasses</b> |                                    |              |           |               |                     |
| bentgrass                        | <i>Agrostis sp.</i>                | 2.5          | 0.06      | 2.2%          | 0.00%               |
| birds-foot trefoil               | <i>Lotus corniculatus</i>          | 150          | 3.33      | 88.9%         | 0.13%               |
| black medick                     | <i>Medicago lupulina</i>           | 47.5         | 1.06      | 42.2%         | 0.04%               |
| bluegrass                        | <i>Poa sp.</i>                     | 5            | 0.11      | 4.4%          | 0.00%               |
| brome                            | <i>Bromus sp.</i>                  | 25           | 0.56      | 22.2%         | 0.02%               |
| bull thistle                     | <i>Cirsium vulgare</i>             | 5            | 0.11      | 4.4%          | 0.00%               |
| Canada thistle                   | <i>Cirsium arvense</i>             | 12.5         | 0.28      | 11.1%         | 0.01%               |
| cheatgrass                       | <i>Bromus tectorum</i>             | 2.5          | 0.06      | 2.2%          | 0.00%               |
| colonial bentgrass               | <i>Agrostis tenuis</i>             | 5            | 0.11      | 4.4%          | 0.00%               |
| common dandelion                 | <i>Taraxacum officinale</i>        | 12.5         | 0.28      | 11.1%         | 0.01%               |
| common plantain                  | <i>Plantago major</i>              | 7.5          | 0.17      | 6.7%          | 0.01%               |
| common stork's-bill              | <i>Erodium cicutarium</i>          | 2.5          | 0.06      | 2.2%          | 0.00%               |
| common velvet-grass              | <i>Holcus lanatus</i>              | 40           | 0.89      | 35.6%         | 0.03%               |
| creeping bentgrass               | <i>Agrostis alba</i>               | 5            | 0.11      | 4.4%          | 0.00%               |
| creeping buttercup               | <i>Ranunculus repens</i>           | 15           | 0.33      | 13.3%         | 0.01%               |
| curly dock                       | <i>Rumex crispus</i>               | 2.5          | 0.06      | 2.2%          | 0.00%               |
| hairy catsear                    | <i>Hypochaeris radicata</i>        | 42.5         | 0.94      | 37.8%         | 0.04%               |
| knotweed                         | <i>Polygonum sp.</i>               | 7.5          | 0.17      | 6.7%          | 0.01%               |
| <b>lupine</b>                    | <b><i>Lupinus sp.</i></b>          | 187.5        | 4.17      | 57.8%         | 0.16%               |
| oxeye daisy                      | <i>Chrysanthemum leucanthemum</i>  | 2.5          | 0.06      | 2.2%          | 0.00%               |
| <b>perennial ryegrass</b>        | <b><i>Lolium perenne</i></b>       | 555          | 12.33     | 95.6%         | 0.47%               |
| pineapple weed                   | <i>Matricaria discoidea</i>        | 10           | 0.22      | 8.9%          | 0.01%               |
| <u>purple-leaved willowherb</u>  | <u><i>Epilobium ciliatum</i></u>   | 87.5         | 1.94      | 44.4%         | 0.07%               |
| quackgrass                       | <i>Agropyron repens</i>            | 2.5          | 0.06      | 2.2%          | 0.00%               |
| rabbitfoot clover                | <i>Trifolium arvense</i>           | 7.5          | 0.17      | 6.7%          | 0.01%               |
| red clover                       | <i>Trifolium pratense</i>          | 22.5         | 0.50      | 20.0%         | 0.02%               |
| English plantain                 | <i>Plantago lanceolata</i>         | 50           | 1.11      | 44.4%         | 0.04%               |
| Siberian bitter-cress            | <i>Cardamine oligosperma</i>       | 5            | 0.11      | 4.4%          | 0.00%               |
| speedwell                        | <i>Veronica sp.</i>                | 7.5          | 0.17      | 6.7%          | 0.01%               |
| thistle                          | <i>Cirsium sp.</i>                 | 35           | 0.78      | 31.1%         | 0.03%               |
| <u>toad rush</u>                 | <u><i>Juncus bufonius</i></u>      | 12.5         | 0.28      | 11.1%         | 0.01%               |
| western dock                     | <i>Rumex occidentalis</i>          | 2.5          | 0.06      | 2.2%          | 0.00%               |
| white clover                     | <i>Trifolium repens</i>            | 22.5         | 0.50      | 20.0%         | 0.02%               |
| white sweet-clover               | <i>Melilotus alba</i>              | 192.5        | 4.28      | 93.3%         | 0.16%               |
| willowherb                       | <i>Epilobium sp.</i>               | 97.5         | 2.17      | 64.4%         | 0.08%               |
| <b>yarrow</b>                    | <b><i>Achillea millefolium</i></b> | 110          | 2.44      | 97.8%         | 0.09%               |
| yellow parentucellia             | <i>Parentucellia viscosa</i>       | 5            | 0.11      | 4.4%          | 0.00%               |
| unclassified-composite           | unclassified-composite             | 15           | 0.33      | 13.3%         | 0.01%               |
| unclassified-grass               | unclassified-grass                 | 10           | 0.22      | 8.9%          | 0.01%               |
| unclassified-herb                | unclassified-herb                  | 70           | 1.56      | 62.2%         | 0.06%               |
| <i>Subtotal</i>                  |                                    | 1900         | 42.22     |               | 1.60%               |
| <b>Shrubs</b>                    |                                    |              |           |               |                     |
| <b>beaked hazelnut</b>           | <b><i>Corylus cornuta</i></b>      | 47.5         | 1.06      | 8.9%          | 0.04%               |

