# Timber Harvest Plan 

## SECTION 5

## Far North Fork THP Gualala Redwoods Timber, LLC 2020

ESTIMATED SURFACE SOIL EROSION HAZARD
RM-87 (/84)

STATE OF CALIFORNIA
BOARD OF FORESTRY

All soils are from the western Mendocino county soil series.
I. SOIL FACTORS

| A. SOIL TEXTURE | FINE | MEDIUM | COARSE | 107 | 135 | 137 | 158 | 172 | 173 | 173 | 188 |
| :--- | :--- | :--- | :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1.DETACHABILITY | Low | Moderate <br> $10-18$ | High <br> $19-30$ | 25 | 17 | 17 | 23 | 17 | 17 | 17 | 17 |
| RATING | $1-9$ | Moderate <br> $3-2$ | Rapid <br> 1 | 1 | 3 | 3 | 1 | 3 | 3 | 3 | 3 |
| RATINEABILITY | Slow <br> $5-4$ |  |  |  |  |  |  |  |  |  |  |

B. DEPTH TO RESTRICTIVE LAYER OR BEDROCK

| RATING | Shallow | Moderate | Deep |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $1 "-19^{\prime \prime}$ | $20-39^{\prime \prime}$ | $40^{\prime \prime}-60^{\prime \prime}+$ | 1 | 2 | 2 | 2 | 1 | 1 | 1 | 2 |
|  | $15-9$ | $8-4$ |  |  |  |  |  |  |  |  |

C. PERCENT SURFACE COARSE FRAGMENTS GREATER THAN 2 MM. IN SIZE INCLUDING ROCKS OR STONES

| Rating | Low <br> $(-) 10-39 \%$ <br> $10-6$ | Moderate <br> $40-70 \%$ <br> $5-3$ | High <br> $71-100 \%$ <br> $2-1$ | 10 | 8 | 8 | 10 | 10 | 10 | 10 | 10 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| SUBTOTAL |  |  |  | 37 | 30 | 30 | 36 | 31 | 31 | 31 | 32 |

II . SLOPE FACTOR

| Slope <br> Rating | $5-15 \%$ <br> $1-3$ | $16-30 \%$ <br> $4-6$ | $31-40 \%$ <br> $7-10$ | $41-50 \%$ <br> $11-15$ | $51-70 \%$ <br> $16-25$ | $71-80 \%+$ <br> $26-35$ | 2 | 13 | 14 | 5 | 8 | 15 | 20 | 14 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

III. PROTECTIVE VEGETATIVE COVER REMAINING AFTER DISTURBANCE

| Rating | Low | Moderate <br> $41-80 \%$ <br> $7-4$ | High <br> $81-100 \%$. <br> $3-1$ | 4 | 6 | 5 | 6 | 6 | 5 | 5 | 6 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

IV. TWO - YEAR ONE - HOUR RAINFALL INTENSITY (Hundredths Inch )

| Rating | Low | Moderate | High | Extreme |  |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  | $(-) 30-39$ | $40-59$ | $60-69$ | $70-80+$ |  |  |  |  |  |  |  |  |
|  | $1-3$ | $4-7$ | $8-11$ | $12-15$ | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
|  | 12 |  |  |  |  |  |  |  |  |  |  |  |


| $<50$ <br> Low (L) | $50-65$ <br> Moderate (M) | $66-75$ <br> $\operatorname{High}(\mathrm{H})$ | $>75$ <br> Extreme (E) | $\mathbf{5 5}$ | $\mathbf{6 1}$ | $\mathbf{6 1}$ | $\mathbf{5 9}$ | $\mathbf{5 7}$ | $\mathbf{6 3}$ | $\mathbf{6 8}$ | $\mathbf{6 4}$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |


| THE DETERMINATION IS | $\mathbf{M}$ | $\mathbf{M}$ | $\mathbf{M}$ | $\mathbf{M}$ | $\mathbf{M}$ | $\mathbf{M}$ | $\mathbf{H}$ | $\mathbf{M}$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

*Key to Mendocino Forest Soil \#

| Map Label | Soil Type |
| :---: | :--- |
| 107 | Bigriver loamy sand, 0 to 5 percent slopes |
| 135 | Dehaven-Hotel complex, 50 to 75 percent slopes |
| 137 | Dehaven-Hotel-Irmulco complex, 30 to 50 percent slopes |
| 158 | Havensneck sandy loam, 2 to 15 percent slopes |
| 172 | Irmulco-Tramway complex, 9 to 30 percent slopes |
| 173 | Irmulco-Tramway complex, 30 to 50 percent slopes |
| 188 | Ornbaun-Zeni complex, 30 to 50 percent slopes |
| 189 | Ornbaun-Zeni complex, 50 to 75 percent slopes |

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ESTIMATED SURFACE SOIL EROSION HAZARD
RM - 87 (/84)
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STATE OF CALIFORNIA
BOARD OF FORESTRY

All soils are from the western Mendocino county soil series.
I. SOIL FACTORS

| A. SOIL TEXTURE | FINE | MEDIUM | COARSE | 188 | 189 | 189 |  |  |  |  |
| :--- | :--- | :--- | :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1.DETACHABILITY <br> RATING | Low <br> $1-9$ | Moderate <br> $10-18$ | High <br> $19-30$ | 17 | 17 | 17 |  |  |  |  |
| 2.PERMEABILITY <br> RATING | Slow <br> $5-4$ | Moderate <br> $3-2$ | Rapid <br> 1 | 3 | 3 | 3 |  |  |  |  |

B. DEPTH TO RESTRICTIVE LAYER OR BEDROCK

| RATING | Shallow | Moderate | Deep |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  | $1 "-19^{\prime \prime}$ | $20-39^{\prime \prime}$ | $40^{\prime \prime}-60^{\prime \prime}+$ | 2 | 2 | 2 |  |  |  |  |
|  | $15-9$ | $8-4$ | $3-1$ |  |  |  |  |  |  |  |

C. PERCENT SURFACE COARSE FRAGMENTS GREATER THAN 2 MM. IN SIZE INCLUDING ROCKS OR STONES

| Rating | Low <br> $(-) 10-39 \%$ <br> $10-6$ | Moderate <br> $40-70 \%$ <br> $5-3$ | High <br> $71-100 \%$ <br> $2-1$ | 10 | 10 | 10 |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| SUBTOTAL |  |  |  | 32 | 32 | 32 |  |  |  |  |

II . SLOPE FACTOR

III. PROTECTIVE VEGETATIVE COVER REMAINING AFTER DISTURBANCE

| Rating | Low | Moderate | High | 5 | 6 | 4 |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  | $0-40 \%$ |  |  |  |  |  |  |  |  |  |
| $15-8$ | $41-80 \%$ | $81-100 \%$. | 5 | 6 | 4 |  |  |  |  |  |

IV. TWO - YEAR ONE - HOUR RAINFALL INTENSITY (Hundredths Inch )


| $<50$ <br> Low (L) | $50-65$ <br> Moderate (M) | $66-75$ <br> High (H) | $>75$ <br> Extreme (E) | 69 | 63 | 71 |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |


| THE DETERMINATION IS | $\mathbf{H}$ | $\mathbf{H}$ | $\mathbf{H}$ |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

*Key to Mendocino Forest Soil \#

| Map Label | Soil Type |
| :---: | :--- |
| 107 | Bigriver loamy sand, 0 to 5 percent slopes |
| 135 | Dehaven-Hotel complex, 50 to 75 percent slopes |
| 137 | Dehaven-Hotel-Irmulco complex, 30 to 50 percent slopes |
| 158 | Havensneck sandy loam, 2 to 15 percent slopes |
| 172 | Irmulco-Tramway complex, 9 to 30 percent slopes |
| 173 | Irmulco-Tramway complex, 30 to 50 percent slopes |
| 188 | Ornbaun-Zeni complex, 30 to 50 percent slopes |
| 189 | Ornbaun-Zeni complex, 50 to 75 percent slopes |


when windbreaks are established and during dry periods. Among the trees that are suitable for planting are eucalyptus, Monterey cypress, Monterey pine, and bishop pine.

The capability classification is IIIe-1(4), irrigated and nonirrigated.

## 107-Bigriver loamy sand, 0 to 5 percent slopes

This very deep, well drained soil is on flood plains. It formed in alluvium derived from sandstone. The vegetation is mainly redwood. Elevation ranges from 10 to 125 feet. The average annual precipitation is 45 to 65 inches, the average annual air temperature is about 53 degrees $F$, and the average frost-free period is 290 to 365 days.

Typically, the surface layer is variegated pale brown and very pale brown loamy sand about 6 inches thick. The underlying material to a depth of 63 inches or more is variegated brown, yellowish brown, pale brown, very pale brown, light yellowish brown, and grayish brown, stratified loamy sand, sandy loam, and loam. In some areas the surface layer is sandy loam.

Included with this soil in mapping are small areas of Cottoneva soils and areas of Riverwash. These included areas make up about 20 percent of the total acreage of the unit. The percentage varies from one area to another.

Permeability is moderately rapid in the Bigriver soil. Available water capacity is moderate. The effective rooting depth is more than 60 inches. Surface runoff is slow, and the hazard of water erosion is slight if the surface is left bare. This soil is frequently flooded for brief periods from December through April.

This unit is used mainly for timber production or wildlife habitat. A few areas are used for recreation.

Redwood is the main tree species on this soil. On the basis of a 100-year site curve, the mean site index for redwood is 188 . The potential annual production from a fully stocked stand of redwood is 2,050 board feet per acre. Trees of limited extent include red alder.

The main limitation affecting the harvesting of timber is the seasonal wetness. Ponding limits the use of equipment to dry periods. Unsurfaced roads and skid trails are soft when wet. They may be impassable during rainy periods. Suitable surfacing of roads is needed for use during wet seasons. Rock for construction of roads generally is not available in areas of this unit.

Plant competition is a concern affecting the
production of timber. When openings are made in the canopy, invading brushy plants that are not controlled can delay the establishment of planted seedlings. Reforestation can be accomplished by planting redwood seedlings. After it is cut, redwood may regenerate by sprouting, thereby providing adequate stocking.

Among the common forest understory plants are oxalis, swordfern, western thimbleberry, starflower, and trillium.

The capability classification is $\operatorname{IVw}$-2(4), nonirrigated.

## 108-Blacklock and Aborigine soils, 0 to 5 percent slopes

This map unit is on marine terraces. The vegetation is mainly stunted Mendocino cypress, which is known locally as "pygmy forest." Elevation ranges from 250 to 650 feet. The average annual precipitation is 50 to 65 inches, the average annual air temperature is about 53 degrees $F$, and the average frost-free period is 270 to 330 days.

The composition of the soils in this map unit is highly variable. An individual area may be made up of either or both of the soils. Each area, however, has similar management requirements for most uses.

Included with these soils in mapping are small areas of Shinglemill soils and Tropaquepts. These included soils make up about 20 percent of the total acreage of the unit. The percentage varies from one area to another.

The Blacklock soil is shallow to a hardpan and is very poorly drained. It formed in marine sediments. Typically, the surface is irregularly covered with a mat of litter about $1 / 2$ inch thick. The surface layer is gray loamy sand about 7 inches thick. The subsurface layer is white and brown sandy loam about 7 inches thick. The next layer is a hardpan about 47 inches thick. It is weakly cemented to strongly cemented. The underlying material to a depth of 64 inches or more is very pale brown loamy sand that has yellowish red mottles.

Permeability is very slow in the Blacklock soil. Available water capacity is very low. The effective rooting depth is limited by the hardpan at a depth of 12 to 20 inches. The soil is saturated for long periods following episodes of heavy rain from December through April. The saturated zone starts at the surface and extends to the top of the hardpan. Surface runoff is very slow or slow, and the hazard of water erosion is slight if the surface is left bare.

The Aborigine soil is very deep and is very poorly drained. It formed in marine sediments. Typically, the

## 135-Dehaven-Hotel complex, 50 to 75 percent slopes

This map unit is on hills. The vegetation is mainly redwood and Douglas-fir. Elevation ranges from 10 to 800 feet. The average annual precipitation is 40 to 70 inches, the average annual air temperature is about 53 degrees $F$, and the average frost-free period is 290 to 365 days.

This unit is about 45 percent Dehaven gravelly loam and 35 percent Hotel very gravelly loam. The Dehaven and Hotel soils occur as areas so intricately intermingled that it was not practical to map them separately at the scale used.

Included with these soils in mapping are small areas of Tramway and Irmulco soils and small areas of shallow soils. Also included are small areas of soils that have been altered by skid trails, landings, and roads and small areas that have slopes of 30 to 50 percent or 75 to 99 percent. Included areas make up about 20 percent of the total acreage of the unit. The percentage varies from one area to another.

The Dehaven soil is deep to bedrock and is well drained. It formed in material derived from sandstone. Typically, the surface is covered with a mat of leaves and twigs about 2 inches thick. The surface layer is brown and pale brown gravelly loam about 17 inches thick. The upper 17 inches of the subsoil is brownish yellow very gravelly sandy clay loam. The lower 18 inches is brownish yellow extremely gravelly sandy clay loam. Hard, fractured sandstone is a depth of about 52 inches.

Permeability is moderate in the Dehaven soil. Available water capacity is low. The effective rooting depth is limited by bedrock at a depth of 40 to 60 inches. Surface runoff is very rapid, and the hazard of water erosion is very severe if the surface is left bare.

The Hotel soil is moderately deep to bedrock and is well drained. It formed in material derived from sandstone. Typically, the surface is covered with a mat of leaves and twigs about 2 inches thick. The surface layer is brown very gravelly loam about 8 inches thick. The subsoil is light yellowish brown and very pale brown very gravelly clay loam about 27 inches thick. Hard, fractured sandstone is at a depth of about 35 inches. In some areas the surface layer is gravelly loam.

Permeability is moderate in the Hotel soil. Available water capacity is low. The effective rooting depth is limited by bedrock at a depth of 20 to 40 inches. Surface runoff is very rapid, and the hazard of water erosion is very severe if the surface is left bare.

This unit is used for timber production or as watershed.

Redwood and Douglas-fir are the main tree species on this unit. On the basis of a 100 -year site curve, the mean site index for redwood is 153 on the Dehaven soil and 123 on the Hotel soil. The potential annual production from a fully stocked stand of redwood is 1,325 board feet per acre on the Dehaven soil and 880 board feet per acre on the Hotel soil. On the basis of a 100-year site curve, the mean site index for Douglas-fir is 183 on the Dehaven soil and 156 on the Hotel soil. Trees of limited extent include grand fir, tanoak, and canyon live oak.

The main limitations affecting the harvesting of timber are the slope and the hazard of erosion. When timber is harvested, the slope limits the use of wheeled and tracked equipment in skidding operations. Cable yarding systems generally cause less disturbance of the soil. Revegetation of exposed subsoil is difficult on this unit; however, it generally is not needed for control of surface erosion because of the large amount of coarse fragments. Roads may fail and landslides may occur following deep soil disturbance in the steeper areas. Rock for construction of roads generally is available in areas of this unit. Rocks and loose soil material may slide onto roads. This hazard increases the need for road maintenance.

Plant competition is a concern affecting the production of timber. When openings are made in the canopy, invading brushy plants that are not controlled can delay the establishment of seedlings. Reforestation can be accomplished by planting redwood and Douglas-fir seedlings. Natural reforestation by redwood sprouts and Douglas-fir seed trees provides variable stocking results. Both overstocked and understocked areas are common. Movement of loose surface material can reduce seedling survival rates in the steeper areas.

Among the common forest understory plants are oxalis, swordfern, and salal.

The capability classification is VIle(4), nonirrigated.

## 136-Dehaven-Hotel complex, 75 to 99 percent slopes

This map unit is on extremely steep hills. The vegetation is mainly redwood and Douglas-fir. Elevation ranges from 10 to 800 feet. The average annual precipitation is 40 to 70 inches, the average annual air temperature is about 53 degrees $F$, and the average frost-free period is 290 to 365 days.

This unit is about 40 percent Dehaven gravelly loam and 40 percent Hotel very gravelly loam. The Dehaven and Hotel soils occur as areas so intricately intermingled that it was not practical to map them separately at the scale used.

Included with these soils in mapping are small areas of Rock outcrop and small areas of shallow soils. Also included are small areas that have slopes of 50 to 75 percent. Included areas make up about 20 percent of the total acreage of the unit. The percentage varies from one area to another.

The Dehaven soil is deep to bedrock and is well drained. It formed in material derived from sandstone. Typically, the surface is covered with a mat of leaves and twigs about 2 inches thick. The surface layer is brown and pale brown gravelly loam about 17 inches thick. The upper 17 inches of the subsoil is brownish yellow very gravelly sandy clay loam. The lower 18 inches is brownish yellow extremely gravelly sandy clay loam. Hard, fractured sandstone is at a depth of about 52 inches.

Permeability is moderate in the Dehaven soil. Available water capacity is low. The effective rooting depth is limited by bedrock at a depth of 40 to 60 inches. Surface runoff is very rapid, and the hazard of water erosion is very severe if the surface is left bare.

The Hotel soil is moderately deep to bedrock and is well drained. It formed in material derived from sandstone. Typically, the surface is covered with a mat of leaves and twigs about 2 inches thick. The surface layer is brown very gravelly loam about 8 inches thick. The subsoil is light yellowish brown and very pale brown very gravelly clay loam about 27 inches thick. Hard, fractured sandstone is at a depth of about 35 inches. In some areas the surface layer is gravelly loam.

Permeability is moderate in the Hotel soil. Available water capacity is low. The effective rooting depth is limited by bedrock at a depth of 20 to 40 inches. Surface runoff is very rapid, and the hazard of water erosion is very severe if the surface is left bare.

This unit is used for timber production or as watershed.

Redwood and Douglas-fir are the main tree species on this unit. On the basis of a 100-year site curve, the mean site index for redwood is 153 on the Dehaven soil and 123 on the Hotel soil. The potential annual production from a fully stocked stand of redwood is 1,325 board feet per acre on the Dehaven soil and 880 board feet per acre on the Hotel soil. On the basis of a 100-year site curve, the mean site index for Douglas-fir is 183 on the Dehaven soil and

156 on the Hotel soil. Trees of limited extent include tanoak, grand fir, and canyon live oak.

The main limitations affecting the harvesting of timber are the slope and the hazard of erosion. Cable yarding systems generally are used on this unit. Harvesting systems that lift logs entirely off the ground minimize the disturbance of the protective layer of duff. Revegetation of exposed subsoil is difficult on this unit; however, it generally is not needed for control of surface erosion because of the large amount of coarse fragments. Roads may fail and landslides may occur following deep soil disturbance. Rock for construction of roads is generally available in areas of this unit. Rocks and loose soil material frequently slide onto roads. This hazard increases the need for road maintenance.