Table 3-8. Riparian Coverage at Mowitch - Cover (Daubenmire Method)

| Common Name                  | Scientific Name              | Canopy       |             |               | Species Composition |
|------------------------------|------------------------------|--------------|-------------|---------------|---------------------|
|                              |                              | Total Canopy | Cover (%)   | Frequency (%) |                     |
| <b>common snowberry</b>      | <i>Symphoricarpos albus</i>  | 100          | 2.22        | 33.3%         | 0.08%               |
| <b>dull Oregon-grape</b>     | <i>Mahonia nervosa</i>       | 2.5          | 0.06        | 2.2%          | 0.00%               |
| Himalayan blackberry         | <i>Rubus discolor</i>        | 2.5          | 0.06        | 2.2%          | 0.00%               |
| <b>oceanspray</b>            | <i>Holodiscus discolor</i>   | 52.5         | 1.17        | 13.3%         | 0.04%               |
| <b>red-flowering current</b> | <i>Ribes sanguineum</i>      | 5            | 0.11        | 4.4%          | 0.00%               |
| <b>red-osier dogwood</b>     | <i>Cornus stolonifera</i>    | 45           | 1.00        | 6.7%          | 0.04%               |
| <b>rose</b>                  | <i>Rosa sp.</i>              | 215          | 4.78        | 46.7%         | 0.18%               |
| <b>salal</b>                 | <i>Gaultheria shallon</i>    | 72.5         | 1.61        | 20.0%         | 0.06%               |
| Scot's broom                 | <i>Cytisus scoparius</i>     | 10           | 0.22        | 8.9%          | 0.01%               |
| <i>Subtotal</i>              |                              | 552.5        | 12.28       |               | 0.46%               |
| <b>Trees</b>                 |                              |              |             |               |                     |
| <b>bigleaf maple</b>         | <i>Acer macrophyllum</i>     | 2.5          | 0.06        | 2.2%          | 0.00%               |
| <b>Douglas-fir</b>           | <i>Pseudotsuga menziesii</i> | 92.5         | 2.06        | 15.6%         | 0.08%               |
| <b>red alder</b>             | <i>Alnus rubra</i>           | 20           | 0.44        | 6.7%          | 0.02%               |
| <b>western hemlock</b>       | <i>Tsuga heterophylla</i>    | 77.5         | 1.72        | 13.3%         | 0.07%               |
| <i>Subtotal</i>              |                              | 192.5        | 4.28        |               | 0.16%               |
| <b>TOTAL</b>                 |                              | <b>2645</b>  | <b>58.8</b> |               |                     |

**Notes:**

**Bold** are planted native species, underline indicates volunteer native species. All other entries are non-native or invasive.

Total canopy: Obtained by counting the number of quadrats in each of six cover class (by species), multiplying this value times the midpoint of the appropriate cover class, and totalling the products for all cover classes by species.

Canopy cover: Obtained by dividing the total canopy by the total number of quadrats sampled on the transect.

Frequency: Obtained by dividing the number of occurrences of a plant species (the number of quadrats in which a plant species was observed) by the total number of quadrats sampled along the transect.

Species composition: Obtained by dividing the percent canopy cover of each plant species by the total canopy cover of all plant species.

See Appendix B for a complete description of the Daubenmire method.

Table 3-9. Fish Species Richness at Mowitch

| Common Name            | Scientific Name                 | Number Caught |
|------------------------|---------------------------------|---------------|
| Chinook salmon         | <i>Oncorhynchus tshawytscha</i> | 41            |
| Coho salmon            | <i>Oncorhynchus kisutch</i>     | 2             |
| Chum salmon            | <i>Oncorhynchus keta</i>        | 28            |
| Cutthroat trout        | <i>Oncorhynchus clarkii</i>     | 1             |
| Starry flounder        | <i>Platichthys stellatus</i>    | 264           |
| Staghorn sculpin       | <i>Leptocottus armatus</i>      | 2,700         |
| Sculpin                | unidentified; 2 species         | 315           |
| Surf smelt             | <i>Hypomesus pretiosus</i>      | 3             |
| Shiner perch           | <i>Cymatogaster aggregata</i>   | 8,047         |
| Striped perch          | <i>Embiotoca lateralis</i>      | 4             |
| Pile perch             | <i>Damalichthys vacca</i>       | 1             |
| Penpoint gunnel        | <i>Apodichthys flavidus</i>     | 2             |
| Crescent gunnel        | <i>Pholis laeta</i>             | 27            |
| Saddleback gunnel      | <i>Pholis ornate</i>            | 42            |
| Threespine stickleback | <i>Gasterosteus aculeatus</i>   | 313           |
| Snake prickleback      | <i>Lumpenus sagitta</i>         | 114           |
| Pacific herring        | <i>Clupea pallasii</i>          | 4             |
| Sandlance              | <i>Ammodytes hexapterus</i>     | 1             |
| Shad                   | <i>Alosa sapidissima</i>        | 4             |

Table 3-10. Invertebrates in Fallout Traps at Mowitch

| Order         | Family          | July 10   | August 8  | Total      |
|---------------|-----------------|-----------|-----------|------------|
| Amphipoda     | Unknown         | 4         | 12        | 16         |
| Coleoptera    | Curculionidae   | 8         | 1         | 9          |
| Coleoptera    | Staphylinidae   | 5         | 6         | 11         |
| Coleoptera    | Unknown         |           | 1         | 1          |
| Diptera       | Agromyzidae     | 35        | 13        | 48         |
| Diptera       | Blephariceridae | 1         |           | 1          |
| Diptera       | Ceratopogonidae | 1         |           | 1          |
| Diptera       | Chironomidae    | 1         |           | 1          |
| Diptera       | Dolichopodidae  | 10        | 11        | 21         |
| Diptera       | Tabanidae       | 1         |           | 1          |
| Diptera       | Tipulidae       | 1         | 9         | 10         |
| Diptera       | Unknown         | 2         | 1         | 3          |
| Hemiptera     | Notonectidae    | 1         |           | 1          |
| Hemiptera     | Saldidae        | 5         | 13        | 18         |
| Hemiptera     | Unknown         | 1         |           | 1          |
| Homoptera     | Aphididae       | 1         |           | 1          |
| Homoptera     | Cicadellidae    |           | 2         | 2          |
| Hymenoptera   | Apoidea         | 1         | 1         | 2          |
| Hymenoptera   | Ichneumonidae   | 5         |           | 5          |
| Hymenoptera   | Unknown         | 3         |           | 3          |
| Trichoptera   | Helicopsychidae | 1         |           | 1          |
| Trichoptera   | Unknown         | 2         | 1         | 3          |
| <b>TOTAL:</b> |                 | <b>89</b> | <b>71</b> | <b>160</b> |