Seedling establishment is a concern affecting the production of timber. Reforestation can be accomplished by planting redwood and Douglas-fir seedlings. Natural reforestation by redwood sprouts and Douglas-fir seed trees provides variable stocking results. Both overstocked and understocked areas are common. Movement of loose surface material can reduce the seedling survival rate.

Among the common forest understory plants are oxalis, swordfern, and salal.

The capability classification is VIle(4), nonirrigated.

## 137-Dehaven-Hotel-Irmulco complex, 30 to 50 percent slopes

This map unit is on steep hills. The vegetation is mainly redwood and Douglas-fir. Elevation ranges from 10 to 800 feet. The average annual precipitation is 40 to 70 inches, the average annual air temperature is about 53 degrees $F$, and the average frost-free period is 290 to 365 days.

This unit is about 40 percent Dehaven gravelly loam, 20 percent Hotel very gravelly loam, and 20 percent Irmulco loam. The three soils occur as areas so intricately intermingled that it was not practical to map them separately at the scale used.

Included with these soils in mapping are small areas of Tramway soils and small areas of soils that have been altered by skid trails, landings, and roads. Also included are small areas that have slopes of 15 to 30 percent or 50 to 70 percent. Included areas make up about 20 percent of the total acreage of the unit. The percentage varies from one area to another.

The Dehaven soil is deep to bedrock and is well drained. It formed in material derived from sandstone. Typically, the surface is covered with a mat of leaves
and twigs about 2 inches thick. The surface layer is brown and pale brown gravelly loam about 17 inches thick. The upper 17 inches of the subsoil is brownish yellow very gravelly sandy clay loam. The lower 18 inches is brownish yellow extremely gravelly sandy clay loam. Hard, fractured sandstone is at a depth of about 52 inches.

Permeability is moderate in the Dehaven soil. Available water capacity is low. The effective rooting depth is limited by bedrock at a depth of 40 to 60 inches. Surface runoff is rapid, and the hazard of water erosion is severe if the surface is left bare.

The Hotel soil is moderately deep to bedrock and is well drained. It formed in material derived from sandstone. Typically, the surface is covered with a mat of leaves and twigs about 2 inches thick. The surface layer is brown very gravelly loam about 8 inches thick. The subsoil is light yellowish brown and very pale brown very gravelly clay loam about 27 inches thick. Hard, fractured sandstone is at a depth of about 35 inches. In some areas the surface layer is gravelly loam.

Permeability is moderate in the Hotel soil. Available water capacity is low. The effective rooting depth is limited by bedrock at a depth of 20 to 40 inches. Surface runoff is rapid, and the hazard of water erosion is severe if the surface is left bare.

The Irmulco soil is very deep and is well drained. It formed in material derived from sandstone. Typically, the surface is covered with a mat of leaves and twigs about 1 inch thick. The surface layer is pale brown loam about 6 inches thick. The upper 35 inches of the subsoil is light brown loam. The lower 20 inches is light brown, pink, and reddish yellow clay loam. Soft sandstone bedrock is at a depth of about 61 inches.

Permeability is moderate in the Irmulco soil. Available water capacity is high. The effective rooting depth is 60 inches or more. Surface runoff is rapid, and the hazard of water erosion is severe if the surface is left bare.

This unit is used for timber production or as watershed.

Redwood and Douglas-fir are the main tree species on this unit. On the basis of a 100 -year site curve, the mean site index for redwood is 153 on the Dehaven soil, 123 on the Hotel soil, and 165 on the Irmulco soil. The potential annual production from a fully stocked stand of redwood is 1,325 board feet per acre on the Dehaven soil, 880 board feet per acre on the Hotel soil, and 1,545 board feet per acre on the Irmulco soil. On the basis of a 100-year site curve, the mean site index for Douglas-fir is 183 on the Dehaven soil, 156 on the Hotel soil, and 191 on the

Irmulco soil. Trees of limited extent include tanoak, grand fir, and canyon live oak.

The main limitations affecting the harvesting of timber are the slope and the hazard of erosion, especially in areas of the Irmulco soil. Wheeled and tracked equipment can be used in the more gently sloping areas, but cable yarding systems generally cause less disturbance of the soil in the steeper areas. Disturbance of the protective layer of duff can be minimized by the careful use of either wheeled and tracked equipment or cable yarding systems. Unless adequate plant cover or water bars are provided, steep yarding paths, skid trails, and firebreaks are subject to rilling and gullying. Revegetation of exposed subsoil is difficult on the Dehaven and Hotel soils; however, it generally is not needed for control of surface erosion because of the large amount of coarse fragments. Establishing plant cover on steep cut and fill slopes reduces the hazard of erosion on the Irmulco soil. Rock for construction of roads generally is available in areas of this unit.

Plant competition is a concern affecting the production of timber, especially in areas of the Irmulco soil. When openings are made in the canopy, invading brushy plants that are not controlled can delay the establishment of seedlings. Reforestation can be accomplished by planting redwood and Douglas-fir seedlings. Natural reforestation by redwood sprouts and Douglas-fir seed trees provides variable stocking results. Both overstocked and understocked areas are common.

Among the common forest understory plants are oxalis, swordfern (fig. 4), and salal.

The capability classification is $\mathrm{Vle}(4)$, nonirrigated.

## 138-Duneland

Duneland consists of mounds and hills of loose sand blown from nearby beaches. Areas of this map unit are along the coast of the Pacific Ocean from the mouth of the Ten Mile River south to Mackerricher State Park and at Manchester Beach State Park. Elevation ranges from sea level to 150 feet. Most areas are active and shifting, but other areas have been partially stabilized by sagebrush and grasses.

Duneland exhibits no soil profile development. Permeability of the loose sand is very rapid. Available water capacity is low. The effective rooting depth is 60 inches or more.

Included in mapping are small areas of Sirdrak soils and Tropaquepts.

This unit is used for recreation or as wildlife habitat.

Permeability is moderately rapid in the Harecreek soil. Available water capacity is moderate. The effective rooting depth is 60 inches or more. Surface runoff is slow or medium, and the hazard of water erosion is slight or moderate if the surface is left bare.

This unit is used mainly for homesite development, watershed, or wildife habitat. A few areas are used for timber production.

The main limitation affecting homesite development is the sloughing of cutbanks. The design of access roads should control surface runoff and help to stabilize cut slopes. If the density of housing is moderate or high, community sewage systems are needed to prevent the contamination of water supplies caused by seepage.

Redwood, Douglas-fir, and bishop pine are the main tree species on this unit. On the basis of a 100year site curve, the mean site index for redwood is 108 and that for Douglas-fir is 121. The potential annual production from a fully stocked stand of redwood is 430 board feet per acre. Areas that are subject to strong, persistent winds, which limit tree height, are less productive than other areas of this unit. Trees of limited extent include tanoak and grand fir.

The main limitation affecting the harvesting of timber is seasonal wetness. Using wheeled and tracked equipment when the soil is wet produces ruts, compacts the surface, and can damage the roots of trees. Disturbance of the protective layer of duff can be minimized by the careful use of either wheeled and tracked equipment or cable yarding systems. Establishing plant cover on steep cut and fill slopes reduces the hazard of erosion. Rock for construction of roads is generally not available in areas of this unit.

Plant competition is a concern affecting the production of timber. When openings are made in the canopy, invading brushy plants that are not controlled can delay the establishment of seedlings. Reforestation can be accomplished by planting redwood or Douglas-fir seedlings. Natural reforestation by Douglas-fir seed trees and redwood sprouts provides variable stocking results. Both overstocked and understocked areas are common.

Among the common forest understory plants are salal, California huckleberry, whipplea, tanoak, and Oregongrape.

The capability classification is Ille-1 (4), nonirrigated.

## 158-Havensneck sandy loam, 2 to 15 percent slopes

This well drained soil is moderately deep to weathered bedrock. It is on ridgetops and the upper side slopes of coastal hills and mountains. It formed in material derived from interlayered sandstone and shale. The vegetation is mainly bishop pine and manzanita. Elevation ranges from 400 to 1,110 feet. The average annual precipitation is 45 to 55 inches, the average annual air temperature is about 54 degrees $F$, and the average frost-free period is 250 to 330 days.

Typically, the surface is covered with a mat of bishop pine and manzanita litter about 2 inches thick. The surface layer is yellowish brown and pale brown sandy loam about 7 inches thick. The upper 14 inches of the subsoil is pink sandy loam. The lower 11 inches is reddish yellow sandy clay loam. Soft sandstone and shale bedrock is at a depth of about 32 inches.

Included with this soil in mapping are small areas of Fishrock, Gibney, Iversen, Shinglemill, and Tramway soils. Also included are small areas that have slopes of 15 to 30 percent. Included areas make up about 15 percent of the total acreage of the unit. The percentage varies from one area to another.

Permeability is moderate in the Havensneck soil. Available water capacity is low. The effective rooting depth is limited by weathered bedrock at a depth of 20 to 40 inches. Surface runoff is slow or medium, and the hazard of water erosion is slight or moderate if the surface is left bare.

This unit is used for homesite development, limited timber production, wildlife habitat, or watershed.

The main limitations affecting homesite development are the slope and the moderate depth to bedrock. Excavation for roads and buildings increases the hazard of erosion. Revegetating disturbed areas around construction sites as soon as possible helps to control erosion. The design of access roads should control surface runoff and help to stabilize cut slopes. The moderate depth to bedrock increases the possibility of failure of septic tank absorption fields. Alternative systems may be needed, such as those in which leach lines are placed in a mound above the soil surface.

Bishop pine, Douglas-fir, and redwood are the main tree species on this unit. On the basis of a 100year site curve, the mean site index for Douglas-fir is 102 and that for redwood is 101. The potential annual production from a fully stocked stand of Douglas-fir
is 185 board feet per acre. Areas that are subject to strong, persistent winds, which limit tree height, are less productive than other areas of this unit. Trees of limited extent include Pacific madrone and tanoak. Stands of conifers commonly are small and widely scattered.

The main limitation affecting the harvesting of timber is seasonal wetness. Using wheeled and tracked equipment when the soil is wet produces ruts, compacts the surface, and can damage the roots of trees. Disturbance of the protective layer of duff can be minimized by the careful use of either wheeled and tracked equipment or cable yarding systems. Establishing plant cover on steep cut and fill slopes reduces the hazard of erosion. Rock for construction of roads is generally not available in areas of this unit.

Plant competition is a concern affecting the production of timber. When openings are made in the canopy, invading brushy plants that are not controlled can prevent the establishment of seedlings.
Reforestation can be accomplished by planting Douglas-fir seedlings. Redwood can regenerate by sprouting after cutting. These sprouts seldom provide optimum stocking.

Among the common forest understory plants are bishop pine, tanoak, California huckleberry, salal, and manzanita.

The capability classification is IIIe-8(4), nonirrigated.

## 159-Havensneck sandy loam, 15 to 30 percent slopes

This well drained soil is moderately deep to weathered bedrock. It is on ridgetops and the upper side slopes of coastal hills and mountains. It formed in material derived from interlayered sandstone and shale. The vegetation is mainly bishop pine and manzanita. Elevation ranges from 400 to 1,100 feet. The average annual precipitation is 45 to 55 inches, the average annual air temperature is about 54 degrees $F$, and the average frost-free period is 250 to 330 days.

Typically, the surface is covered with a mat of litter about 2 inches thick. The surface layer is yellowish brown and pale brown sandy loam about 7 inches thick. The upper 14 inches of the subsoil is pink sandy loam. The lower 11 inches is reddish yellow sandy clay loam. Soft sandstone and shale bedrock is at a depth of about 32 inches.

Included with this soil in mapping are small areas of Fishrock, Iversen, and Tramway soils. Also
included are small areas that have slopes of 9 to 15 percent or 30 to 50 percent. Included areas make up about 15 percent of the total acreage of the unit. The percentage varies from one area to another.

Permeability is moderate in the Havensneck soil. Available water capacity is low. The effective rooting depth is limited by weathered bedrock at a depth of 20 to 40 inches. Surface runoff is rapid, and the hazard of water erosion is moderate if the surface is left bare.

This unit is used for homesite development, limited timber production, wildlife habitat, or watershed.

The main limitations affecting homesite development are the slope and the moderate depth to bedrock. The most favorable building sites are in the less sloping areas of this unit. Excavations for roads and buildings increase the hazard of erosion. Revegetating disturbed areas around construction sites as soon as possible helps to control erosion. The design of access roads should control surface runoff and help to stabilize cut slopes. The moderate depth to bedrock increases the possibility of failure of septic tank absorption fields. The slope is also a concern affecting the installation of septic tank absorption fields. Alternative systems may be needed.

Bishop pine, Douglas-fir, and redwood are the main tree species on this unit. On the basis of a 100year site curve, the mean site index for Douglas-fir is 102 and that for redwood is 101. The potential annual production from a fully stocked stand of Douglas-fir is 185 board feet per acre. Areas that are subject to strong, persistent winds, which limit tree height, are less productive than other areas of this unit. Trees of limited extent include Pacific madrone and tanoak. Stands of conifers commonly are small and widely scattered.

The main limitation affecting the harvesting of timber is the hazard of erosion in the steeper areas and seasonal wetness. Disturbance of the protective layer of duff can be minimized by the careful use of either wheeled and tracked equipment or cable yarding systems. Establishing plant cover on steep cut and fill slopes reduces the hazard of erosion. Using wheeled and tracked equipment when the soil is wet produces ruts, compacts the surface, and can damage the roots of trees. Rock for construction of roads is generally not available in areas of this unit.

Plant competition is a concern affecting the production of timber. When openings are made in the canopy, invading brushy plants that are not controlled can prevent the establishment of seedlings. Reforestation can be accomplished by planting Douglas-fir or redwood seedlings. If seed trees are

Available water capacity is low. The effective rooting depth is limited by weathered bedrock at a depth of 20 to 40 inches. Surface runoff is very rapid, and the hazard of water erosion is very severe if the surface is left bare.

This unit is used as watershed, as wildlife habitat, or for limited firewood production. A few areas of the Wohly soil are used for limited timber production.

California black oak, Pacific madrone, and interior live oak are the main tree species on the Hopland soil. On the basis of a 50-year site curve, the mean site index is 44 for California black oak on the Hopland soil. This soil can produce about 30 to 35 cords per acre from a stand of trees 50 years old. Trees of limited extent include California bay and canyon live oak.

Douglas-fir, California black oak, and Pacific madrone are the main tree species on the Wohly soil. On the basis of a 100-year site curve, the mean site index is 118 for Douglas-fir on the Wohly soil. Stands of conifers commonly are small and widely scattered; thus, they generally are not of commercial value. Estimates of the potential annual production for Douglas-fir have not been made. Trees of limited extent include tanoak and interior live oak.

The main limitations affecting the harvesting of firewood and timber are the slope, the hazard of erosion, and seasonal wetness. When timber is harvested, the slope limits the use of wheeled and tracked equipment in skidding operations. Cable yarding systems generally cause less disturbance of the soil. Unless adequate plant cover or water bars are provided, steep yarding paths, skid trails, and firebreaks are subject to rilling and gullying. Harvesting systems that lift logs entirely off the ground minimize the disturbance of the protective layer of duff. Establishing plant cover on steep cut and fill slopes reduces the hazard of surface erosion. Roads may fail and landslides may occur following deep soil disturbance in the steeper areas. Roads are dusty when dry. Surface treatment may be desirable during periods of heavy use. Unsurfaced roads and skid trails are slippery when wet. They may be impassable during rainy periods. Suitable surfacing of roads is needed for use during wet seasons. Rock for construction of roads generally is not available in areas of this unit. Harvesting of trees is generally not feasible.

Reforestation can be accomplished by planting Douglas-fir and ponderosa pine seedlings on the Wohly soil. The high soil temperature and low content of soil moisture during the growing season result in a high seedling mortality rate, especially on south- and southwest-facing slopes. After they are cut,
hardwoods can regenerate by sprouting. Regrowth is most successful if cutting is done between December and May.

Among the common forest understory plants are blue wildrye and melic grass.

The capability classification is VIIe(5), nonirrigated.

## 172-Irmulco-Tramway complex, 9 to 30 percent slopes

This map unit is on hills. The vegetation is mainly redwood and Douglas-fir. Elevation ranges from 10 to 800 feet. The average annual precipitation is 40 to 70 inches, the average annual air temperature is about 53 degrees $F$, and the average frost-free period is 290 to 365 days.

This unit is about 60 percent Irmulco loam and 15 percent Tramway loam. The Irmulco and Tramway soils occur as areas so intricately intermingled that it was not practical to map them separately at the scale used.

Included with these soils in mapping are small areas of Vandamme soils and soils that have been altered by skid trails, landings, and roads. Also included are small areas that have slopes of 5 to 9 percent or 30 to 50 percent. Included areas make up about 15 percent of the total acreage of the unit. The percentage varies from one area to another.

The Irmulco soil is very deep and is well drained. It formed in material derived from sandstone. Typically, the surface is covered with a mat of leaves and twigs about 1 inch thick. The surface layer is pale brown loam about 6 inches thick. The upper 35 inches of the subsoil is light brown loam. The lower 20 inches is light brown, pink, and reddish yellow clay loam. Soft sandstone bedrock is at a depth of about 61 inches.

Permeability is moderate in the Irmulco soil. Available water capacity is high. The effective rooting depth is 60 inches or more. Surface runoff is medium or rapid, and the hazard of water erosion is moderate if the surface is left bare.

The Tramway soil is moderately deep to weathered bedrock and is well drained. It formed in material derived from sandstone. Typically, the surface is covered with a mat of leaves and twigs about 2 inches thick. The surface layer is light brownish gray loam about 7 inches thick. The upper 5 inches of the subsoil is pale brown loam. The lower 16 inches is light yellowish brown clay loam. Soft, fractured sandstone is at a depth of about 28 inches.

Permeability is moderate in the Tramway soil.

Available water capacity is low. The effective rooting depth is limited by weathered bedrock at a depth of 20 to 40 inches. Surface runoff is medium or rapid, and the hazard of water erosion is moderate if the surface is left bare.

This unit is used for timber production or as watershed.

Redwood and Douglas-fir are the main tree species on this unit. On the basis of a 100-year site curve, the mean site index for redwood is 165 on the Irmulco soil and 141 on the Tramway soil. On the basis of a 100-year site curve, the mean site index for Douglas-fir is 191 on the Irmulco soil and 161 on the Tramway soil. The potential annual production from a fully stocked stand of redwood is 1,545 board feet per acre on the Irmulco soil and 1,130 board feet per acre on the Tramway soil. Trees of limited extent include tanoak, grand fir, Pacific madrone, western hemlock, and red alder.

The main limitation affecting the harvesting of timber is seasonal wetness. Using wheeled and tracked equipment when the soils are wet produces ruts, compacts the surface, and can damage the roots of trees. Disturbance of the protective layer of duff can be minimized by the careful use of wheeled and tracked equipment. Roads on this unit are dusty when dry. Surface treatment may be desirable during periods of heavy use. Unsurfaced roads and skid trails are slippery when wet. They may be impassable during rainy periods. Suitable surfacing of roads is needed for use during wet seasons. Rock for construction of roads generally is not available in areas of this unit.

Plant competition is a concern affecting the production of timber. When openings are made in the canopy, invading brushy plants that are not controlled can delay the establishment of seedlings. Reforestation can be accomplished by planting redwood and Douglas-fir seedlings. Natural reforestation by redwood sprouts and Douglas-fir seed trees provides variable stocking results. Both overstocked and understocked areas are common.

Among the common forest understory plants are swordfern, rhododendron, California huckleberry, and oxalis.

The capability classification is IVe-1(4), nonirrigated.

## 173-Irmulco-Tramway complex, 30 to 50 percent slopes

This map unit is on steep hills. The vegetation is mainly redwood and Douglas-fir. Elevation ranges
from 10 to 800 feet. The average annual precipitation is 40 to 70 inches, the average annual air temperature is about 53 degrees $F$, and the average frost-free period is 290 to 365 days.

This unit is about 70 percent Irmulco loam and 15 percent Tramway loam. The Irmulco and Tramway soils occur as areas so intricately intermingled that it was not practical to map them separately at the scale used.

Included with these soils in mapping are small areas of Vandamme, Dehaven, and Hotel soils and small areas of soils that have been altered by skid trails, landings, and roads. Also included are small areas that have slopes of 15 to 30 percent or 50 to 75 percent. Included areas make up about 15 percent of the total acreage of the unit. The percentage varies from one area to another.

The Irmulco soil is very deep and is well drained. It formed in material derived from sandstone. Typically, the surface is covered with a mat of leaves and twigs about 1 inch thick. The surface layer is pale brown loam about 6 inches thick. The upper 35 inches of the subsoil is light brown loam. The lower 20 inches is light brown, pink, and reddish yellow clay loam. Soft sandstone bedrock is at a depth of about 61 inches.

Permeability is moderate in the Irmulco soil. Available water capacity is high. The effective rooting depth is 60 inches or more. Surface runoff is rapid, and the hazard of water erosion is severe if the surface is left bare.

The Tramway soil is moderately deep to weathered bedrock and is well drained. It formed in material derived from sandstone. Typically, the surface is covered with a mat of leaves and twigs about 2 inches thick. The surface layer is light brownish gray loam about 7 inches thick. The upper 5 inches of the subsoil is pale brown loam. The lower 16 inches is light yellowish brown clay loam. Soft, fractured sandstone is at a depth of about 28 inches.

Permeability is moderate in the Tramway soil. Available water capacity is low. The effective rooting depth is limited by weathered bedrock at a depth of 20 to 40 inches. Surface runoff is rapid, and the hazard of water erosion is severe if the surface is left bare.

This unit is used for timber production or as watershed.

Redwood and Douglas-fir are the main tree species on this unit. On the basis of a 100-year site curve, the mean site index for redwood is 165 on the Irmulco soil and 141 on the Tramway soil. On the basis of a 100-year site curve, the mean site index for Douglas-fir is 191 on the Irmulco soil and 161 on
the Tramway soil. The potential annual production from a fully stocked stand of redwood is 1,545 board feet per acre on the Irmulco soil and 1,130 board feet per acre on the Tramway soil. Trees of limited extent include tanoak, grand fir, Pacific madrone, western hemlock, and red alder.

The main limitations affecting the harvesting of timber are the slope, the hazard of erosion, and seasonal wetness. Wheeled and tracked equipment can be used in the more gently sloping areas, but cable yarding systems generally cause less disturbance of the soil in the steeper areas. Disturbance of the protective layer of duff can be minimized by the careful use of either wheeled and tracked equipment or cable yarding systems. Unless adequate plant cover or water bars are provided, steep yarding paths, skid trails, and firebreaks are subject to rilling and gullying. Establishing plant cover on steep cut and fill slopes reduces the hazard of surface erosion. Using wheeled and tracked equipment when the soil is wet produces ruts, compacts the surface, and can damage the roots of trees. Roads on this unit are dusty when dry. Surface treatment may be desirable during periods of heavy use. Unsurfaced roads and skid trails are slippery when wet. They may be impassable during rainy periods. Suitable surfacing of roads is needed for use during wet seasons. Rock for construction of roads generally is not available in areas of this unit.

Plant competition is a concern affecting the production of timber. When openings are made in the canopy, invading brushy plants that are not controlled can delay the establishment of seedlings.
Reforestation can be accomplished by planting redwood and Douglas-fir seedlings. Natural reforestation by redwood sprouts and Douglas-fir seed trees provides variable stocking results. Both overstocked and understocked areas are common.

Among the common forest understory plants are swordfern, rhododendron, California huckleberry, and oxalis.

The capability classification is Vle(4), nonirrigated.

## 174-Irmulco-Tramway complex, 50 to 75 percent slopes

This map unit is on hills. The vegetation is mainly redwood and Douglas-fir. Elevation ranges from 10 to 800 feet. The average annual precipitation is 40 to 70 inches, the average annual air temperature is about 53 degrees $F$, and the average frost-free period is 290 to 365 days.

This unit is about 45 percent Irmulco loam and 35 percent Tramway loam. The Irmulco and Tramway soils occur as areas so intricately intermingled that it was not practical to map them separately at the scale used.

Included with these soils in mapping are small areas of Vandamme, Dehaven, and Hotel soils and small areas of soils that have been altered by skid trails, landings, and roads. Also included are small areas that have slopes of 30 to 50 percent or 75 to 99 percent. Included areas make up about 20 percent of the total acreage of the unit. The percentage varies from one area to another.

The Irmulco soil is deep to weathered bedrock and is well drained. It formed in material derived from sandstone. Typically, the surface is covered with a mat of leaves and twigs about 1 inch thick. The surface layer is pale brown loam about 6 inches thick. The subsoil is light brown, pink, and reddish yellow loam about 54 inches thick. Soft, fractured sandstone is at a depth of about 60 inches.

Permeability is moderate in the Irmulco soil. Available water capacity is high. The effective rooting depth is limited by weathered bedrock at a depth of 40 to 60 inches. Surface runoff is very rapid, and the hazard of water erosion is very severe if the surface is left bare.

The Tramway soil is moderately deep to weathered bedrock and is well drained. It formed in material derived from sandstone. Typically, the surface is covered with a mat of leaves and twigs about 2 inches thick. The surface layer is light brownish gray loam about 7 inches thick. The upper 5 inches of the subsoil is pale brown loam. The lower 16 inches is light yellowish brown clay loam. Soft sandstone bedrock is at a depth of about 28 inches.

Permeability is moderate in the Tramway soil. Available water capacity is low. The effective rooting depth is limited by weathered bedrock at a depth of 20 to 40 inches. Surface runoff is very rapid, and the hazard of water erosion is very severe if the surface is left bare.

This unit is used for timber production or as watershed.

Redwood and Douglas-fir are the main tree species on this unit. On the basis of a 100-year site curve, the mean site index for redwood is 165 on the Irmulco soil and 141 on the Tramway soil. On the basis of a 100-year site curve, the mean site index for Douglas-fir is 191 on the Irmulco soil and 161 on the Tramway soil. The potential annual production from a fully stocked stand of redwood is 1,545 board feet per acre on the Irmulco soil and 1,130 board feet
areas of soils that have been altered by skid trails, landings, and roads. Also included are small areas that have slopes of 5 to 9 percent or 30 to 50 percent. Included areas make up about 15 percent of the total acreage of the unit. The percentage varies from one area to another.

The Ornbaun soil is deep to weathered bedrock and is well drained. It formed in material derived from sandstone. Typically, the surface is covered with a mat of leaves and twigs about $1 / 2$ inch thick. The surface layer is light yellowish brown loam about 3 inches thick. The upper 37 inches of the subsoil is light brown and reddish yellow loam. The lower 19 inches is reddish yellow and pink clay loam. Soft, fractured sandstone is at a depth of about 59 inches.

Permeability is moderate in the Ornbaun soil. Available water capacity is high. The effective rooting depth is limited by weathered bedrock at a depth of 40 to 60 inches. Surface runoff is medium or rapid, and the hazard of water erosion is moderate if the surface is left bare.

The Zeni soil is moderately deep to weathered bedrock and is well drained. It formed in material derived from sandstone. Typically, the surface is covered with a mat of leaves and twigs about 1 inch thick. The surface layer is pale brown loam about 4 inches thick. The subsoil is yellow and light brown loam about 26 inches thick. Soft, fractured sandstone is at a depth of about 30 inches.

Permeability is moderate in the Zeni soil. Available water capacity is low or moderate. The effective rooting depth is limited by weathered bedrock at a depth of 20 to 40 inches. Surface runoff is medium or rapid, and the hazard of water erosion is moderate if the surface is left bare.

This unit is used for timber production or as watershed.

Douglas-fir, redwood, tanoak, and Pacific madrone are the main tree species on this unit. On the basis of a 100-year site curve, the mean site index for Douglas-fir is 155 on the Ornbaun soil and 129 on the Zeni soil. The potential annual production from a fully stocked stand of Douglas-fir is 770 board feet per acre on the Ornbaun soil and 525 board feet per acre on the Zeni soil. On the basis of a 100 -year site curve, the mean site index for redwood is 152 on the Ornbaun soil and 130 on the Zeni soil.

The main limitation affecting the harvesting of timber is seasonal wetness. Using wheeled and tracked equipment when the soils are wet produces ruts, compacts the surface, and can damage the roots of trees. Disturbance of the protective layer of duff can be minimized by the careful use of wheeled and tracked equipment. Roads on this unit are dusty
when dry. Surface treatment may be desirable during periods of heavy use. Unsurfaced roads and skid trails are slippery when wet. They may be impassable during rainy periods. Suitable surfacing of roads is needed for use during wet seasons. Rock for construction of roads generally is not available in areas of this unit.

Plant competition is a concern affecting the production of timber. When openings are made in the canopy, invading brushy plants that are not controlled can prevent the establishment of seedlings. Reforestation can be accomplished by planting Douglas-fir and redwood seedlings. If seed trees are present, natural reforestation of cutover areas by Douglas-fir occurs infrequently. After it is cut, redwood can regenerate by sprouting. These sprouts seldom provide optimum stocking.

Among the common forest understory plants are California huckleberry, iris, and brackenfern.

The capability classification is IVe-1 (4), nonirrigated.

## 188-Ornbaun-Zeni complex, 30 to 50 percent slopes

This map unit is on hills and mountains. The vegetation is mainly Douglas-fir and redwood. Elevation ranges from 200 to 2,000 feet. The average annual precipitation is 40 to 70 inches, the average annual air temperature is about 53 degrees $F$, and the average frost-free period is 220 to 320 days.

This unit is about 45 percent Ornbaun loam and 40 percent Zeni loam. The Ornbaun and Zeni soils occur as areas so intricately intermingled that it was not practical to map them separately at the scale used.

Included with these soils in mapping are small areas of Yellowhound and Kibesillah soils and small areas of soils that have been altered by skid trails, landings, and roads. Also included are small areas that have slopes of 15 to 30 percent or 50 to 75 percent. Included areas make up about 15 percent of the total acreage of the unit. The percentage varies from one area to another.

The Ornbaun soil is deep to weathered bedrock and is well drained. It formed in material derived from sandstone. Typically, the surface is covered with a mat of leaves and twigs about $1 / 2$ inch thick. The surface layer is light yellowish brown loam about 3 inches thick. The upper 37 inches of the subsoil is light brown, yellowish red, and reddish yellow loam. The lower 19 inches is reddish yellow and pink clay loam. Soft, fractured sandstone is at a depth of about 59 inches.

Permeability is moderate in the Ornbaun soil. Available water capacity is high. The effective rooting depth is limited by weathered bedrock at a depth of 40 to 60 inches. Surface runoff is rapid, and the hazard of water erosion is severe if the surface is left bare.

The Zeni soil is moderately deep to weathered bedrock and is well drained. It formed in material derived from sandstone. Typically, the surface is covered with a mat of leaves and twigs about 1 inch thick. The surface layer is pale brown loam about 4 inches thick. The subsoil is yellow and light brown loam about 26 inches thick. Soft, fractured sandstone is at a depth of about 30 inches.

Permeability is moderate in the Zeni soil. Available water capacity is low or moderate. The effective rooting depth is limited by weathered bedrock at a depth of 20 to 40 inches. Surface runoff is rapid, and the hazard of water erosion is severe if the surface is left bare.

This unit is used for timber production or as watershed.

Douglas-fir, redwood, tanoak, and Pacific madrone are the main tree species on this unit. On the basis of a 100 -year site curve, the mean site index for Douglas-fir is 155 on the Ornbaun soil and 129 on the Zeni soil. The potential annual production from a fully stocked stand of Douglas-fir is 770 board feet per acre on the Ornbaun soil and 525 board feet per acre on the Zeni soil. On the basis of a 100-year site curve, the mean site index for redwood is 152 on the Ornbaun soil and 130 on the Zeni soil.

The main limitations affecting the harvesting of timber are the slope, the hazard of erosion, and seasonal wetness. Wheeled and tracked equipment can be used in the more gently sloping areas, but cable yarding systems generally cause less disturbance of the soil in the steeper areas. Disturbance of the protective layer of duff can be minimized by the careful use of either wheeled and tracked equipment or cable yarding systems. Unless adequate plant cover or water bars are provided, steep yarding paths, skid trails, and firebreaks are subject to rilling and gullying. Establishing plant cover on steep cut and fill slopes reduces the hazard of surface erosion. Using wheeled and tracked equipment when the soils are wet produces ruts, compacts the surface, and can damage the roots of trees. Roads on this unit are dusty when dry. Surface treatment may be desirable during periods of heavy use. Unsurfaced roads and skid trails are slippery when wet. They may impassable during rainy periods. Suitable surfacing of roads is needed for use during
wet seasons. Rock for construction of roads generally is not available in areas of this unit.

Plant competition is a concern affecting the production of timber. When openings are made in the canopy, invading brushy plants that are not controlled can prevent the establishment of seedlings. Reforestation can be accomplished by planting Douglas-fir and redwood seedlings. If seed trees are present, natural reforestation of cutover areas by Douglas-fir occurs infrequently. After it is cut, redwood can regenerate by sprouting. These sprouts seldom provide optimum stocking.

Among the common forest understory plants are California huckleberry, iris, and brackenfern.

The capability classification is $\mathrm{Vle}(4)$, nonirrigated.

## 189—Ornbaun-Zeni complex, 50 to 75 percent slopes

This map unit is on hills and mountains. The vegetation is mainly Douglas-fir and redwood. Elevation ranges from 200 to 2,000 feet. The average annual precipitation is 40 to 70 inches, the average annual air temperature is about 53 degrees $F$, and the average frost-free period is 220 to 320 days.

This unit is about 40 percent Ornbaun loam and 40 percent Zeni loam. The Ornbaun and Zeni soils occur as areas so intricately intermingled that it was not practical to map them separately at the scale used.

Included with these soils in mapping are small areas of Yellowhound and Kibesillah soils and small areas of soils that have been altered by skid trails, landings, and roads. Also included are small areas that have slopes of 30 to 50 percent or 75 to 99 percent. Included areas make up about 20 percent of the total acreage of the unit. The percentage varies from one area to another.

The Ornbaun soil is deep to weathered bedrock and is well drained. It formed in material derived from sandstone. Typically, the surface is covered with a mat of leaves and twigs about $1 / 2$ inch thick. The surface layer is light yellowish brown loam about 3 inches thick. The upper 37 inches of the subsoil is light brown and reddish yellow loam. The lower 19 inches is reddish yellow and pink clay loam. Soft, fractured sandstone is at a depth of about 59 inches.

Permeability is moderate in the Ornbaun soil. Available water capacity is high. The effective rooting depth is limited by weathered bedrock at a depth of 40 to 60 inches. Surface runoff is very rapid, and the hazard of water erosion is very severe if the surface is left bare.

The Zeni soil is moderately deep to weathered bedrock and is well drained. It formed in material derived from sandstone. Typically, the surface is covered with a mat of leaves and twigs about 1 inch thick. The surface layer is pale brown loam about 4 inches thick. The subsoil is yellow and light brown loam about 26 inches thick. Soft, fractured sandstone is at a depth of about 30 inches.

Permeability is moderate in the Zeni soil. Available water capacity is low or moderate. The effective rooting depth is limited by weathered bedrock at a depth of 20 to 40 inches. Surface runoff is very rapid, and the hazard of water erosion is severe if the surface is left bare.

This unit is used for timber production or as watershed.

Douglas-fir, redwood, tanoak, and Pacific madrone are the main tree species on this unit. On the basis of a 100-year site curve, the mean site index for Douglas-fir is 155 on the Ornbaun soil and 129 on the Zeni soil. The potential annual production from a fully stocked stand of Douglas-fir is 770 board feet per acre on the Ornbaun soil and 525 board feet per acre on the Zeni soil. On the basis of a 100-year site curve, the mean site index for redwood is 152 on the Ornbaun soil and 130 on the Zeni soil.

The main limitations affecting the harvesting of timber are the slope, the hazard of erosion, and seasonal wetness. When timber is harvested, the slope limits the use of wheeled and tracked equipment in skidding operations. Cable yarding systems generally cause less disturbance of the soil. Unless adequate plant cover or water bars are provided, steep yarding paths, skid trails, and firebreaks are subject to rilling and gullying. Harvesting systems that lift logs entirely off the ground minimize the disturbance of the protective layer of duff. Establishing plant cover on steep cut and fill slopes reduces the hazard of surface erosion. Roads may fail and landslides may occur following deep soil disturbance in the steeper areas. Roads are dusty when dry. Surface treatment may be desirable during periods of heavy use. Unsurfaced roads and skid trails are slippery when wet. They may be impassable during rainy periods. Suitable surfacing of roads is needed for use during wet seasons. Rock for construction of roads generally is not available in areas of this unit.

Plant competition is a concern affecting the production of timber. When openings are made in the canopy, invading brushy plants that are not controlled can prevent the establishment of seedlings. Reforestation can be accomplished by planting Douglas-fir and redwood seedlings. If seed trees are
present, natural reforestation of cutover areas by Douglas-fir occurs infrequently. After it is cut, redwood can regenerate by sprouting. These sprouts seldom provide adequate stocking.

Among the common forest understory plants are California huckleberry, iris, and brackenfern.

The capability classification is VIIe(4), nonirrigated.

## 190—Pardaloe-Woodin complex, 50 to 75 percent slopes

This map unit is on hills and mountains. The vegetation is mainly Douglas-fir and tanoak. Elevation ranges from 800 to 3,500 feet. The average annual precipitation is 45 to 70 inches, the average annual air temperature is about 55 degrees $F$, and the average frost-free period is 150 to 250 days.