**Notes:**

Blank indicates no specimen was caught in the sampling for the month

Table 3-11. Seasonal Bird Counts at Mowitch

| Common Name                     | Scientific Name                  | Total Count | Spring    | Summer     | Fall       |
|---------------------------------|----------------------------------|-------------|-----------|------------|------------|
| <b>Cormorants</b>               |                                  |             |           |            |            |
| double-crested cormorant        | <i>Phalacrocorax auritus</i>     | 3           |           |            | 3          |
| <b>Bitterns and Herons</b>      |                                  |             |           |            |            |
| great blue heron                | <i>Ardea herodias</i>            | 3           |           | 1          | 2          |
| <b>Waterfowl</b>                |                                  |             |           |            |            |
| American wigeon                 | <i>Anas americana</i>            | 11          |           | 1          | 10         |
| Canada goose                    | <i>Branta canadensis</i>         | 33          | 9         | 23         | 1          |
| mallard                         | <i>Anas platyrhynchos</i>        | 46          | 2         | 15         | 29         |
| <b>Hawks and Falcons</b>        |                                  |             |           |            |            |
| Cooper's hawk                   | <i>Accipiter cooperii</i>        | 1           |           |            | 1          |
| <b>Plovers</b>                  |                                  |             |           |            |            |
| killdeer                        | <i>Charadrius vociferus</i>      | 30          | 2         | 17         | 11         |
| <b>Sandpipers</b>               |                                  |             |           |            |            |
| semipalmated sandpiper          | <i>Calidris pusilla</i>          | 16          |           | 16         |            |
| spotted sandpiper               | <i>Actitis macularia</i>         | 15          | 4         | 10         | 1          |
| western sandpiper               | <i>Calidris mauri</i>            | 2           |           |            | 2          |
| <b>Gulls and Terns</b>          |                                  |             |           |            |            |
| Caspian tern                    | <i>Sterna caspia</i>             | 2           |           | 2          |            |
| glaucous-winged gull            | <i>Larus glaucescens</i>         | 16          | 1         | 11         | 4          |
| <b>Doves</b>                    |                                  |             |           |            |            |
| mourning dove                   | <i>Zenaida macroura</i>          | 7           | 4         | 3          |            |
| <b>Kingfishers</b>              |                                  |             |           |            |            |
| belted kingfisher               | <i>Ceryle alcyon</i>             | 3           |           | 2          | 1          |
| kingfisher                      | <i>Ceryle sp.</i>                | 5           |           |            | 5          |
| <b>Swallows</b>                 |                                  |             |           |            |            |
| barn swallow                    | <i>Hirundo rustica</i>           | 7           |           | 7          |            |
| cliff swallow                   | <i>Petrochelidon pyrrhonota</i>  | 22          | 16        | 6          |            |
| violet-green swallow            | <i>Tachycineta thalassina</i>    | 8           | 1         | 7          |            |
| <b>Crows</b>                    |                                  |             |           |            |            |
| American crow                   | <i>Corvus brachyrhynchos</i>     | 15          |           | 2          | 13         |
| Northwestern crow               | <i>Corvus caurinus</i>           | 3           |           | 2          | 1          |
| <b>Thrushes</b>                 |                                  |             |           |            |            |
| American robin                  | <i>Turdus migratorius</i>        | 3           | 1         | 2          |            |
| <b>Pipits</b>                   |                                  |             |           |            |            |
| American pipit                  | <i>Anthus rubescens</i>          | 21          |           |            | 21         |
| <b>Starlings</b>                |                                  |             |           |            |            |
| European starling               | <i>Sturnus vulgaris</i>          | 297         | 4         | 103        | 190        |
| <b>Warblers</b>                 |                                  |             |           |            |            |
| common yellowthroat             | <i>Geothlypis trichas</i>        | 1           |           |            | 1          |
| <b>Old World Sparrows</b>       |                                  |             |           |            |            |
| house sparrow                   | <i>Passer domesticus</i>         | 2           | 2         |            |            |
| <b>Finches and Sparrows</b>     |                                  |             |           |            |            |
| American goldfinch              | <i>Carduelis tristis</i>         | 10          |           | 10         |            |
| house finch                     | <i>Carpodacus mexicanus</i>      | 48          | 2         | 20         | 26         |
| Oregon junco                    | <i>Junco hyemalis</i>            | 9           | 5         |            | 4          |
| savannah sparrow                | <i>Passerculus sandwichensis</i> | 18          |           |            | 18         |
| song sparrow                    | <i>Melospiza melodia</i>         | 12          | 2         | 1          | 9          |
| white-crowned sparrow           | <i>Zonotrichia leucophrys</i>    | 4           | 2         | 2          |            |
| <b>Total Number of Species:</b> |                                  | <b>31</b>   | <b>15</b> | <b>22</b>  | <b>21</b>  |
| <b>Total Number of Birds:</b>   |                                  | <b>673</b>  | <b>57</b> | <b>263</b> | <b>353</b> |

**Notes:**

Blank indicates no bird was observed.