This unit is about 45 percent Pardaloe very gravelly loam and 30 percent Woodin extremely gravelly sandy loam. The Pardaloe and Woodin soils occur as areas so intricately intermingled that it was not practical to map them separately at the scale used.

Included with these soils in mapping are small areas of Maymen, Casabonne, and Wohly soils and small areas of soils that have been altered by skid trails, landings, and roads. Also included are small areas that have slopes of 30 to 50 percent or 75 to 99 percent. Included areas make up about 25 percent of the total acreage of the unit. The percentage varies from one area to another.

The Pardaloe soil is deep to bedrock and is well drained. It formed in material derived from sandstone. Typically, the surface layer is pink very gravelly loam about 11 inches thick. The upper 15 inches of the subsoil is very pale brown extremely gravelly sandy loam. The lower 28 inches is brownish yellow and reddish yellow extremely gravelly sandy clay loam. Hard, fractured sandstone is at a depth of about 54 inches. In some areas the surface layer is gravelly sandy loam, gravelly loam, or very gravelly sandy loam.

Permeability is moderate in the Pardaloe soil. Available water capacity is low. The effective rooting depth is limited by bedrock at a depth of 40 to 60 inches. Surface runoff is very rapid, and the hazard of water erosion is very severe if the surface is left bare.

The Woodin soil is moderately deep to bedrock and is well drained. It formed in material derived from sandstone. The surface layer is very dark brown extremely gravelly sandy loam about 6 inches thick.

## Erosion Control Plan for the Far North THP

This document addresses the requirements of North Coast Regional Water Quality Control Board Order R1-2004-0030, General Waste Discharge Requirements (GWDR), for Erosion Control Plans (ECPs) related to timber harvest activities on Non-Federal lands in the North Coast Region. An Erosion Control Plan is defined in 'The Order' as:
A. "Erosion Control Plan" means a plan designed and implemented to prevent and minimize the discharge of sediment to waters of the state in violation of applicable water quality requirements or other conditions of this Order. The Erosion Control Plan (ECP) shall be developed by a qualified professional, included in the approved Project or submitted with the application when seeking coverage under these General WDRs, and shall incorporate Regional Water Board staff recommendations generated as part of the Project review and approval process that were designed to prevent and minimize discharge of sediment. The ECP shall include but is not limited to, a map clearly showing the location(s) of the site(s) that could discharge sediment, site specific designs and/or management measures to prevent and minimize the discharge of sediment, and a time schedule for implementation of site specific designs and/or management measures.

The proposed project is a Timber Harvest Plan. It proposes to use the selection, transition and clear-cut, seed tree removal and shelterwood removal silvicultural methods. Yarding methods will include tractor and cable / tractor long-line techniques. Almost all areas of the plan may be subject to some minor level of ground disturbance. Moderate ground disturbance will take place in areas where new road construction is proposed. Ground disturbance will be the greatest in areas of concentrated activity, which are typically landing sites. Use and maintenance of existing roads and landings will also cause ground disturbance in previously disturbed areas.

## I. Road Inventory and Treatment of Controllable Sediment Sources

The RPF has conducted an inventory of active erosion sites and controllable sediment discharge sources within the project area. The inventory method consisted of a forest road and skid trail review, aerial photo and ground assessment of the harvest units, and a complete ground assessment of all watercourses and associated stream protection zones. Slope stability concerns are addressed in this THP by restricting harvest to selection silviculture in sensitive areas and maximizing the use of cable yarding. Potential sites were evaluated based on three criteria:

1. Potential for significant sediment delivery to a watercourse
2. Probability of delivery within a reasonable amount of time
3. Probability of net positive effect resulting from implementation of mitigation

Table 1 presents all sites that are to be treated under this THP including action to be taken, treatment priority and estimates of past and future sediment production.

Table 1. Inventory and Treatment of Controllable Sediment Sources

| Map Point | Feature | Total Site Volume ${ }^{1}$ | Potential Deliverable Volume ${ }^{2}$ | *Rate of Delivery ${ }^{3}$ | *Potential for Delivery ${ }^{4}$ | mplementation Schedule (Treatment Prioirty) ${ }^{5}$ | Description of Controllable Sediment Source/ Prevention and Minimization Measure (Treatment) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 3 | Watercourse Crossing | 205-500 | 500 | 1 | Displayed on Map: | 1 | Description: <br> A 72" diameter galvanized culvert drains flow from a Class 1 (CDFW Class 1 model) watercourse across the road at this location. The culvert suffered a structural failure and is partially collapsed at the 1st connector 20 feet from the culvert inlet resulting in erosion of the road fill and partially restricted stream flow. This stream segment was undoubtedly considered to be a Class 2 watercourse when this crossing was installed. |
|  |  |  |  |  |  |  | Treatment: |
|  |  |  |  |  |  |  | Use crossing and rehabilitate by removing crossing at end of 1st seasons use (prior to October 1st). Place straw bales in eroded area as necessary to prevent soil from entering the stream / culvert prior to removal. Remove crossing as per 14CCR 923.9(p): <br> (1) Fills shall be excavated to form a channel that is as close as feasible to the natural watercourse grade and orientation, and that is wider than the natural channel as observed upstream and downstream of the logging road watercourse crossing to be removed. <br> (2) The excavated material and any resulting cut bank shall be no greater than 65 percent (1.5:1, horizontal to vertical) from the outside edge of the constructed channel to prevent slumping, to minimize soil erosion and sediment transport, and to prevent significant sediment discharge. Exposed soil located between the watercourse crossing and the nearest adjacent drainage facility or hydrologic divide, whichever is closer, including cut banks and excavated material, shall be stabilized by seeding, mulching, rock armoring, replanting, or other suitable treatment to prevent soil erosion and significant sediment discharge. Due to steep slopes excavated surfaces may end up $>65 \%$ slope at this crossing. |

[^0]NOTE: For purposes of this plan, ECP sites are also consideredSignificant Existing or Potential Erosion Sites (SEPES). SEPES that do NOT have a feasible treatment are NOT considered ECP sites. Thus, they are NOT listed in this table.

Section V, Erosion Control Plan.
Table 1. Inventory and Treatment of Controllable Sediment Sources


NOTE: For purposes of this plan, ECP sites are also consideredSignificant Existing or Potential Erosion Sites (SEPES). SEPES that do NOT have a feasible treatment are NOT considered ECP sites. Thus, they are NOT listed in this table.

Table 1. Inventory and Treatment of Controllable Sediment Sources

${ }^{1}$ Total Volume in Site, volume is estimated in cubic yards ( $<10,10-50,50-100,100-500,500+\mathrm{cy}$ ), and represents how much material is there now, not how much was there to begin with.
${ }^{2}$ Total Potential Delivery, volume estimated in cubic yards of total potential sediment discharge.
${ }^{3}$ The estimated delivery rate, will all go in one shot, will it be metered over time. $1=$ high rate, all can go in one shot regardless of event magnitude. $5=$ low rate, it will meter over time.
4 Indicates the estimated potential for sediment to be delivered to a watercourse. (1) - Will ordinary events meter the material. (5) - Will it take a major event to move material.
A schedule for implementing prevention and minimization management measures for controllable sediment discharge sources. The priority shall be based on the volume of sediment and threat to water quality with the highest priority assigned to the largest sediment discharge sources that discharge to waters that support domestic water supplies or fish. $1=$ Low treatment prioriy. $5=$ High treatment prionity

* NCRWCB Reviewer - These two categories are not required pursuant to the order, however, they have been requested by field staff during review of the THP. These two categories form a significant part of the basis of the implementation priority

NOTE: For purposes of this plan, ECP sites are also consideredSignificant Existing or Potential Erosion Sites (SEPES). SEPES that do NOT have a feasible treatment are NOT considered ECP sites. Thus, they are NOT listed in this table.

Table 1. Inventory and Treatment of Controllable Sediment Sources

| Map <br> Point | Feature | Total Site Volume ${ }^{1}$ | Potential Deliverable Volume ${ }^{2}$ | *Rate of Delivery ${ }^{3}$ | *Potential for Delivery ${ }^{4}$ | mplementation Schedule (Treatment Prioirty) ${ }^{5}$ | Description of Controllable Sediment Source/ Prevention and Minimization Measure (Treatment) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 38 | Watercourse Crossing | 25-50 | 50 | 2 | 3 | 5 | Description: <br> A 48" diameter galvanized culvert drains flow from a Class 2 watercourse across the road at this location. The culvert condition was inspected at the outlet and found to suffer from perforations due to abrasion and rust. This crossing is located as shown on Appurtenant Roads Map 1. |
|  |  |  |  | Displayed on Map: |  |  | Treatment: <br> Install a 48 inch diameter culvert consistent with Standard Construction Diagrams located near the end of THP Section 2. Insure critical dip is in place when this road segment is winterized. |


${ }^{1}$ Total Volume in Site, volume is estimated in cubic yards ( $<10,10-50,50-100,100-500,500+\mathrm{cy}$ ), and represents how much material is there now, not how much was there to begin with.
${ }^{2}$ Total Potential Delivery, volume estimated in cubic yards of total potential sediment discharge.
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NCRWCB Reviewer - These two categories are not required pursuanit to the order, however, they have been requested by field staff during review of the THP. These two categories form a significant part of the basis of the implementation priority

NOTE: For purposes of this plan, ECP sites are also consideredSignificant Existing or Potential Erosion Sites (SEPES). SEPES that do NOT have a feasible treatment are NOT considered ECP sites. Thus, they are NOT listed in this table.

Section V, Erosion Control Plan.
Table 1. Inventory and Treatment of Controllable Sediment Sources


NOTE: For purposes of this plan, ECP sites are also consideredSignificant Existing or Potential Erosion Sites (SEPES). SEPES that do NOT have a feasible treatment are NOT considered ECP sites. Thus, they are NOT listed in this table.

Section V, Erosion Control Plan.
Table 1. Inventory and Treatment of Controllable Sediment Sources

| Map <br> Point | Feature | Total <br> Site <br> Volume ${ }^{1}$ | Potential <br> Deliverable <br> Volume $^{2}$ | *Rate of <br> Delivery $^{3}$ | *Potential <br> for <br> Delivery | Implementation <br> Schedule <br> (Treatment <br> Prioirty) | Des <br> Pre |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 45 | Watercourse <br> Crossing | $25-50$ | 50 | 3 | 2 | 6 | Des |

A 48" diameter galvanized culvert drains flow from a Class 2 watercourse across the road at this location. The culvert condition was inspected and found to suffer from perforations due to abrasion and rust. This crossing is located as shown on Appurtenant Roads Map 1. This crossing is the same as map point 2 in THP 1-18095MEN.

Displayed on Map:

## Treatment:

Install a 60 inch diameter culvert consistent with Standard Construction Diagrams located near the end of THP Section 2. Insure critical dip is in place when this road segment is winterized.
Watercourse
Crossing
road segment is winterized.

[^1]NOTE: For purposes of this plan, ECP sites are also consideredSignificant Existing or Potential Erosion Sites (SEPES). SEPES that do NOT have a feasible treatment are NOT considered ECP sites. Thus, they are NOT listed in this table.

Section V, Erosion Control Plan.

## Table 1. Inventory and Treatment of Controllable Sediment Sources


${ }^{1}$ Total Volume in Site, volume is estimated in cubic yards ( $<10,10-50,50-100,100-500,500+c y$ ), and represents how much material is there now, not how much was there to begin with.
${ }^{2}$ Total Potential Delivery, volume estimated in cubic yards of total potential sediment discharge.
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* NCRWCB Reviewer - These two categories are not required pursuant to the order, however, they have been requested by field staff during review of the THP. These two categories form a significant part of the basis of the implementation priority.

NOTE: For purposes of this plan, ECP sites are also consideredSignificant Existing or Potential Erosion Sites (SEPES). SEPES that do NOT have a feasible treatment are NOT considered ECP sites. Thus, they are NOT listed in this table.

## Implementation Schedule

The following discussion conforms to Section III (D)(3) of the GWDR.
Minimization management measures will be implemented for all identified sites between April 1 and Nov. 15, prior to the completion of operations. If for any reason, unforeseen circumstances, such as inability to obtain required permits from other agencies, or equipment or personnel resource restrictions, prevent us from implementing these measures, then a revised Implementation Schedule for the ECP will be submitted in accordance with Order No. R1-2004-0030, Section IV.R. to the Regional Water Board Executive Officer.

## II. General Prevention and Sediment Prevention Plan

The following discussion conforms to Section III (D)(3) of the GWDR.
Prevention and minimization measures will be implemented concurrent with operations. In addition to the site specific measures detailed in the table above, the general measures proposed within the THP, either per Forest Practice Rules or as a matter of policy will prevent or minimize future sediment delivery.

This THP has been designed to accommodate the landowner's objectives including protecting soil and water quality. The THP has been developed utilizing a strategy that emphasizes additional protection to those mechanisms which directly and potentially affect the beneficial uses of water. Consideration has been given to the silviculture, location, timing, and other factors and management strategies that vary spatially and temporally to meet this strategy. Prevention and minimization measures are specified in the THPs and include, but not limited to, the following (as contained in the THP):

Item $14 i$ - Burning

- No broadcast burning is proposed.

Item 16 - Harvesting Practices

- Tractor yarding is prescribed for gentle to moderate slopes primarily using existing skid trail networks. Steeper slopes will require the use of cable yarding and tractor long-lining.

Item 18 - Soil Stabilization

- Disturbed soils with high delivery potential are stabilized to minimize delivery of sediment.
- Treatment involves application of one or more erosion control materials (e.g., straw mulch, logging slash, brush, etc) to the area requiring soil stabilization ( 90 percent coverage). Preferences for materials and methods include the following:
- On tractor roads, the preferred mulch is slash and brush walked into the trails.
- On logging roads the preferred mulch is placed slash.
- Treatment is completed during the summer months (May 1 through October 15) prior to overland flow across the surface; for the remainder of the year, treatment is completed prior to any day for which there is 30 percent or more chance of rain forecast or within 10 days, whichever is earlier.
- Within WLPZs, ELKs, and EEZs, treatment of traveled surfaces of logging roads will be completed by one or more of the following methods:
- Rocking
- Compacting and draining with water breaks
- Compacting and draining with outsloping and rolling dips
- Insloping with ditch drainage maintenance
- Mulching outer half of drainage facilities
- Drainage facilities will be installed to minimize erosion on skid trails and roads, except where roads are surfaced (rocked) with sufficient cross drains (ditch relief culverts) to minimize erosion. These measures include:
- Waterbreak construction
- Outsloping with rolling dips
- Inside ditches with adequate drainage relief
- Maximum spacing of waterbreaks are based on Erosion Hazard Rating (EHR) and road or trail slope gradient as shown per THP Section 2

Item 21 - Ground Based Equipment Operations

- Where ground-based operations occur in exception of standard Forest Practice Rules, additional mitigations apply.

Item 25 - Roads and Landings

- See THP Section 2 for specific practices to be utilized to minimize potential for road related sediment production.


## Item 26 - Watercourse and Lake Protection Zone Protection Measures

- Watercourses are classified and protection measures are implemented based on the watercourse classification and corresponding beneficial uses.
- Protections range from limited equipment operations to exclusion of all harvest activities.
- Prevention and minimization goals for these zones are primarily to maintain soil stability, minimize soil erosion, and prevent violations of the Basin Plan.
- Equipment used in timber operations will not be serviced in locations where servicing will allow grease, oil, or fuel to pass into lakes or watercourses.
- Tractor road watercourse crossings are strictly limited.


## III. Fuel Management Plan

The following discussion conforms to Section III (E) of the GWDR.
If applicable, a Fuel Management Plan (FMP) will be prepared to protect water quality from the use and storage of petroleum products and to assure that all State and Federal regulations pertaining to the handling and storage of fuel are adhered to during logging operations. An FMP has been prepared, as fuel storage may exceed the 1320 gallons as specified under Section III (E) (1) of the GWDR.

## Fuel Management Plan per Section III (E) (1) of the GWDR

- All State \& Federal regulations pertaining to the storage and handling of fuel must be adhered to during logging operations. These regulations include the California Above Ground Petroleum Storage Act with 1991 amendments and the Environmental Protection Agency regulations on Oil Pollution Prevention (40 CFR 112).
- If a fuel leak occurs, the LTO shall:
- Contact the Plan Submitter by phone at 707-894-4245.
- Contact the local fire department with jurisdiction (911), if a fire hazard occurs.
- Contact the Department of Fish and Game for spills that have the potential to contaminate a watercourse. Contact DFG by phone at 707-944-5544.
- Secondary impermeable containment shall be installed at all refueling/service areas that are regulated by the aforementioned laws and as specified in the Spill Prevention Control and Countermeasure (SPCC) Plan.

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## IV. Inspection and Reporting Plan

To insure proper function of erosion control measures inspections of the plan area will be made. Inspections are required once the startup of timber operations has begun within the THP area. Inspections will be scheduled to include at least the following:

- By November 15 to assure Project areas are secure for the winter;
- After April 1 and before June 15 to assess the effectiveness of erosion control measures and to determine if any new controllable sediment discharge sources have developed.
Inspections will be conducted each year according to the schedule specified above until the Project has been completed and a Notice of Termination has been submitted.

Inspections will include, at a minimum, logging area roads that could discharge sediment, sites and locations addressed in the sediment prevention plan, and controllable sediment discharge sources contained in the ECP. The THP Map shows the location of roads, and other sites which are to be monitored. An annual summary report will be submitted to the Regional Board staff. Inspections will continue through the life the THP and will conclude when CAL FIRE signs the completion report. Inspections will accomplish the following objectives:

- Observe specific sites included in the ECP to ensure that measures to prevent and minimize sediment discharge are functioning as intended.
- Observe all roads in the logging area, and identify and correct new or existing problems that could result in adverse impacts to water quality in a timely manner.

Inspectors will inspect all accessible portions of the road system that have the potential to discharge sediment to watercourses to ensure roads are draining adequately and watercourse crossings are functioning properly and indentify any new sediment production sites that may have developed. Inspectors will note the conditions of erosion control sites and any failures or ineffectiveness of management measures

If any new controllable sediment discharge sources are identified during inspections, prevention and minimization measures will be implemented as soon as is feasible. Equipment, materials, and workers will be mobilized for rapid response to failures and emergencies, and implement, as feasible, emergency management measures depending upon field conditions and worker safety for access. New controllable sediment discharge sources will be evaluated and addressed in accordance with sediment minimization goals.

## Reporting Requirements

An inspection summary report will be submitted to the Executive Officer by June 30th for each year of coverage under the Categorical Waiver and upon termination of coverage. The inspection summary report will include the following information:

- the inspector's name,
- the location of each inspection,
- the title and name of the person submitting the summary report,
- a brief narrative description of observed conditions,
- a description of any new controllable sediment discharge sources identified during inspections or throughout the course of routine timber harvest activities,
- a description of any corrective action taken to prevent and minimize sediment discharge as a result of observations made during the inspections, as well as the date the corrective action was taken,
- a description of prevention and minimization measures contained in the ECP implemented up to the date of submission of the report, the date those measures were implemented, and an evaluation of the effectiveness of those measures,
- a description of situations where management measures have been ineffective and when repairs or design changes will be implemented.

The plan submitter is knowledgeable and competent to evaluate the effectiveness of mitigation measures to be utilized in this ECP. The plan submitter is responsible for reporting and other administration. The persons listed below can respond to any questions or comments related to this project.

Mr. John Bennett
Manager Gualala Redwood Timber LLC
P.O. Box 197

Gualala, CA 95445
707-894-4245




Legal Description Shown on map is Section Township Range all MBD\&M

## Department of Conservation



## Watersheds Mapping



## LIMITS ON USE

The State of California, Department of Conservation's Division of Mines and Geology and the Department of Forestry and Fire Protection make no representations or warranties regarding the accuracy of data or maps. Neither the State nor the Departments shall be liable under any circumstances for any direct, special, incidental, or consequential damages with respect to any claim by any user or third party on account of or arising from the use of data or maps.
Users should cite the Department of Conservation's Division of Mines and Geology and the Department of Forestry and Fire Protection as the original source of the data, but clearly denote cases where the original data have been updated, modified, or in any way altered from the original condition.
There are no restrictions on distribution of the data or reproduction of maps created from the graphics files. However, users are encouraged to refer others to the Department of Conservation's Division of Mines and Geology to acquire the data, in case updated data become available.

## CITATION DATA

Davenport, C.W., 1984, DMG Open-File Report 84-48, Geology and Geomorphic Features Related to Landsliding, Gualala 7.5' Quadrangle, Mendocino County, California Scale 1:24,000

Far North THP
Portion Sections 3, 4, 5, 9, 10, T11N, R15W MDB\&M.
Scale is $1: 20400$


Gualala 7.5 Minute USGS Quadrangle


## Advertising Order Confirmation

| Ad Number |
| :--- |
| 0006485497-01 |

External Ad Number
Color
Pick Up
5-20/20
NOTICE
Summit Forest-
ry is preparing a Timber Harvest Plan (THP)
on private
property which
is located apis ocated approximately the town of Gualala, CA.
The project area drains in-
to the Little
Gualala River. am requesting
information concerning do mestic water supplies, which use these streams and associated tributaries as their source The legal description for the area where timber harvesting is to occur. is as follows: tions $3,4,5,9$, tions $3,4,5,9$,
10, T11N, R15W, M.D.B.M.

Please provide
Please provide
any pertinent within 10 days within the date from the date of this publicamit to: Sum$32290 \begin{aligned} & \text { Forestry, } \\ & \text { Rivers }\end{aligned}$ End Road, Fort Bragg, CA 95437
Product
Ukiah Daily Journal

Production Color

Ad Type Legal Liner

Production Method Production Notes AdBooker

Ad Attributes

Released for Publication

# Summit Forestry 

32290 Rivers End Road

Fort Bragg, CA 95437
(707) 357-0906
summit@men.org

May 18, 2020
«OWNER»
«ADDRESS»
«CITY», «STATE» «ZIP»

## Dear Neighbor,

Summit Forestry is preparing a Timber Harvest Plan (THP) on private property which is located approximately 4 miles north of the town of Gualala, CA. The project area drains into the Little North Fork Gualala River. I am requesting information concerning domestic water supplies, which use this stream and associated tributaries as their source. If you know of any such domestic water supplies please contact me within 10 days of the date on which this letter was postmarked. The legal description for the area where timber harvesting is to occur is as follows: portion of Sections 3, 4, 5, 9, 10, T11N, R15W, M.D.B.M.

A preliminary map of the proposed project area is enclosed for your reference. This notice is being sent to you because you are listed as a landowner within $1000^{\prime}$ downstream or down slope from the proposed harvest area.

Thank you for your cooperation.
Sincerely yours,


Lee Susan
Forester \#2127


# Summit Forestry 

32290 Rivers End Road
Fort Bragg, CA 95437
(707) 357-0906
summit@men.org

July 5, 2020

```
«OWNER»
«ADDRESS»
«CITY», «STATE» «ZIP»
```

Dear Neighbor,
Summit Forestry is preparing a Timber Harvest Plan (THP) on private property which is located approximately 4 miles north of the town of Gualala, CA. The project area drains into the Little North Fork Gualala River and North Fork Gualala River. I am requesting information concerning domestic water supplies, which use this stream and associated tributaries as their source. If you know of any such domestic water supplies please contact me within 10 days of the date on which this letter was postmarked. The legal description for the area where timber harvesting is to occur is as follows: portion of Sections $3,4,5,9,10,14,15,23$, T11N, R15W, M.D.B.M.

A preliminary map of the proposed project area is enclosed for your reference. This notice is being sent to you because you are listed as a landowner within $1000^{\prime}$ downstream or down slope from the proposed harvest area.

Thank you for your cooperation.
Sincerely yours,


Lee Susan
Forester \#2127



Legal Description Shown on map is Section Township Range all MBD\&M


Legal Description Shown on map is Section Township Range all MBD\&M

Requests for Domestic Water Supply Information were sent to the following addresses:

BAILEY DAVID
35501 S HWY 1 \#62
GUALALA, CA 95445

COUNTY OF MENDOCINO
340 Lake Mendocino Drive
Ukiah, CA 95482

MENDOCINO REDWOOD COMPANY LLC
PO BOX 996
UKIAH, CA 95482

## NOTICE OF INTENT TO HARVEST TIMBER

A Timber Harvesting Plan (Plan) or Amendment has been submitted to the California Department of Forestry \& Fire Protection (CAL FIRE). CAL FIRE will be reviewing the proposed timber operation for compliance with State law and rules of the Board of Forestry and Fire Protection. The following briefly describes the proposed timber operation and where and how to get more information. In accordance with the timeline stated under Public Resources Code Section 4582.7 , you may submit written public comments on the Plan or Âmendment for CAL FIRE to consider.

## This notice applies to (select one):

New Timber Harvesting Plan $\square$
Amendment Approved Timber Harvesting Plan

Applicant Information (Timberland Owner(s), Registered Professional Forester who prepared the plan and Plan Submitter should match those listed in the plan or amendment.)

1. The name(s) of the Timberland Owner(s) where timber operations are to occur:

## Gualala Redwood Timber LLC

2. Registered Professional Forester who prepared the plan or amendment: Lee Susan

Registered Professional Forester Phone optional): 707-357-0906
3. The name of the Plan or Amendment Submitter: Gualala Redwood Timber LLC

Project Summary (County, legal description, acres proposed to be harvested and treatments to be used should match those listed in the plan or amendment.)
4. Location of the proposed timber operation (county, legal description, approximate direction \& approximate distance of the timber operation from the nearest community or well-known landmark):
Portion Sections 3, 4, 5, 9, 10, T11N, R15W, MDB\&M.
Additionally, map point work located on appurtenant roads outside the flagged project boundaries will occur in Sections 14, 15, 23, T11N, R15W, MDB\&M as well.

## The plan area is located approximately 4 miles north of the town of Gualala in Mendocino County.

5. The name of, and distance from, the nearest perennial stream and major watercourse flowing through or downstream from the timber operation:
The Little North Fork Gualala River is adjacent to the harvest area.
6. Acres proposed to be harvested: 227
7. The regeneration methods and intermediate treatments to be used:

Group Selection, transition, seed tree removal, Shelterwood removal, clear-cut
POWERLINES: 14 CCR 1032.7(d)(10) \& (e) (provide name and mailing addresses of the utilities for department distribution)
8. Overhead electrical power lines within the plan boundary? (except lines from transformers to service panels) Yes $\square \mathbf{N o} \square$

9 Overhead power lines within 200 feet outside the plan boundary? Yes $\boldsymbol{N} \mathbf{N}$

Public Information: The review times allowed for CAL FIRE to review the proposed timber operation are variable in length, but limited. To ensure CAL FIRE receives your comments please read the following:

The estimated earliest possible date CAL FIRE may APPROVE the Plan or Amendment is:

(This date is 15 calendar days from receipt of the Plan or Amendment by CAL FIRE, except in counties for which special rules have been adopted where the earliest date is 45 calendar days after receipt.)

## NOTE: THE ESTIMATED EARLIEST APPROVAL DATE IS PROBABLY NOT THE ACTUAL APPROVAL DATE.

Normally, a much longer period of time is available for public comment and preparation of CAL FIRE's responses to public comments. Please check with CAL FIRE, prior to the above listed date, to determine the actual date that the public comment period closes.

The public may review, or purchase a copy of, the Plan or Amendment at the CAL FIRE Review Team Office shown below. The cost to obtain a copy is 37 cents for each page, $\$ 2.50$ minimum per request. The cost to obtain a copy of this plan or amendment is: (to be completed by CAL FIRE upon receipt of plan).

Questions or concerns regarding this plan should be directed to the CAL FIRE Review Team Office shown below or emailed to SantaRosaPublicComment@fire.ca.gov for incorporation into an Official Response Document. Please include the plan number on all correspondence.

Forest Practice Program Manager

## CAL FIRE

135 Ridgway Avenue
Santa Rosa, CA 95401
(707) 576-2959

The plan may be viewed online at https://caltreesplans.resources.ca.gov/caltrees/ A map showing the approximate boundary of the THP area, a map legend, and a scale is attached to help in locating where the proposed timber operation is to occur.

For CAL FIRE Use Only
Timber Harvest Plan Number: $\qquad$ Date of Receipt: $\qquad$

300 Foot Adjacent Landowner Mailing List

COUNTY OF MENDOCINO
340 Lake Mendocino Drive
Ukiah, CA 95482

MENDOCINO REDWOOD COMPANY LLC
PO BOX 996
UKIAH, CA 95482

ENDEMANN DONALD STEWART \& HELD
PO BOX 1139
GUALALA, CA 95445

FOGELBERG LAWRENCE E
D61350 BAD HOMBURG VD
GERMANY, CA G0005

WEISS WILLIAM
619 EUCALYPTUS WAY
MILL VALLEY, CA 94941

Pacific Gas \& Electric Co.
Attn: Mark Stewart
4636 Missouri Flat Rd.
Placerville, CA 95667

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1-16-094 MEN "Plum"
November 23, 2016
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Âttachment:<br>Marbled Murrelet (MAMU) Consultation 16-R1-CTP-041-MAMU for<br>"Green Bridge" Habitat Area in Association with<br>Timber Harvesting Plan (THP) 1-16-094 MEN "Plum" in Mendocino County

The marbled murrelet is a small seabird that nests within multistoried canopies on platforms with surface areas at least 4 inches by 4 inches. MAMU are found in trees with large lateral limbs, epicormic branching, epiphytic growth and/or intertwined branching and are often associated with late seral (post-mature) forests and/or trees with late serallike structural characteristics.

The marbled murrelet is listed as State endangered pursuant to Fish and Game Code Section (§)2050 et seq., Federally threatened pursuant to Section 1531, Title 16, United States Code (16 U.S.C) et seq., and is a sensitive species as defined by Title 14, California Code of Regulations ( 14 CCR ), §895.1. This consultation is being conducted pursuant to 14 CCR $\$ 919.11$, which requires consultation with CDFW.

This consultation is in response to potential MAMU nesting habitat observed during the October 17, 2016, pre-harvest inspection of the THP adjacent to the "Green Bridge Habitat Area". The Green Bridge Habitat Area is comprised of several late seral trees and/or tress with late seral characteristics displaying a multistory canopy with large reiterating limbs and epicormic branching providing suitable platforms for MAMU nesting. This small stand of trees is on the Stillman property north of the Green Bridge and along the left (eastern) bank of the North Fork Gualala River (sees Figure A-1). United States Fish and Wildlife Service (USFWS) identified the Green Bridge Habitat Area as potential habitat requiring fechnical assistance for an earlier THP in the area (USFWS letter 1-14-2000-837 dated October 3, 2000).

While the nearest MAMU inland detection occurred along Skaggs Creek Road less than 12 air miles south, southeast of the Green Bridge Habitat Area, numerous observations groups of murrelets numbering as many as 12 have been observed toward the end of the breeding season at the mouth of the Gualala River, approximately 2 air miles west of the Green Bridge Habitat Area. Offshore surveys in 2001 detected up to 26 individual murrelets including at least 1 potential juvenile off the southern Gualala coastline (between the mouth of the Gualala and Sea Ranch less than 4 miles to the south, southeast of Gualala).

## Proposed activities

The THP proposes timber operations (specifically associated with Unit 1) within 300 feet of the Green Bridge Habitat Area. Operations within Unit 1 include use and maintenance of existing permanerit and seasonal appurtenant roads; timber harvesting, and tractor yarding on the existing skid trails. Proposed timber operations within 825 feet of the Green Bridge Habitat. Area include use and maintenance of existing permanent and

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seasonal appurtenant roads, as well as a paved, public road; temporary Class watercourse crossing installation and removal; timber falling; and tractor yarding on the existing skid trail network, as well as other THP related activities.

The RPF indicated the Green Bridge is not to be used because its structure is insufficient to pass large vehicles; such as logging trucks. Instead, the THP proposes to use a temporary crossing below the Green Bridge for heavy equipment ingress/egress for Unit 1.

For the purposes of consultation 16-R1-CTP-041-MAMU, the existing ambient sound level associated with the Green Bridge Habitat Area shall be Moderate ${ }^{7}(71-80 \mathrm{~dB})$ based on the presence of residential traffic crossing the Green Bridge.

Until completed MAMU surveys ${ }^{8}$ result in "no detection" CDFW concurrence is amended to the THP, CDFW recommends the THP include the following MAMU protection measures in Section II, Item 32 of the THP:

1. No vegetation modification shall occur within 300 feet of the Green Bridge Habitat Area (see Figure A-1).
2. Based on the ambient noise level Moderate ${ }^{7}$, during the. MAMU breeding season (March 23 through September 15) take avoidance shall include the following measures:
a. Anticipated project generated sounds exceeding 90 dBs or a "Very High" 9 sound level shall not occur within 330 feet of the Green Bridge Habitat Area during the MAMU breeding season (March 24 through September 15);
b. Anticipated project generated sounds exceeding 90 dBs or a "Very High" ${ }^{9}$ sound level shall not occur within 825 feet of the Green Bridge Habitat Area during the Dawn Period (between 2 hours before sun rise and 2 hours after sunrise) and Dusk Period (between 2 hours before sunset and 2 hours after sunset) within the MAMU breeding season (March 24 through September 15);
c. Anticipated project generated sounds exceeding 100 dBs or a "Extreme" ${ }^{9}$ sound level shall not occur within 825 feet of the Green Bridge Habitat Area during the MAMU breeding season (March 24 through September 15);
[^2]
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d. Anticipated project generated sounds exceeding 100 dBs or a "Extreme" ${ }^{9}$ sound level shall not occur within1,320 feet of the Green Bridge Habitat Area during the Dawn Period (between 2 hours before sun rise and 2 hours after sunrise) and Dusk Period (between 2 hours before sunset and 2 hours after sunset) within the MAMU breeding season (March 24 through September 15).
3. Along the public road and all appurtenant roads within 825 feet of the Green Bridge Habitat Area (see Figure A-2), THP related vehicles shall adhere to the following during the MAMU hesting season (March 24 to September 15):
a. Do not exceed 15 miles per hour within 2 hours prior to dawn and 2 hours after dusk;
b. Restrict stopping to the minimum required in order to safely use public and connecting appurtenant roads;
and
c. Prohibit log load band tightening.

## Year-round protection measures:

4. Workers shall not leave food waste or personal trash within 1,320 feet of the Green Bridge Habitat Area.
5. In the event that a marbled murrelet is found grounded during any activity associated with the THP, CDFW shall be contacted immediately.

Please direct questions or correspondence regarding consultation 16-R1-CTP-041MAMU to Environmental Scientist Adam Hutchins at (707) 964-1980, or E-mail adam.hutchins@wildlife.ca.gov.


Figure A-1. Green Bridge Habitat Area protection buffer:

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Figure A-2. Green Bridge Hablitat Area MAMU breeding season disturbance buffers:







# Timber Harvest Plan 

## APPENDIX

## ADDITIONAL INFORMATION CONCERNING THE NORTHERN SPOTTED OWL

Far North Fork THP<br>Gualala Redwoods Timber, LLC 2020

# FAR NORTH THP <br> NSO WITHIN 0.7 MILES 

## Legend

| ( ${ }_{\text {( })}$ | NSO Activity Center | Road Class |
| :---: | :---: | :---: |
| $x \times x$ | Far North THP Boundary | - Paved Public |
|  | 0.7-Mile Buffer | - Unpaved Public |
|  | Property Boundary | = Private Permanent |
|  | Watercourses | $======$ Private Seasonal |



# FAR NORTH THP <br> NSO SURVEY STATIONS 

June 29, 2020

| Legend |  |
| :---: | :---: |
| * NSO Call Station | Road Class |
| Far North THP Boundary | - Paved Public |
| 0.7-Mile Buffer | - Unpaved Public |
| $\square$ Property Boundary | Private Permanent |
| - Watercourses | ===== Private Seasonal |






coast area
RESOURCE MANAGEMENT

## Legend



## Habitat Type

Nest/Roost
$\square / \lambda$ Forage
$\square$ Unsuitable

## PRE HARVEST HABITAT

## NEST/ROOST FORAGE UNSUITABLE

1818 ACRES 1060 ACRES
664 ACRES


# FAR NORTH THP <br> POST HARVEST NSO HABITAT WITHIN 0.7 MILES 

## Legend

| Far North THP Boundary | Habitat type |
| :---: | :---: |
| 0.7-Mile Buffer | Nest/Roost |
|  | T/ $\lambda$ Forage |
|  | Unsuitable |

## POST HARVEST HABITAT

NEST/ROOST<br>FORAGE<br>UNSUITABLE

1660 ACRES 1198 ACRES 685 ACRES

# FAR NORTH THP <br> PRE HARVEST NSO HABITAT WITHIN 0.7 MILES 




## MEN0212 PRE HARVEST

 HABITAT MAP (0.7 MILE)
## HABITAT TOTALS

| NEST/ROOST | 716 ac. |
| :--- | ---: |
| FORAGE | 54 a. |
| UNSUITABLE | 215 ac. |

TOTALACRES 985 ac .
CORE AREA = 113 ac . $\mathrm{N} / \mathrm{R}$

## Legend

(d) MEN0212 LOCATION

FJCA MEN0212 CORE AREA
$\square 500$ FOOT BUFFER 0.7 MILE BUFFER

FAR NORTH THP BOUNDARY 301

## HABITAT TYPE

## $888 \times$ Nest/Roost

沼:溫 Forage
$\square$


## MEN0212 POST HARVEST

HABITAT MAP (0.7 MILE)

## HABITAT TOTALS

| NEST/ROOST | 596 ac. |
| :--- | :---: |
| FORAGE | 175 ac. |
| UNSUITABLE | 214 ac. |
|  |  |
| TOTALACRES | 985 ac. |
| CORE AREA $=113 \mathrm{ac} . \mathrm{N} / \mathrm{R}$ |  |

## Legend

MEN0212 LOCATION

habitat type
Nest/Roost茾萹 Forage
$\square$ $\square$ Unsuitable


## MEN0212 PRE HARVEST <br> HABITAT MAP (0.7 MILE)

## HABITAT TOTALS

| NEST/ROOST | 716 ac. |
| :--- | ---: |
| FORAGE | 54 ac. |
| UNSUITABLE | 215 ac. |

TOTALACRES 985 ac . CORE AREA = 113 ac. $N / R$

## Legend

(8) MEN0212 LOCATION

MEN0212 CORE AREA
500 FOOT BUFFER
0.7 MILE BUFFER

FAR NORTH THP BOUNDARY
303

## HABITAT TYPE

2 = NEST/ROOST
3 = FORAGE 4 = UNSUITABLE

Report \#1 - Spotted Owl Sites Found
Report Generation Date: 6/28/2020

Known Spotted Owl sites having observations within the search area.