Spring = March to May

Summer = June to August

Fall = September to November

Table 3-12. Bird Use at Mowitch

| Date    | Common Name           | Scientific Name                 | Gender | Count | Tide | Seen | Heard | Tracks | Flyover | Pier Pilings | Riparian | Marsh | Intertidal | Mud Flats | Open Water | Comments   |
|---------|-----------------------|---------------------------------|--------|-------|------|------|-------|--------|---------|--------------|----------|-------|------------|-----------|------------|--|
| 5/31/02 | American robin        | <i>Turdus migratorius</i>       | M      | 1     | L    | X    |       |        |         |              | X        |       |            |           |            | Immature   |
| 5/31/02 | barn swallow          | <i>Hirundo rustica</i>          | M      |       | L    | X    |       |        | X       |              | X        | X     |            |           |            |  |
| 5/31/02 | Canada goose          | <i>Branta canadensis</i>        |        | 9     | L    | X    |       | X      |         |              | X        | X     |            |           | X          | 5 adults, 4 young; droppings; evidence of grazing        |
| 5/31/02 | cliff swallow         | <i>Petrochelidon pyrrhonota</i> | M      | 8     | L    | X    |       |        | X       |              | X        | X     |            |           |            |  |
| 5/31/02 | cliff swallow         | <i>Petrochelidon pyrrhonota</i> | F      | 8     | L    | X    | X     |        | X       |              | X        | X     |            |           |            | Gathering mud - nesting material                         |
| 5/31/02 | European starling     | <i>Sturnus vulgaris</i>         |        | 4     | L    | X    | X     |        | X       |              |          | X     |            |           |            | both male and female                                     |
| 5/31/02 | glaucous-winged gull  | <i>Larus glaucescens</i>        |        | 1     | L    | X    |       |        |         | X            |          | X     |            |           |            | Feeding  |
| 5/31/02 | house finch           | <i>Carpodacus mexicanus</i>     | M      | 1     | L    | X    | X     |        |         |              | X        |       |            |           |            |  |
| 5/31/02 | house finch           | <i>Carpodacus mexicanus</i>     | F      | 1     | L    | X    |       |        |         |              | X        |       |            |           |            |  |
| 5/31/02 | house sparrow         | <i>Passer domesticus</i>        | M      | 2     | L    | X    |       |        |         |              | X        |       |            |           |            |  |
| 5/31/02 | killdeer              | <i>Charadrius vociferus</i>     |        | 2     | L    | X    |       |        |         |              | X        | X     |            |           |            | 2 pairs breeding; both male and female                   |
| 5/31/02 | mallard               | <i>Anas platyrhynchos</i>       |        | 2     | L    | X    |       |        |         |              |          | X     |            |           | X          | 1 pair; both male and female                             |
| 5/31/02 | mourning dove         | <i>Zenaida macroura</i>         | M      | 1     | L    | X    |       |        | X       |              | X        |       |            |           |            |  |
| 5/31/02 | mourning dove         | <i>Zenaida macroura</i>         |        | 3     | L    | X    |       |        | X       |              | X        | X     | X          |           |            | 1 pair plus 1; both male and female                      |
| 5/31/02 | Oregon junco          | <i>Junco hyemalis</i>           | F      | 2     | L    | X    | X     |        |         |              | X        | X     |            |           |            | Foraging   |
| 5/31/02 | Oregon junco          | <i>Junco hyemalis</i>           | M      | 3     | L    | X    | X     |        |         |              | X        | X     | X          |           |            | Foraging   |
| 5/31/02 | song sparrow          | <i>Melospiza melodia</i>        | M      | 2     | L    | X    | X     |        |         |              | X        | X     |            |           |            | Singing; 2 pairs?  |
| 5/31/02 | spotted sandpiper     | <i>Actitis macularia</i>        | U      | 4     | L    | X    | X     |        |         |              |          | X     | X          |           |            | 2 pairs; breeding?                                       |
| 5/31/02 | violet-green swallow  | <i>Tachycineta thalassina</i>   |        | 1     | L    | X    |       |        | X       |              | X        | X     |            |           |            |  |
| 5/31/02 | white-crowned sparrow | <i>Zonotrichia leucophrys</i>   | M      | 1     | L    | X    | X     |        |         |              | X        |       |            |           |            |  |
| 5/31/02 | white-crowned sparrow | <i>Zonotrichia leucophrys</i>   | F      | 1     | L    | X    | X     |        |         |              | X        |       |            |           |            |  |
| 6/21/02 | American goldfinch    | <i>Carduelis tristis</i>        |        | 3     | L    | X    |       |        | X       |              |          |       |            |           |            |  |
| 6/21/02 | barn swallow          | <i>Hirundo rustica</i>          | M      | 1     | L    | X    |       |        | X       |              |          |       |            | X         |            | Collecting mud, foraging                                 |
| 6/21/02 | barn swallow          | <i>Hirundo rustica</i>          | F      | 1     | L    | X    |       |        | X       |              |          |       |            | X         |            | Collecting mud, foraging                                 |
| 6/21/02 | Canada goose          | <i>Branta canadensis</i>        |        | 2     | L    | X    |       |        |         | X            |          |       |            |           |            |  |
| 6/21/02 | Caspian tern          | <i>Sterna caspia</i>            |        | 2     | L    | X    |       |        | X       |              |          |       |            |           | X          |  |
| 6/21/02 | cliff swallow         | <i>Petrochelidon pyrrhonota</i> |        | 2     | L    | X    |       |        |         |              |          |       |            |           |            |  |
| 6/21/02 | European starling     | <i>Sturnus vulgaris</i>         |        | 3     | L    | X    |       |        |         |              | X        |       |            |           |            | Juvenile   |
| 6/21/02 | house finch           | <i>Carpodacus mexicanus</i>     |        | 2     | L    | X    |       |        | X       |              |          |       | X          |           |            |  |
| 6/21/02 | killdeer              | <i>Charadrius vociferus</i>     |        | 5     | L    | X    | X     |        |         |              |          |       | X          | X         |            | 3 pairs; one nearest to road displayed "broken wing"     |
| 6/21/02 | mallard               | <i>Anas platyrhynchos</i>       |        | 6     | L    | X    |       |        | X       |              |          |       |            |           | X          |  |
| 6/21/02 | mourning dove         | <i>Zenaida macroura</i>         |        | 2     | L    | X    |       |        |         |              |          |       |            |           |            |  |
| 6/21/02 | spotted sandpiper     | <i>Actitis macularia</i>        |        | 4     | L    | X    | X     |        |         |              | X        | X     | X          | X         |            | Nesting in riparian area near west end                   |
| 6/21/02 | violet-green swallow  | <i>Tachycineta thalassina</i>   |        | 4     | L    | X    |       |        |         |              |          |       |            |           |            | number recorded as 4+                                    |
| 6/25/02 | American goldfinch    | <i>Carduelis tristis</i>        |        | 4     | H    | X    | X     |        | X       |              |          |       |            |           |            | 2 marked as seen   |
| 6/25/02 | American robin        | <i>Turdus migratorius</i>       | M      | 1     | H    | X    |       |        |         |              | X        |       |            |           |            |  |
| 6/25/02 | barn swallow          | <i>Hirundo rustica</i>          |        | 3     | H    | X    |       |        | X       |              |          |       |            |           |            | Foraging; landed on mud; 1 male, 2 female                |
| 6/25/02 | belted kingfisher     | <i>Ceryle alcyon</i>            |        |       | H    | X    | X     |        | X       |              | X        | X     |            |           |            |  |
| 6/25/02 | Canada goose          | <i>Branta canadensis</i>        |        | 20    | H    | X    |       |        |         |              |          | X     | X          |           |            | 1 adult and 4 young in enclosure; 15 adults in 2nd group |