Meridian, Township, Range, Section (MTRS) searched:
M_11N_15W Sections( $01,02,03,04,05,08,09,10,11,12,13,14,15,16,17,20,21,22,23,24,25,26,27,28)$;

| Masterowl | Subspecies | LatDD NAD83 | LonDD NAD83 | MTRS | AC Coordinate <br> Source |
| :--- | :--- | :--- | :--- | :--- | :--- |
| MEN0152 | NORTHERN | 38.830895 | -123.474393 | M 11N 14W 06 | Contributor |
| MEN0153 | NORTHERN | 38.816039 | -123.477813 | M 11N 14W 07 | Contributor |
| MEN0179 | NORTHERN | 38.789914 | -123.504183 | M 11N 15W 23 | Contributor |
| MEN0212 | NORTHERN | 38.824524 | -123.531144 | M 11N 15W 10 | Contributor |
| MEN0213 | NORTHERN | 38.845401 | -123.537464 | M 11N 15W 04 | Contributor |
| MEN0214 | NORTHERN | 38.835599 | -123.518932 | M 11N 15W 03 | Contributor |
| MEN0371 | NORTHERN | 38.806553 | -123.517364 | M 11N 15W 15 | Contributor |
| MEN0383 | NORTHERN | 38.862884 | -123.552799 | M 12N 15W 32 | Contributor |
| MEN0510 | NORTHERN | 38.798709 | -123.480809 | M 11N 15W 13 | Contributor |
| MEN0573 | NORTHERN | 38.838981 | -123.526527 | M 11N 15W 03 | Contributor |
| MEN0587 | NORTHERN | 38.825304 | -123.489656 | M 11N 15W 01 | Contributor |
| MEN0593 | NORTHERN | 38.863523 | -123.569897 | M 12N 15W 31 | Contributor |
| SON0017 | NORTHERN | 38.768938 | -123.476506 | M 11N 14W 30 | Contributor |
| SON0082 | NORTHERN | 38.771471 | -123.505195 | M 11N 15W 26 | Contributor |

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## Report \#2-Observations Reported List of observations reported by site.

Meridian, Township, Range, Section (MTRS) searched:
M_11N_15W Sections(01,02,03,04,05,08,09,10,11,12,13,14,15,16,17,20,21,22,23,24,25,26,27,28);


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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | $\begin{aligned} & \text { Latitude DD } \\ & \text { NAD83 } \end{aligned}$ | $\begin{aligned} & \text { Longitude DD } \\ & \text { NAD83 } \end{aligned}$ | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEG | 1994-08-30 |  | 0 |  |  |  |  | 38.836678 | -123.487923 | $\begin{aligned} & \text { M 11N } 15 W \\ & 01 \end{aligned}$ | Section centroid |
| NEG | 1994-08-31 |  | 0 |  |  |  |  | 38.843745 | -123.469754 | ${ }_{31}^{\mathrm{M}} 12 \mathrm{~N} 14 \mathrm{~W}$ | Section centroid |
| POS | 1995-03-31 | 2145 | 1 | UU |  |  |  | 38.847476 | -123.474295 | $\underset{31}{M} 12 \mathrm{~N} 14 \mathrm{~W}$ | Quarter-section centroid |
| NEG | 1995-04-24 |  | 0 |  |  |  |  | 38.836678 | -123.487923 | M 11N 15W $01$ | Section centroid |
| POS | 1995-07-06 |  | 1 | UU |  |  |  | 38.843564 | -123.483395 | M 11N 15W $01$ | Quarter-section centroid |
| NEG | 1995-07-10 |  | 0 |  |  |  |  | 38.836678 | -123.487923 | M 11N 15W $01$ | Section centroid |
| NEG | 1995-07-13 |  | 0 |  |  |  |  | 38.836678 | -123.487923 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 01 \end{aligned}$ | Section centroid |
| POS | 1995-07-17 |  | 1 | UU |  |  |  | 38.843564 | -123.483395 | M 11N 15W $01$ | Quarter-section centroid |
| POS | 1995-07-31 |  | 1 | UU |  |  |  | 38.843564 | -123.483395 | $\begin{aligned} & \text { M 11N } 15 W \\ & 01 \end{aligned}$ | Quarter-section centroid |
| NEG | 1995-08-01 | 1200 | 0 |  |  |  |  | 38.843564 | -123.483395 | $\begin{aligned} & \text { M 11N } 15 W \\ & 01 \end{aligned}$ | Quarter-section centroid |
| POS | 1996-02-12 |  | 1 | UU |  |  |  | 38.843564 | -123.483395 | $\begin{aligned} & \text { M 11N } 15 W \\ & 01 \end{aligned}$ | Quarter-section centroid |
| NEG | 1996-06-05 |  | 0 |  |  |  |  | 38.836678 | -123.487923 | $\begin{aligned} & \text { M 11N } 15 W \\ & 01 \end{aligned}$ | Section centroid |
| POS | 1996-07-31 |  | 1 | UU |  |  |  | 38.843888 | -123.487903 | $\begin{aligned} & \text { M 11N 15W } \\ & 01 \end{aligned}$ | Half-section centroid |
| POS | 1996-08-23 |  | 2 | UUUU |  |  |  | 38.843888 | -123.487903 | M 11N 15W 01 | Half-section ${ }^{*}$ centroid |
| POS | 1997-02-24 | 9999 | 1 | UU |  | - |  | $38.843564$ | -123.483395 | $\begin{aligned} & \text { M 11N } 15 W \\ & 01 \end{aligned}$ | Quarter-section centroid |
| POS | 1997-02-24 |  | 1 | UU |  |  |  | 38.844667 | -123.501736 | M.11N 15W 02 | Quarter-section centroid |
| POS | 1997-03-01 |  | 1 | UM |  |  |  | 38.844202 | -123.492411 | $\begin{aligned} & M 11 N 15 W \\ & 01 \end{aligned}$ | Quarter-section centroid |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | $\begin{aligned} & \text { Latitude DD } \\ & \text { NAD83 } \end{aligned}$ | $\begin{aligned} & \text { Longitude DD } \\ & \text { NAD83 } \end{aligned}$ | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| POS | 2002-04-08 | 2258 | 1 | UU |  |  |  | 38.840566 | -123.476648 | $\underset{31}{M} 12 \mathrm{~N} 14 \mathrm{~W}$ | Contributor |
| POS | 2002-04-09 | 2130 | 1 | UM |  |  |  | 38.836678 | -123.487923 | $\mathrm{M}_{01}^{\mathrm{M}} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| NEG | 2002-04-09 | 2355 | 0 |  |  |  |  | 38.836678 | -123.487923 | ${ }_{01}^{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| NEG | 2002-04-10 | 1415 | 0 |  |  |  |  | 38.836678 | -123.487923 | $\begin{aligned} & \mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W} \\ & 01 \end{aligned}$ | Section centroid |
| NEG | 2002-04-20 | 2137 | 0 |  |  |  |  | 38.840060 | -123.465144 | $\begin{gathered} \text { M 12N } 14 W \end{gathered}$ | Quarter-section centroid |
| NEG | 2002-04-20 | 2137 | 0 |  |  |  |  | 38.836678 | -123.487923 | $\begin{aligned} & \text { M } 11 \text { N } 15 W \\ & 01 \end{aligned}$ | Section centroid |
| POS | 2002-04-21 | 2338 | 1 | UM |  |  |  | 38.836678 | -123.487923 | M 11N 15W 01 | Section centroid |
| $\omega^{\text {POS }}$ | 2002-04-21 | 2219 | 1 | UF |  |  |  | 38.836678 | -123.487923 | M 11N 15W 01 | Section centroid |
| - POS | 2002-04-22 |  | 2 | UMUF | Y |  |  | 38.829496 | -123.492240 | $\underset{01}{\text { M 11N } 15 W}$ | Quarter-section centroid |
| NEG | 2002-06-29 | 0012 | 0 |  |  |  |  | 38.829383 | -123.469233 | M 11N 14W 06 | Section centroid |
| POS | 2002-07-13 | 0148 | 1 | UM |  |  |  | 38.829593 | -123.467377 | M 11N 14W 06 | Contributor |
| POS | 2002-07-14 | $\begin{aligned} & 1245- \\ & 1340 \end{aligned}$ | 2 | UMUF | Y |  |  | 38.832478 | -123.468279 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 14 \mathrm{~W} \\ & 06 \end{aligned}$ | Contributor |
| NEG | 2003-03-11 | $\begin{aligned} & 1345- \\ & 1645 \end{aligned}$ | 0 |  |  |  |  | 38.832951 | -123.464844 | $\begin{aligned} & \text { M 11N 14W } \\ & 06 \end{aligned}$ | Quarter-section centroid |
| NEG | 2003-04-11 | $\begin{aligned} & 1630- \\ & 1940 \end{aligned}$ | 0 |  |  |  |  | 38.832951 | -123.464844 | $\begin{aligned} & \text { M 11N 14W } \\ & 06 \end{aligned}$ | Quarter-section centroid |
| NEG | 2003-05-19 | $\begin{aligned} & 1735- \\ & 2000 \end{aligned}$ | 0 |  |  | - |  | 38.832951 | -123.464844 | $\begin{aligned} & \text { M 11N 14W } \\ & 06 \end{aligned}$ | Quarter-section centroid |
| NEG | 2003-06-10 | '2121 | 0 |  |  |  |  | 38:829383 | -123.469233 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 14 \mathrm{~W} \\ & 06 \end{aligned}$ | Section centroid |
| NEG | 2003-06-26 | $\begin{aligned} & 1810- \\ & 2030 \end{aligned}$ | 0 |  |  |  |  | 38.833030 | -123.469480 | $\begin{aligned} & \text { M 11N 14W } \\ & 06 \end{aligned}$ | Half-section centroid |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude DD NAD83 | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEG | 2007-06-26 | 2311 | 0 |  |  |  |  | 38.832672 | -123.455533 | $\begin{aligned} & \text { M 11N } 14 \mathrm{~W} \\ & 05 \end{aligned}$ | Quarter-section centroid |
| POS | 2008-03-22 | 1915 | 2 | AMAF | Y |  |  | 38.833103 | -123.474119 | $\begin{aligned} & \text { M 11N 14W W } \\ & 06 \end{aligned}$ | Quarter-section centroid |
| POS | 2008-03-29 | 1954 | 1 | UU |  |  |  | 38.833103 | -123.474119 | M 11N 14W | Quarter-section centroid |
| POS | 2008-05-17 | 2152 | 2 | AMAF | Y |  |  | 38.830905 | -123.471858 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 14 \mathrm{~W} \\ & 06 \end{aligned}$ | Contributor |
| NEG | 2011 | 2400 | 0 |  |  |  |  | 38.839708 | -123.494326 | M 11N 15W 01 | Contributor |
| NEG | 2011 | 2400 | 0 |  |  |  |  | 38.832850 | -123.488601 | M 11N 15W $01$ | Contributor |
| NEG | 2011-03-04 | $\begin{aligned} & 1910- \\ & 1920 \end{aligned}$ | 0 |  |  |  |  | 38.830594 | -123.482424 | M 11N 15 W | Contributor |
| NEG | 2011-04-01 | $\begin{aligned} & 2357- \\ & 0007 \end{aligned}$ | 0 |  |  |  |  | 38.830594 | -123.482424 | $\begin{aligned} & \text { M 11N } 15 W \\ & 01 \end{aligned}$ | Contributor |
| POS | 2011-04-01 | $\begin{aligned} & 1530- \\ & 1700 \end{aligned}$ | 1 | UM |  |  |  | 38.829383 | -123.469233 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 14 \mathrm{~W} \\ & 06 \end{aligned}$ | Section centroid |
| POS | 2015 |  | 1 | UU |  |  |  | 38.833466 | -123.466257 | $\begin{aligned} & \text { M } 11 \text { N } 14 W \\ & 06 \end{aligned}$ | Activity center |
| Masterowl: MEN0153 Subspecies: NORTHERN |  |  |  |  |  |  |  |  |  |  |  |
| POS | 1990-06-01 |  | 1 | UU |  |  |  | 38.811279 | -123.473756 | $\begin{aligned} & \text { M 11N } 14 W \\ & 07 \end{aligned}$ | Quarter-section centroid |
| NEG | 1990-07-24 |  | 0 |  |  |  |  | 38.808449 | -123.476202 | $\begin{aligned} & \text { M 11N } 14 W \\ & 07 \end{aligned}$ | Activity center |
| POS | 1990-07-30 |  | 1 | UM |  |  |  | 38.809818 | -123.471950 | $\begin{aligned} & \text { M 11N } 14 W \\ & 07 \end{aligned}$ | Contributor |
| POS | 1990-07-31 |  | 1 | UM |  |  |  | 38.809818 | -123.471950 | $\begin{aligned} & \text { M 11N } 14 W \mathrm{~W} \\ & 07 \end{aligned}$ | Contributor |
| NEG | 1990-08-07 |  | 0 |  |  |  | - | 38.808449 | -123.476202 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 14 \mathrm{~W} \\ & 07 \end{aligned}$ | Activity center |
| NEG | 1990-08-20 |  | 0 |  |  |  |  | 38.808449 | -123.476202 | $\begin{aligned} & \text { M 11N } 14 W \\ & 07 \end{aligned}$ | Activity center |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude DD NAD83 | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| POS | 1996-06-01 |  | 1 | UU |  |  |  | 38.811279 | -123.473756 | $\underset{07}{\text { M 11N } 14 W}$ | Quarter-section centroid |
| POS | 1996-06-01 |  | 2 | UMUF | Y |  |  | 38.811279 | -123.473756 | $\begin{aligned} & \mathrm{M} 11 \mathrm{~N} 14 \mathrm{~W} \\ & 07 \end{aligned}$ | Quarter-section centroid |
| POS | 1996-06-11 |  | 1 | UU |  |  |  | 38.818714 | -123.473702 | $\underset{07}{\text { M 11N } 14 W}$ | Quarter-section centroid |
| NEG | 1996-06-12 | 1200 | 0 |  |  |  |  | 38.814840 | -123.468861 | $\begin{aligned} & \text { M 11N 14W } \\ & 07 \end{aligned}$ | Section centroid |
| NEG | 1996-06-25 |  | 0 |  |  |  |  | 38.814840 | -123.468861 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 14 \mathrm{~W} \\ & 07 \end{aligned}$ | Section centroid |
| NEG | 1997-02-24 |  | 0 |  |  |  |  | 38.814840 | -123.468861 | $\underset{07}{\mathrm{M} 11 \mathrm{~N} 14 \mathrm{~W}}$ | Section centroid |
| NEG | 1997-03-12 |  | 0 |  |  |  |  | 38.800499 | -123.487642 | $\begin{aligned} & \text { M 11N } 15 W \end{aligned}$ | Section centroid |
| POS | 1997-03-12 |  | 1 | UU |  |  |  | 38.818714 | -123.473702 | $\begin{aligned} & \text { M 11N } 14 W \\ & 07 \end{aligned}$ | Quarter-section centroid |
| NEG | 1997-03-17 |  | 0 |  |  |  |  | 38.814840 | -123.468861 | $\begin{aligned} & \text { M 11N 14W } \\ & 07 \end{aligned}$ | Section centroid |
| POS | 1997-03-22 |  | 1 | UU |  |  |  | 38.818714 | -123.473702 | $\begin{aligned} & \text { M 11N 14W } \\ & 07 \end{aligned}$ | Quarter-section centroid |
| POS | 1997-03-24 |  | 1 | UU |  |  |  | 38.811279 | -123.473756 | $\begin{aligned} & \text { M 11N 14W } \\ & 07 \end{aligned}$ | Quarter-section centroid |
| POS | 1997-03-25 |  | 1 | UU |  |  |  | 38.811279 | -123.473756 | $\begin{aligned} & \text { M 11N 14W } \\ & 07 \end{aligned}$ | Quarter-section centroid |
| POS | 1997-03-27 |  | 1 | UU |  |  |  | 38.811279 | -123.473756 | $\begin{aligned} & \text { M 11N } 14 W \\ & 07 \end{aligned}$ | Quarter-section centroid |
| POS | 1997-04-15 |  | 1 | UU |  |  |  | $38.811279$ | -123.473756 | $\begin{aligned} & \text { M 11N 14W } \\ & 07 \end{aligned}$ | Quarter-section centroid |
| POS | 1997-05-27 |  | 1 | UU |  |  |  | 38.811279 | -123.473756 | $\begin{aligned} & \text { M 11N } 14 W \\ & 07 \end{aligned}$ | Quarter-section centroid |
| NEG | 1997-07-14 |  | 0 |  |  |  |  | 38.829383 | -123.469233 | $\begin{aligned} & \text { M 11N 14W } \\ & 06 \end{aligned}$ | Section centroid |
| NEG | 1997-07-29 |  | 0 |  |  |  |  | 38.814840 | -123.468861 | M 11N 14W 07 | Section centroid |