Table 3-12. Bird Use at Mowitch

| Date    | Common Name            | Scientific Name                  | Gender | Count | Tide | Seen | Heard | Tracks | Flyover | Pier Pilings | Riparian | Marsh | Intertidal | Mud Flats | Open Water | Comments  |
|---------|------------------------|----------------------------------|--------|-------|------|------|-------|--------|---------|--------------|----------|-------|------------|-----------|------------|---|
| 6/25/02 | cliff swallow          | <i>Petrochelidon pyrrhonota</i>  |        | 2     | H    | X    |       |        | X       |              |          |       |            |           |            | Foraging; both male and female                  |
| 6/25/02 | glaucous-winged gull   | <i>Larus glaucescens</i>         |        | 5     | H    | X    |       |        |         | X            |          |       | X          |           | X          |   |
| 6/25/02 | killdeer               | <i>Charadrius vociferus</i>      |        | 6     | H    | X    | X     |        |         |              | X        |       | X          |           |            | 3 (or 4?) pairs, territorial                    |
| 6/25/02 | mallard                | <i>Anas platyrhynchos</i>        |        | 5     | H    | X    |       |        |         |              |          |       |            | X         | X          | both male and female                            |
| 6/25/02 | mourning dove          | <i>Zenaida macroura</i>          |        | 1     | H    | X    |       |        |         |              | X        |       |            |           |            |   |
| 6/25/02 | Northwestern crow      | <i>Corvus caurinus</i>           |        | 2     | H    | X    | X     |        | X       |              | X        |       |            |           |            |   |
| 6/25/02 | spotted sandpiper      | <i>Actitis macularia</i>         |        | 4     | H    | X    | X     |        |         |              | X        |       | X          |           |            | 2 pairs, territorial                            |
| 6/25/02 | violet-green swallow   | <i>Tachycineta thalassina</i>    |        | 3     | H    | X    |       |        | X       |              |          |       |            |           |            | Foraging  |
| 8/22/02 | American crow          | <i>Corvus brachyrhynchos</i>     |        | 2     | M    | X    |       |        | X       |              |          |       | X          |           |            |   |
| 8/22/02 | American goldfinch     | <i>Carduelis tristis</i>         | F      | 3     | M    | X    |       |        |         |              | X        |       |            |           |            | Foraging  |
| 8/22/02 | American robin         | <i>Turdus migratorius</i>        |        | 1     | M    | X    |       |        |         |              | X        |       |            |           |            |   |
| 8/22/02 | American wigeon        | <i>Anas americana</i>            |        | 1     | M    | X    |       |        |         |              |          |       |            |           | X          |   |
| 8/22/02 | barn swallow           | <i>Hirundo rustica</i>           |        | 2     | M    | X    |       |        | X       |              |          |       |            |           |            |   |
| 8/22/02 | belted kingfisher      | <i>Ceryle alcyon</i>             |        | 2     | M    | X    | X     |        | X       |              | X        |       |            |           |            | So. Side of waterway; 1 on a sprinkler          |
| 8/22/02 | Canada goose           | <i>Branta canadensis</i>         |        | 1     | M    | X    |       |        |         |              |          |       | X          |           |            | Appears to have broken wing                     |
| 8/22/02 | cliff swallow          | <i>Petrochelidon pyrrhonota</i>  | F      | 2     | M    | X    |       |        | X       |              |          |       |            |           | X          |   |
| 8/22/02 | European starling      | <i>Sturnus vulgaris</i>          |        | 100   | M    | X    | X     |        |         |              | X        |       | X          |           |            | Foraging  |
| 8/22/02 | glaucous-winged gull   | <i>Larus glaucescens</i>         |        | 6     | M    | X    |       |        |         |              |          | X     | X          |           | X          | Bathing; foraging; resting                      |
| 8/22/02 | great blue heron       | <i>Ardea herodias</i>            | M      | 1     | M    | X    |       |        |         | X            |          |       |            |           |            | Resting   |
| 8/22/02 | house finch            | <i>Carpodacus mexicanus</i>      |        | 18    | M    | X    |       |        |         |              | X        | X     |            |           |            | Foraging, male and female                       |
| 8/22/02 | killdeer               | <i>Charadrius vociferus</i>      |        | 6     | M    | X    | X     |        |         |              |          |       | X          |           |            |   |
| 8/22/02 | mallard                | <i>Anas platyrhynchos</i>        | F      | 4     | M    | X    |       |        |         |              |          | X     |            |           |            | Foraging in pools                               |
| 8/22/02 | semipalmated sandpiper | <i>Calidris pusilla</i>          |        | 16    | M    | X    |       |        |         |              |          |       | X          | X         |            | Several small flocks; mixed plumage - dark legs |
| 8/22/02 | song sparrow           | <i>Melospiza melodia</i>         |        | 1     | M    | X    | X     |        |         |              | X        |       |            |           |            |   |
| 8/22/02 | spotted sandpiper      | <i>Actitis macularia</i>         |        | 2     | M    | X    | X     |        | X       |              |          |       | X          |           |            |   |
| 8/22/02 | white-crowned sparrow  | <i>Zonotrichia leucophrys</i>    |        | 2     | M    | X    |       |        |         |              | X        |       |            |           |            | Juveniles, on fence                             |
| 9/27/02 | American pipit         | <i>Anthus rubescens</i>          |        | 20    | H    | X    | X     |        |         |              | X        | X     | X          |           |            | Foraging with savannahs                         |
| 9/27/02 | Canada goose           | <i>Branta canadensis</i>         |        | 1     | H    | X    |       |        |         |              |          |       | X          |           |            | Preening  |
| 9/27/02 | European starling      | <i>Sturnus vulgaris</i>          |        | 60    | H    | X    | X     |        | X       |              | X        | X     |            |           |            |   |
| 9/27/02 | house finch            | <i>Carpodacus mexicanus</i>      |        | 4     | H    |      |       |        | X       |              |          |       |            |           |            |   |
| 9/27/02 | house finch            | <i>Carpodacus mexicanus</i>      | M      | 2     | H    | X    | X     |        |         |              | X        |       |            |           |            | Foraging  |
| 9/27/02 | house finch            | <i>Carpodacus mexicanus</i>      | F      | 3     | H    | X    | X     |        |         |              |          | X     |            |           |            |   |
| 9/27/02 | killdeer               | <i>Charadrius vociferus</i>      |        | 3     | H    | X    | X     |        |         |              |          |       |            |           |            |   |
| 9/27/02 | kingfisher             | <i>Ceryle sp.</i>                |        | 3     | H    | X    | X     |        | X       |              |          |       |            |           |            |   |
| 9/27/02 | mallard                | <i>Anas platyrhynchos</i>        |        | 14    | H    | X    |       |        | X       |              |          |       |            |           | X          |   |
| 9/27/02 | Oregon junco           | <i>Junco hyemalis</i>            |        | 4     | H    | X    |       |        |         |              |          |       |            |           |            |   |
| 9/27/02 | savannah sparrow       | <i>Passerculus sandwichensis</i> |        | 6     | H    | X    |       |        |         |              | X        |       |            |           |            | Yellow lures                                    |
| 9/27/02 | song sparrow           | <i>Melospiza melodia</i>         |        | 3     | H    | X    | X     |        |         |              | X        |       |            |           |            |   |
| 9/30/02 | American crow          | <i>Corvus brachyrhynchos</i>     |        | 1     | L    | X    | X     |        | X       |              |          |       |            |           |            |   |

Table 3-12. Bird Use at Mowitch

| Date    | Common Name              | Scientific Name                  | Gender | Count | Tide | Seen | Heard | Tracks | Flyover | Pier Pilings | Riparian | Marsh | Intertidal | Mud Flats | Open Water | Comments   |
|---------|--------------------------|----------------------------------|--------|-------|------|------|-------|--------|---------|--------------|----------|-------|------------|-----------|------------|--|
| 9/30/02 | American pipit           | <i>Anthus rubescens</i>          |        | 1     | L    | X    | X     |        |         |              |          |       |            |           |            | With Savannah sparrows   |
| 9/30/02 | American wigeon          | <i>Anas americana</i>            | F      | 4     | L    | X    |       |        |         |              |          |       |            |           | X          |  |
| 9/30/02 | common yellowthroat      | <i>Geothlypis trichas</i>        | M      | 1     | L    | X    |       |        |         |              | X        |       |            |           |            |  |
| 9/30/02 | double-crested cormorant | <i>Phalacrocorax auritus</i>     |        | 1     | L    |      |       |        | X       |              |          |       |            |           |            |  |
| 9/30/02 | European starling        | <i>Sturnus vulgaris</i>          |        | 90    | L    | X    | X     |        |         |              | X        | X     | X          |           |            | Foraging, bathing; number is approximate   |
| 9/30/02 | great blue heron         | <i>Ardea herodias</i>            |        | 1     | L    |      |       |        |         | X            |          |       |            |           |            |  |
| 9/30/02 | house finch              | <i>Carpodacus mexicanus</i>      |        | 15    | L    | X    | X     |        |         |              | X        | X     |            |           |            | Both male and female; number is approximate; Mostly non-male (females and immatures) |
| 9/30/02 | killdeer                 | <i>Charadrius vociferus</i>      |        | 5     | L    | X    | X     |        |         |              |          |       | X          |           |            |  |
| 9/30/02 | kingfisher               | <i>Ceryle sp.</i>                |        | 2     | L    | X    | X     |        | X       | X            |          |       |            |           |            | Both male and female   |
| 9/30/02 | mallard                  | <i>Anas platyrhynchos</i>        |        | 10    | L    | X    |       |        |         |              |          |       |            |           | X          | Both male and female   |
| 9/30/02 | savannah sparrow         | <i>Passerculus sandwichensis</i> |        | 12    | L    | X    |       |        |         |              |          |       |            |           |            | Number is approximate  |
| 9/30/02 | song sparrow             | <i>Melospiza melodia</i>         |        | 6     | L    | X    |       |        |         |              | X        | X     |            |           |            |  |
| 9/30/02 | spotted sandpiper        | <i>Actitis macularia</i>         |        | 1     | L    | X    | X     |        |         |              |          |       |            |           |            |  |
| 11/5/02 | American crow            | <i>Corvus brachyrhynchos</i>     |        | 12    | H    |      |       |        | X       |              | X        |       |            |           |            | 2 in riparian  |
| 11/5/02 | American wigeon          | <i>Anas americana</i>            |        | 6     | H    |      |       |        |         |              |          |       |            |           | X          |  |
| 11/5/02 | belted kingfisher        | <i>Ceryle alcyon</i>             |        | 1     | H    |      |       |        | X       |              | X        |       |            |           |            |  |
| 11/5/02 | Canada goose             | <i>Branta canadensis</i>         |        |       | H    |      |       |        |         |              |          | X     |            |           |            | Preening   |
| 11/5/02 | Cooper's hawk            | <i>Accipiter cooperii</i>        | F      | 1     | H    |      |       |        |         |              | X        |       |            |           |            | Perched in tree, riparian so. side   |
| 11/5/02 | double-crested cormorant | <i>Phalacrocorax auritus</i>     |        | 2     | H    |      |       |        |         |              |          |       |            |           | X          |  |
| 11/5/02 | European starling        | <i>Sturnus vulgaris</i>          |        | 40    | H    |      |       |        | X       |              |          |       |            |           |            | number is approximate  |
| 11/5/02 | glaucous-winged gull     | <i>Larus glaucescens</i>         |        | 4     | H    |      |       |        | X       |              |          |       |            |           |            |  |
| 11/5/02 | great blue heron         | <i>Ardea herodias</i>            |        | 1     | H    |      |       |        |         | X            |          |       |            |           |            |  |
| 11/5/02 | house finch              | <i>Carpodacus mexicanus</i>      |        | 2     | H    |      |       |        |         |              | X        |       |            |           |            |  |
| 11/5/02 | killdeer                 | <i>Charadrius vociferus</i>      |        | 3     | H    |      |       |        |         |              |          | X     |            |           |            | Resting  |
| 11/5/02 | mallard                  | <i>Anas platyrhynchos</i>        |        | 5     | H    |      |       |        | X       |              |          |       |            |           | X          | Resting  |
| 11/5/02 | Northwestern crow        | <i>Corvus caurinus</i>           |        | 1     | H    |      |       |        |         |              |          | X     |            |           |            |  |
| 11/5/02 | western sandpiper        | <i>Calidris mauri</i>            |        | 2     | H    |      |       |        |         |              |          | X     |            |           |            | Foraging in shallow water  |

**Notes:**

Gender: "F" = female, "M" = male, "U" = unknown

Tide: "L" = low, "M" = medium, "H" = high