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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude DD <br> NAD83 | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEG | 1999-05-23 | 1500 | 0 |  | $\checkmark$ |  |  | 38.814840 | -123.468861 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 14 \mathrm{~W} \\ & 07 \end{aligned}$ | Section centroid |
| NEG | 1999-06-17 | 1849 | 0 |  |  |  |  | 38.814840 | -123.468861 | $\begin{aligned} & \text { M 11N } 14 W \\ & 07 \end{aligned}$ | Section centroid |
| NEG | 2000 |  | 0 |  |  |  |  | 38.816039 | -123.477813 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 14 \mathrm{~W} \\ & 07 \end{aligned}$ | Activity center |
| POS | 2000-04-04 | 2106 | 1 | UM |  |  |  | 38.818748 | -123.483101 | ${ }_{12}^{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Quarter-section centroid |
| POS | 2000-04-14 | 2208 | 1 | UU |  |  |  | 38.818566 | -123.492165 | ${ }_{12}^{\mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W}}$ | Quarter-section centroid |
| NEG | 2000-06-06 | 1900 | 0 |  |  |  |  | 38.814840 | -123.468861 | $\underset{07}{\text { M } 11 \text { N } 14 W}$ | Section centroid |
| POS | 2001-03-11 | 2042 | 1 | UF |  |  |  | 38.818748 | -123.483101 | ${ }_{12}^{M 11 N} 15 W$ | Quarter-section centroid |
| NEG | 2001-03-14 | 1830 | 0 |  |  |  |  | 38.815034 | -123.487614 | ${ }_{12}^{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| NEG | 2001-04-01 | 2017 | 0 |  |  |  |  | 38.815034 | -123.487614 | $\begin{aligned} & \text { M 11N } 15 W \\ & 12 \end{aligned}$ | Section centroid |
| NEG | 2001-05-15 | 2234 | 0 |  |  |  |  | 38.815034 | -123.487614 | ${ }_{12}^{M 11 N 15 W}$ | Section centroid |
| POS | 2001-07-19 | 2253 | 1 | UM |  |  |  | 38.802051 | -123.455810 | $\mathrm{M}_{17} 11 \mathrm{~N} 14 \mathrm{~W}$ | Contributor |
| POS | 2002-04-21 | 2209 | 1 | UM |  |  |  | 38.811908 | -123.492765 | $M_{12} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| POS | 2002-04-22 | 0041 | 1 | UM |  |  |  | 38.808020 | -123.477521 | $\begin{aligned} & \text { M 11N 14W } \\ & 07 \end{aligned}$ | Contributor |
| NEG | 2003 |  | 0 |  |  |  |  | 38.816039 | -123.477813 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 14 \mathrm{~W} \\ & 07 \end{aligned}$ | Activity center |
| POS | 2003-05-15 | 2145 | 1 | UM |  |  |  | 38.820912 | -123.466396 | $\begin{aligned} & \text { M 11N 14W } \\ & 07 \end{aligned}$ | Contributor |
| POS | 2003-06-26 | 2242 | 1 | UU |  |  |  | 38.811902 | -123.478655 | $M_{12}^{M 11 N 15 W}$ | Contributor |
| NEG | 2003-06-27 | 1200 | 0 |  |  |  |  | 38.811279 | -123.473756 | $\begin{aligned} & \text { M 11N 14W } \\ & 07 \end{aligned}$ | Contributor |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude DD <br> NAD83 | Longitude DD <br> NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEG | 2003-07-02 | $\begin{aligned} & 1805- \\ & 2025 \end{aligned}$ | 0 |  |  |  |  | 38.811279 | -123.473756 | ${ }_{07}^{\text {M 11N } 14 W}$ | Contributor |
| NEG | 2003-07-11 | $\begin{aligned} & 1730- \\ & 2100 \end{aligned}$ | 0 |  |  |  |  | 38.811279 | -123.473756 | $\underset{07}{\text { M 11N 14W }}$ | Quarter-section centroid |
| NEG | 2004 |  | 0 |  |  |  |  | 38.816039 | -123.477813 | $\underset{07}{\mathrm{M} 11 \mathrm{~N} 14 \mathrm{~W}}$ | Activity center |
| POS | 2004-06-17 | 1745 | 1 | UM |  |  |  | 38.816780 | -123.477960 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 14 \mathrm{~W} \\ & 07 \end{aligned}$ | Contributor |
| NEG | 2004-06-18 | $\begin{aligned} & 1155- \\ & 1505 \end{aligned}$ | 0 |  |  |  |  | 38.818711 | -123.473702 | $\begin{aligned} & \text { M 11N 14W } \\ & 07 \end{aligned}$ | Quarter-section centroid |
| NEG | 2004-06-25 | $\begin{aligned} & 1435- \\ & 1630 \end{aligned}$ | 0 |  |  |  |  | 38.818711 | -123.473702 | $\underset{07}{\mathrm{M}} 11 \mathrm{~N} 14 \mathrm{~W}$ | Quarter-section centroid |
| NEG | 2005 |  | 0 |  |  |  |  | 38.816039 | -123.477813 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 14 \mathrm{~W} \\ & 07 \end{aligned}$ | Activity center |
| NEG | 2005-07-09 | $\begin{aligned} & 0920- \\ & 1145 \end{aligned}$ | 0 |  |  | - |  | 38.818711 | -123.473702 | $\begin{aligned} & \text { M } 11 \text { N } 14 W \\ & 07 \end{aligned}$ | Quarter-section centroid |
| POS | 2005-07-27 | $\begin{aligned} & 1305- \\ & 1350 \end{aligned}$ | 1 | UM |  |  |  | 38.820640 | -123.478260 | $\begin{aligned} & \text { M 11N 14W } \\ & 07 \end{aligned}$ | Contributor |
| POS | 2005-07-28 | $\begin{aligned} & 1250- \\ & 1510 \end{aligned}$ | 2 | UMUF | Y |  |  | 38.820080 | -123.477890 | $\begin{aligned} & \text { M 11N 14W } \\ & 07 \end{aligned}$ | Contributor |
| POS | 2006 |  | 1 | UU |  |  |  | 38.816193 | -123.477521 | $\begin{aligned} & \mathrm{M} 11 \mathrm{~N} 14 \mathrm{~W} \\ & 07 \end{aligned}$ | Contributor |
| POS | 2006-05-26 | $\begin{aligned} & 1305- \\ & 1350 \end{aligned}$ | 1 | UU |  |  |  | 38.816300 | -123.478560 | $\begin{aligned} & \text { M 11N 14W } \\ & 07 \end{aligned}$ | Contributor |
| POS | 2007 |  | 1 | UU |  |  |  | 38.816521 | -123.485471 | ${ }_{12}^{\mathrm{M}} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| POS | 2007-04-06 | 2103 | 1 | UM |  |  |  | 38.818748 | -123.483101 | ${ }_{12}^{M 11 N 15 W}$ | Quarter-section centroid |
| POS | 2007-05-17 | 1900 | 2 | UMUF | Y | N | 0 | 38.816882 | $-123.485358$ | $\begin{aligned} & \text { M 11N } 15 W \end{aligned}$ | Contributor |
| POS | 2008 . |  | 1 | UU |  |  |  | 38.816521 | -123.485471 | $\begin{aligned} & \text { M 11N } 15 W \\ & \hline 12 \end{aligned}$ | Contributor |
| POS | 2008 |  | 2 | UMUF | Y |  |  | 38.816039 | -123.477813 | M 11N 14W 07 | Activity center |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude DD <br> NAD83 | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEG | 2008-03-22 | 0033 | 0 |  |  |  |  | 38.811279 | -123.473756 | M 11N 14W $07$ | Quarter-section centroid |
| NEG | 2008-03-29 | 2333 | 0 |  |  |  |  | 38.811279 | -123.473756 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 14 \mathrm{~W} \\ & 07 \end{aligned}$ | Quarter-section centroid |
| POS | 2008-03-29 | 1800 | 2 | AMAF | Y |  |  | 38.818748 | -123.483101 | ${ }_{12}^{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Quarter-section centroid |
| POS | 2008-05-17 | 1730 | 2 | AMAF | Y | N |  | 38.818748 | -123.483101 | ${ }_{12}^{\mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W}}$ | Quarter-section centroid |
| NEG | 2008-05-17 | 2222 | 0 |  |  |  |  | 38.811279 | -123.473756 | ${ }_{07}^{\mathrm{M}} 11 \mathrm{~N} 14 \mathrm{~W}$ | Quarter-section centroid |
| POS | 2009 |  | 2 | UMUF | Y |  |  | 38.816039 | -123.477813 | $\begin{aligned} & \mathrm{M} 11 \mathrm{~N} 14 \mathrm{~W} \\ & 07 \end{aligned}$ | Activity center |
| POS | 2009 |  | 1 | UU |  |  |  | 38.816521 | -123.485471 | $M_{12}^{M 11 N 15 W}$ | Contributor |
| w POS | 2009-04-06 | 2046 | 1 | AM |  |  |  | 38.818748 | -123.483101 | ${ }_{12}^{\mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W}}$ | Quarter-section centroid |
| - POS | 2009-04-13 | 2039 | 1 | AM |  |  |  | 38.818748 | -123.483101 | $\begin{aligned} & \text { M } 11 \text { N } 15 \mathrm{~W} \\ & \hline 12 \end{aligned}$ | Quarter-section centroid |
| POS | 2009-05-19 | 2220 | 1 | UU |  |  |  | 38.808449 | -123.476202 | $\text { M } 11 \mathrm{~N} 14 \mathrm{~W}$ $07$ | Contributor |
| POS | 2009-05-20 | 1830 | 2 | AMAF | Y | Y |  | 38.814452 | -123.484535 | ${ }_{12}^{M 11 N 15 W}$ | Contributor |
| POS | 2009-05-20 | 1900 | 1 | AM |  |  |  | 38.808449 | -123.476202 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 14 \mathrm{~W} \\ & 07 \end{aligned}$ | Contributor |
| POS | 2010 |  | 2 | UMUF | Y | Y | 1 | 38.816039 | -123.477813 | $\underset{07}{\mathrm{M}} 11 \mathrm{~N} 14 \mathrm{~W}$ | Activity center |
| NEG | 2011 | 2400 | 0 |  |  |  |  | 38.808166 | -123.467577 | $\begin{aligned} & \mathrm{M} 11 \mathrm{~N} 14 \mathrm{~W} \\ & 07 \end{aligned}$ | Contributor |
| NEG | 2011-03-04 | $\begin{aligned} & 2021- \\ & 2131 \end{aligned}$ | 0 |  |  |  |  | 38.811902 | -123.478655 | M 11N 15W 12 | Contributor |
| NEG | 2011-03-04 | $\begin{aligned} & 2007- \\ & 2017 \end{aligned}$ | 0 |  |  |  |  | 38.812310 | -123.483878 | ${ }_{12}^{M 11 N 15 W}$ | Contributor |
| NEG | 2011-03-04 | $\begin{aligned} & 2158- \\ & 2208 \end{aligned}$ | 0 |  |  |  |  | 38.808020 | -123.477521 | $\begin{aligned} & \text { M 11N 14W } \\ & 07 \end{aligned}$ | Contributor |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | $\begin{aligned} & \text { Latitude DD } \\ & \text { NAD83 } \end{aligned}$ | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEG | 2011-03-04 | $\begin{aligned} & 1830- \\ & 1840 \end{aligned}$ | 0 |  |  |  |  | 38.823126 | -123.482633 | $\begin{aligned} & \text { M 11N 15W } \\ & 01 \end{aligned}$ | Contributor |
| POS | 2011-03-04 | $\begin{aligned} & 1800- \\ & 1806 \end{aligned}$ | 2 | UMUF | Y |  |  | 38.817403 | -123.481531 | $\begin{aligned} & \text { M 111N } 15 W \\ & 12 \end{aligned}$ | Contributor |
| POS | 2011-03-04 |  | 2 | UMUF | Y |  |  | 38.816039 | -123.477813 | $\begin{aligned} & \text { M 11N 14W } \\ & 07 \end{aligned}$ | Activity center |
| POS | 2011-04-02 | $\begin{aligned} & 0830- \\ & 1000 \end{aligned}$ | 2 | UMUF | Y |  |  | 38.814840 | -123.468861 | $\begin{aligned} & \text { M 11N } 14 W \\ & 07 \end{aligned}$ | Section centroid |
| POS | 2011-04-03 | $\begin{aligned} & 1845- \\ & 1854 \end{aligned}$ | 1 | UM |  |  |  | 38.808020 | -123.477521 | $\underset{07}{\text { M } 11 \text { N } 14 W}$ | Contributor |
| NEG | 2011-05-12 | $\begin{aligned} & 2345- \\ & 2355 \end{aligned}$ | 0 |  |  |  |  | 38.808020 | -123.477521 | $\begin{aligned} & \text { M 11N 14W } \\ & 07 \end{aligned}$ | Contributor |
| POS | 2011-05-12 | $\begin{aligned} & 1700- \\ & 1800 \end{aligned}$ | 1 | UF |  | Y |  | 38.814840 | -123.468861 | $\begin{aligned} & \text { M 11N 14W } \\ & 07 \end{aligned}$ | Section centroid |
| $\begin{aligned} & \mathbf{W} \\ & \mathbf{N} \\ & \mathbf{N} \end{aligned}$ | 2012-03-07 | $\begin{aligned} & 1000- \\ & 1100 \end{aligned}$ | 1 | UM |  |  |  | 38.815034 | -123.487614 | $\begin{aligned} & \text { M 11N } 15 \mathrm{~W} \\ & 12 \end{aligned}$ | Section centroid |
| NEG | 2012-03-25 | $\begin{aligned} & 1700- \\ & 1900 \end{aligned}$ | 0 |  |  |  |  | 38.814840 | -123.468861 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 14 \mathrm{~W} \\ & 07 \end{aligned}$ | Section centroid |
| POS | 2012-04-01 | $\begin{aligned} & 1700- \\ & 1900 \end{aligned}$ | 2 | UMUF | Y |  |  | 38.814840 | -123.468861 | $\begin{aligned} & \text { M 11N 14W } \\ & 07 \end{aligned}$ | Section centroid |
| AC | 2012-04-27 | $\begin{aligned} & 1700- \\ & 1745 \end{aligned}$ | 1 | UF |  | Y |  | 38.816039 | -123.477813 | $\begin{aligned} & \text { M 11N } 14 W \\ & 07 \end{aligned}$ | Contributor |
| POS | 2012-07-04 | $\begin{aligned} & 1600- \\ & 1700 \end{aligned}$ | 1 | UF |  |  | 1 | 38.816039 | -123.477813 | $\begin{aligned} & \text { M 11N 14W } \\ & 07 \end{aligned}$ | Activity center |
| POS | 2014 |  | 1 | UM |  |  |  | 38.816039 | -123.477813 | $\begin{aligned} & \text { M 11N 14W } \\ & 07 \end{aligned}$ | Activity center |
| POS | 2015 |  | 1 | UU |  |  |  | 38.808264 | -123.475953 | $\begin{aligned} & \text { M 11N 14W } \\ & 07 \end{aligned}$ | Activity center |
| Masterowl: MEN0179 Subspecies NORTHERN |  |  |  |  |  |  |  |  |  |  |  |
| NEG | 1990-04-16 |  | 0 |  |  |  |  | 38.786442 | -123.506602 | $\underset{23}{M} 11 N 15 W$ | Section centroid |
| POS | 1990-04-16 |  | 2 | UMUF | Y |  |  | 38.796858 | -123.487652 | M 11N 15W 13 | Half-section centroid |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude DD <br> NAD83 | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| POS | 1990-06-01 |  | 2 | UMUF | Y |  |  | 38.789665 | -123.492370 | M11N15W 24 | Quarter-section centroid |
| NEG | 1990-06-17 |  | 0 |  |  |  |  | 38.786442 | -123.506602 | $\begin{aligned} & \text { M 11N } 15 W \\ & 23 \end{aligned}$ | Section centroid |
| NEG | 1990-07-07 |  | 0 |  |  |  |  | 38.786442 | -123.506602 | $\begin{aligned} & \text { M 11N } 15 W \\ & 23 \end{aligned}$ | Section centroid |
| NEG | 1990-07-19 |  | 0 |  |  |  |  | 38.786442 | -123.506602 | ${ }_{23}^{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| NEG | 1991-01-25 | 0630 | 0 |  |  |  |  | 38.790188 | -123.511441 | $\underset{23}{M 11 N 15 W}$ | Quarter-section centroid |
| NEG | 1991-01-29 | 1800 | 0 |  |  |  |  | 38.790188 | -123.511441 | ${ }_{23}^{M 11 N 15 W}$ | Quarter-section centroid |
| NEG | 1991-01-31 |  | 0 |  |  |  |  | 38.796947 | -123.492351 | $\begin{aligned} & \text { M } 11 \text { N } 15 \mathrm{~W} \\ & 13 \end{aligned}$ | Quarter-section centroid |
| $\begin{aligned} & w^{\text {POS }} \\ & N \end{aligned}$ | 1991-02-15 | 0700 | 1 | UU |  |  |  | 38.797150 | -123.501841 | M 11 N 15W 14 | Quarter-section centroid |
| W NEG | 1991-02-18 | 0800 | 0 |  |  |  |  | 38.786442 | -123.506602 | $\underset{23}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| NEG | 1991-02-22 | 0100 | 0 | . |  |  |  | 38.790188 | -123.511441 | M 11N 15W 23 | Quarter-section centroid |
| NEG | 1991-03-14 | 1830 | 0 |  |  |  |  | 38.786442 | -123.506602 | M 11N 15W 23 | Section centroid |
| NEG | 1991-04-10 | 1200 | 0 |  |  |  |  | 38.796947 | -123.492351 | M 11N 15W 13 | Quarter-section centroid |
| POS | 1991-04-22 | 0630 | 2 | UUUU |  |  |  | 38.789665 | -123.492370 | M11N15W <br> 24 | Quarter-section centroid |
| NEG | 1991-05-15 |  | 0 |  |  |  |  | 38.784542 | -123.504136 | M 11N 15W 23 | Activity center |
| POS | 1991-05-22 |  | 2 | UMUF . | $\cdot \mathrm{Y}$ |  |  | 38.789665 | -123.492370 | $\underset{24}{\mathrm{M}} 11 \mathrm{~N} 15 \mathrm{~W}$ | Quarter-section centroid |
| POS | 1991-05-23 |  | 2 | UMUF | Y | Y |  | 38.792341 | -123.496234 | M 11N 15W 24 | Contributor |
| POS | 1991-05-29 | 1625 | 2 | UMUF | Y | Y |  | 38.792341 | -123.496234 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 24 \end{aligned}$ | Contributor |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude DD <br> NAD83 | Longitude $D D$ NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| POS | 1991-06-01 |  | 2 | UMUF | Y |  | 1 | 38.789665 | -123.492370 | M 11N 15W 24 | Quarter-section centroid |
| POS | 1991-07-08 | 1722 | 1 | UM | Y | Y | 2 | 38.792341 | -123.496234 | M 11N 15W 24 | Contributor |
| POS | 1991-11-04 | 2044 | 1 | UF |  |  |  | 38.789665 | -123.492370 | $\underset{24}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Quarter-section centroid |
| POS | 1991-11-10 | 1755 | 2 | UMUF | Y |  |  | 38.789665 | -123.492370 | $\begin{aligned} & \text { M 11N 15W } \\ & 24 \end{aligned}$ | Quarter-section centroid |
| POS | 1992-03-13 |  | 1 | UU |  |  |  | 38.800879 | -123.506508 | $\begin{aligned} & \text { M 11N } 15 W \\ & 14 \end{aligned}$ | Section centroid |
| POS | 1992-05-08 |  | 2 | UMUF | Y | $N$ |  | 38.789922 | -123.501894 | $\underset{23}{\mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W}}$ | Quarter-section centroid |
| POS | 1992-06-01 |  | 2 | UMUF | Y |  |  | 38.789665 | -123.492370 | ${ }_{24}^{\mathrm{M}} 11 \mathrm{~N} 15 \mathrm{~W}$ | Quarter-section centroid |
| W POS $N$ | 1992-06-04 |  | 2 | UMUF | Y |  |  | 38.790055 | -123.506662 | ${ }_{23}^{M} 11 \mathrm{~N} 15 \mathrm{~W} .$ | Half-section centroid |
| POS | 1992-09-16 |  | 2 | UMUF | Y | N |  | 38.789665 | -123.492370 | $\underset{24}{\mathrm{M}} 11 \mathrm{~N} 15 \mathrm{~W}$ | Quarter-section centroid |
| POS | 1993-03-08 |  | 1 | UU |  |  |  | 38.782650 | -123.501866 | $\begin{aligned} & \text { M } 11 \text { N } 15 W \\ & 23 \end{aligned}$ | Quarter-section centroid |
| POS | 1993-03-08 | 2115 | 1 | UU |  |  |  | 38.782393 | -123.492389 | $\underset{24}{M} 11 N 15 W$ | Quarter-section centroid |
| NEG | 1993-03-22 | 2000 | 0 |  |  |  |  | 38.785883 | -123.487589 | $\underset{24}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| POS | 1993-04-08 |  | 1 | UU |  |  |  | 38.789665 | -123.492370 | $\underset{24}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Quarter-section centroid |
| NEG | 1993-04-28 |  | 0 |  |  |  |  | 38.785883 | -123.487589 | $\underset{24}{\text { M 11N } 15 W}$ | Section centroid |
| POS | 1993-04-28 |  | 1 | UU |  |  |  | 38.797150 | -123.501841 | $\begin{aligned} & \text { M 11N } 15 W \end{aligned}$ | Quarter-section centroid |
| NEG | 1993-05-04 |  | 0 |  |  |  |  | 38.785883 | -123.487589 | $\begin{aligned} & \mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W} \\ & 24 \end{aligned}$ | Section centroid |
| NEG | 1993-05-10 |  | 0 |  |  | . | - | 38.800499 | -123.487642 | $\begin{aligned} & \text { M 11N } 15 W \end{aligned}$ | Section centroid |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude DD NAD83 | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEG | 1993-05-13 |  | 0 |  |  |  |  | 38.785883 | -123.487589 | M11N15W 24 | Section centroid |
| NEG | 1993-05-18 |  | 0 |  |  |  |  | 38.786442 | -123.506602 | ${ }_{23}^{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| POS | 1993-06-01 |  | 2 | UMUF | Y |  |  | 38.789665 | -123.492370 | M 11N 15 W 24 | Quarter-section centroid |
| POS | 1993-06-02 |  | 2 | UMUF | Y |  |  | 38.793715 | -123.496482 | $\begin{aligned} & \text { M 11N } 15 W \\ & 13 \end{aligned}$ | Contributor |
| POS | 1993-06-03 | 1200 | 2 | UMUF |  |  |  | 38.796947 | -123.492351 | M 11N 15 W 13 | Quarter-section centroid |
| NEG | 1993-06-16 |  | 0 |  |  |  |  | 38.785883 | -123.487589 | $\begin{aligned} & \text { M } 11 \text { N } 15 \mathrm{~W} \end{aligned}$ | Section centroid |
| POS | 1993-07-22 | 1310 | 1 | UM |  |  |  | 38.789187 | -123.492654 | $\text { M } 11 \text { N } 15 \mathrm{~W}$ $24$ | Contributor |
| $N$ POS $n$ | 1993-11-13 | 1214 | 2 | UMUF |  |  |  | 38.789665 | -123.492370 | $\underset{24}{\mathrm{M}} 11 \mathrm{~N} 15 \mathrm{~W}$ | Quarter-section centroid |
| NEG | 1994-03-22 |  | 0 |  |  |  |  | 38.800499 | -123.487642 | $\begin{aligned} & \text { M } 11 \text { N } 15 W \\ & 13 \end{aligned}$ | Section centroid |
| NEG | 1994-03-24 |  | 0 |  |  |  |  | 38.785883 | -123.487589 | $\underset{24}{\mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W}}$ | Section centroid |
| NEG | 1994-03-30 |  | 0 |  |  |  |  | 38.785883 | -123.487589 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 24 \end{aligned}$ | Section centroid |
| POS | 1994-04-15 |  | 1 | UU |  |  |  | 38.796947 | -123.492351 | M 11N 15W 13 | Quarter-section centroid |
| POS | 1994-06-01 | 1158 | 2 | UMUF | Y |  |  | 38.786442 | -123.506602 | M 11N15W 23 | Section centroid |
| POS | 1994-06-01 |  | 2 | UMUF | Y | * |  | 38.789665 | -123.492370 | M 11N 15W 24 | Quarter-section centroid |
| POS | 1994-11-22 | 1911 | 1 | UM |  |  | $-2$ | 38.786442 | -123.506602 | M 11N 15W 23 | Section centroid |
| NEG | 1995-04-02 |  | 0 |  |  |  |  | 38.800499 | -123.487642 | $\text { M } 1.1 \mathrm{~N} 15 \mathrm{~W}$ $13$ | Section centroid |
| NEG | 1995-04-23 |  | 0 |  |  |  |  | 38.786443 | -123.506607 | M 11N 15W 23 | Section centroid |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | $\begin{aligned} & \text { Latitude } D D \\ & N A \cap 83 \end{aligned}$ | $\begin{aligned} & \text { Longitude DD } \\ & \text { NAD83 } \end{aligned}$ | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| POS | 1997-02-24 | 0000 | 2 | UMUF | Y |  |  | 38.789665 | -123.492370 | ${ }_{24}^{\mathrm{M}} 11 \mathrm{~N} 15 \mathrm{~W}$ | Quarter-section centroid |
| NEG | 1997-03-12 |  | 0 |  |  |  |  | 38.800499 | -123.487642 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 13 \end{aligned}$ | Section centroid |
| NEG | 1997-03-22 |  | 0 |  |  |  |  | 38.800499 | -123.487642 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 13 \end{aligned}$ | Section centroid |
| POS | 1997-04-15 |  | 2 | UMUF | Y |  |  | 38.789665 | -123.492370 | $\begin{aligned} & \text { M 11N 15W } \\ & 24 \end{aligned}$ | Quarter-section centroid |
| POS | 1997-04-30 | 1325 | 2 | UMUF | Y | Y |  | 38.789665 | -123.492370 | $\begin{aligned} & \text { M 11N 15W } \\ & 24 \end{aligned}$ | Quarter-section centroid |
| POS | 1997-05-27 |  | 2 | UMUF | Y | Y | 1 | 38.789665 | -123.492370 | $\begin{aligned} & \mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W} \\ & 24 \end{aligned}$ | Quarter-section centroid |
| POS | 1997-06-01 |  | 2 | UMUF | Y |  | 1 | 38.789665 | -123.492370 | $\begin{aligned} & \text { M 11 N } 15 W \\ & 24 \end{aligned}$ | Quarter-section centroid |
| POS | 1997-07-03 |  | 2 | UMUF | Y |  | 1 | 38.789665 | -123.492370 | $\underset{24}{M 11 N 15 W}$ | Quarter-section centroid |
| POS | 1997-07-15 | 1837 | 1 | UF |  |  | 1 | 38.789665 | -123.492370 | $\underset{24}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Quarter-section centroid |
| POS | 1997-11-04 | 1904 | 1 | UM |  |  |  | 38.789665 | -123.492370 | $\underset{24}{\text { M 11N } 15 W}$ | Quarter-section centroid |
| POS | 1998-03-03 |  | 1 | UU |  |  |  | 38.789665 | -123.492370 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 24 \end{aligned}$ | Quarter-section centroid |
| POS | 1998-04-24 |  | 2 | UMUF | Y |  |  | 38.789665 | -123.492370 | $\begin{aligned} & \text { M 11N 15W } \\ & 24 \end{aligned}$ | Quarter-section centroid |
| POS | 1998-05-18 |  | 1 | UU |  |  |  | 38.789665 | -123.492370 | $\begin{aligned} & \text { M 11N 15W } \\ & 24 \end{aligned}$ | Quarter-section centroid |
| POS | 1998-06-01 |  | 2 | UMUF | Y |  |  | 38.789665 | -123.492370 | $\underset{24}{\mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W}}$ | Quarter-section centroid |
| NEG | 1998-06-10 | 1200 | 0 |  |  |  |  | 38.785883 | -123.487589 | $\underset{24}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| POS | 1998-07-29 |  | 1 | UM |  |  |  | 38.789665 | -123.492370 | $\begin{aligned} & \text { M } 11 \text { N } 15 W \\ & 24 \end{aligned}$ | Quarter-section centroid |
| NEG | 1998-08-13 |  | 0 |  |  |  |  | 38.785883 | -123.487589 | M 11N 15W 24 | Section centroid |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude DD <br> NAD83 | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEG | 1998-08-13 |  | 0 |  |  |  |  | 38.788932 | -123.473342 | $\begin{aligned} & \text { M 11N 14W } \\ & 19 \end{aligned}$ | Quarter-section centroid |
| NEG | 1998-08-20 |  | 0 |  |  |  |  | 38.784897 | -123.468539 | $\begin{aligned} & \text { M 11N 14W } \\ & 19 \end{aligned}$ | Section centroid |
| POS | 1998-08-20 |  | 1 | UF |  |  |  | 38.789435 | -123.482869 | M 11N 15W 24 | Quarter-section centroid |
| NEG | 1998-08-21 |  | 0 |  |  |  |  | 38.785883 | -123.487589 | M 11N 15W $24$ | Section centroid |
| NEG | 1998-08-27 |  | 0 |  |  |  |  | 38.785883 | -123.487589 | $\begin{aligned} & \text { M 11N 15W } \\ & 24 \end{aligned}$ | Section centroid |
| NEG | 1998-08-27 |  | 0 |  |  |  |  | 38.784897 | -123.468539 | $\begin{aligned} & \text { M 11N 14W } \\ & 19 \end{aligned}$ | Section centroid |
| POS | 1998-10-12 |  | 2 | UMUF | Y |  |  | 38.789665 | -123.492370 | M 11N 15W $24$ | Quarter-section centroid |
| POS | 1998-10-21 | 1148 | 1 | UU |  |  |  | 38.784542 | -123.504136 | $\underset{23}{M 11 N 15 W}$ | Activity center |
| POS | 1998-10-21 |  | 1 | UU |  |  |  | 38.789665 | -123.492370 | $\underset{24}{M 11 N 15 W}$ | Quarter-section centroid |
| NEG | 1999-03-17 | $\begin{aligned} & 2028- \\ & 2038 \end{aligned}$ | 0 |  |  |  |  | 38.783380 | -123.516870 | M11N15W 22 | Contributor |
| NEG | 1999-03-20 | 1719 | 0 |  |  |  |  | 38.785883 | -123.487589 | M 11N 15W $24$ | Section centroid |
| NEG | 1999-03-29 | $\begin{aligned} & 2205- \\ & 2215 \end{aligned}$ | 0 |  |  |  |  | 38.791161 | -123.486695 | $\begin{aligned} & \text { M 11N 15W } \\ & 24 \end{aligned}$ | Contributor |
| NEG | 1999-04-12 | $\begin{aligned} & 2318- \\ & 2328 \end{aligned}$ | 0 |  |  |  |  | 38.783380 | -123.516870 | M11N15W 22 | Contributor |
| NEG | 1999-04-23 | $\begin{aligned} & 0202- \\ & 0212 \end{aligned}$ | 0 |  |  |  |  | 38.791290 | -123.517890 | ${ }_{22}^{M 11 N 15 W}$ | Contributor |
| NEG | 1999-04-24 | $\begin{aligned} & 0014- \\ & 0024 \end{aligned}$ | 0 |  |  |  |  | 38.783380 | -123.516870 | $\begin{aligned} & \text { M 11N 15W } \\ & 22 \end{aligned}$ | Contributor |
| NEG | 1999-05-01 | $\begin{aligned} & 0025- \\ & 0035 \end{aligned}$ | 0 |  |  |  |  | 38.783380 | -123.516870 | ${ }_{22}^{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 1999-05-13 | $\begin{aligned} & 2141- \\ & 2151 \end{aligned}$ | 0 |  |  |  |  | 38.791290 | -123.517890 | M 11N 15W 22 | Contributor |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude DD <br> NAD | Longitude DD <br> NAD | MTRS |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |


| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude DD <br> NAD83 | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| POS | 2003 |  | 1 | UU |  | Y |  | 38.789859 | -123.504173 | $\begin{aligned} & \text { M 11N 15W } \\ & 23 \end{aligned}$ | Contributor |
| POS | 2003-03-06 | 0044 | 1 | UM |  |  |  | 38.783990 | -123.509120 | M11N15W 23 | Contributor |
| NEG | 2003-03-07 | $\begin{aligned} & 2156- \\ & 2206 \end{aligned}$ | 0 |  |  |  |  | 38.783380 | -123.516870 | M 11N 15W $22$ | Contributor |
| NEG | 2003-03-07 | $\begin{aligned} & 2021- \\ & 2031 \end{aligned}$ | 0 |  |  |  |  | 38.791290 | -123.517890 | $\underset{22}{\mathrm{M}} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| POS | 2003-03-30 | $\begin{aligned} & 1505- \\ & 1520 \end{aligned}$ | 2 | UMUF | Y |  |  | 38.789914 | -123.504183 | $\underset{23}{\mathrm{M}} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2003-04-02 | $\begin{aligned} & 1931- \\ & 1941 \end{aligned}$ | 0 |  |  |  |  | 38.791290 | -123.517890 | M 11N 15W $22$ | Contributor |
| NEG | 2003-04-02 | $\begin{aligned} & 2033- \\ & 2043 \end{aligned}$ | 0 |  |  |  |  | 38.783990 | -123.509120 | $\underset{23}{M} 11 \text { N } 15 W$ | Contributor |
| NEG | 2003-04-14 | $\begin{aligned} & 0003- \\ & 0013 \end{aligned}$ | 0 |  |  |  |  | 38.783380 | -123.516870 | ${ }_{22}^{M 11 N 15 W}$ | Contributor |
| NEG | 2003-04-30 | $\begin{aligned} & 0118- \\ & 0128 \end{aligned}$ | 0 |  |  |  |  | 38.783990 | -123.509120 | $\underset{23}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2003-04-30 | $\begin{aligned} & 0040- \\ & 0050 \end{aligned}$ | 0 |  |  |  |  | 38.783380 | -123.516870 | M 11N 15W $22$ | Contributor |
| NEG | 2003-04-30 | $\begin{aligned} & 0159- \\ & 0209 \end{aligned}$ | 0 |  |  |  |  | 38.791290 | -123.517890 | M 11N 15W $22$ | Contributor |
| NEG | 2004-03-11 | $\begin{aligned} & 2343- \\ & 2353 \end{aligned}$ | 0 |  |  |  |  | 38.783990 | -123.509120 | ${ }_{23}^{M 11 N 15 W}$ | Contributor |
| NEG | 2004-03-11 | $\begin{aligned} & 2302- \\ & 2312 \end{aligned}$ | 0 |  |  |  |  | 38.791290 | -123.517890 | $\begin{aligned} & \text { M 11N } 15 W \\ & 22 \end{aligned}$ | Contributor |
| POS | 2004-03-19 | $\begin{aligned} & 1729- \\ & 1745 \end{aligned}$ | 2 | UMUF | Y |  |  | 38.789673 | -123.507622 | $\underset{23}{M 11 N 15 W}$ | Contributor |
| NEG | 2004-04-07 | $\begin{aligned} & 0015- \\ & 0025 \end{aligned}$ | 0 |  |  |  |  | 38.783990 | -123.509120 | $\underset{23}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2004-04-15 | $\begin{aligned} & 0119- \\ & 0129 \end{aligned}$ | 0 |  |  |  |  | 38.791290 | -123.517890 | ${ }_{22}^{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2004-06-14 | $\begin{aligned} & 0142- \\ & 0152 \end{aligned}$ | 0 |  |  |  |  | 38.783990 | -123.509120 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 23 \end{aligned}$ | Contributor |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude DD <br> NAD83 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| NEG | $2004-06-15$ | $0134-$ | 0 |  | Longitude DD |  |  |  |
| NAD83 |  |  |  |  |  |  |  |  |


| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | $\begin{aligned} & \text { Latitude DD } \\ & \text { NAD83 } \end{aligned}$ | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEG | 2006-06-02 | $\begin{aligned} & 2232- \\ & 2242 \end{aligned}$ | 0 |  |  |  |  | 38.783990 | -123.509120 | M 11N 15W 23 | Contributor |
| NEG | 2006-06-03 | $\begin{aligned} & 2201- \\ & 2211 \end{aligned}$ | 0 |  |  |  |  | 38.783380 | -123.516870 | $\underset{20}{\mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W}}$ | Contributor |
| NEG | 2007-03-28 | $\begin{aligned} & 1928- \\ & 1938 \end{aligned}$ | 0 |  |  |  |  | 38.783990 | -123.509120 | M 11N 15W $23$ | Contributor |
| NEG | 2007-03-28 | $\begin{aligned} & 2022- \\ & 2032 \end{aligned}$ | 0 |  |  |  |  | 38.791290 | -123.517890 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 22 \end{aligned}$ | Contributor |
| POS | 2007-03-28 | 1904 | 1 | UU |  |  |  | 38.782650 | -123.501866 | $\begin{aligned} & \text { M 11N 15W } \\ & 23 \end{aligned}$ | Quarter-section centroid |
| NEG | 2007-03-29 | $\begin{aligned} & 2054- \\ & 2104 \end{aligned}$ | 0 |  |  |  |  | 38.783380 | -123.516870 | M 11N 15W $22$ | Contributor |
| NEG | 2007-04-05 | $\begin{aligned} & 2338- \\ & 2348 \end{aligned}$ | 0 |  |  |  |  | 38.791290 | -123.517890 | ${ }_{22}^{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| POS | 2007-04-06 | 1804 | 2 | UMUF | Y |  |  | 38.784542 | -123.504136 | $\begin{aligned} & \mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W} \\ & 23 \end{aligned}$ | Contributor |
| NEG | 2007-04-07 | $\begin{aligned} & 0127- \\ & 0137 \end{aligned}$ | 0 |  |  |  |  | 38.783990 | -123.509120 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 23 \end{aligned}$ | Contributor |
| NEG | 2007-04-25 | $\begin{aligned} & 2146- \\ & 2156 \end{aligned}$ | 0 |  |  |  |  | 38.791290 | -123.517890 | M 11N 15W 22 | Contributor |
| NEG | 2007-04-25 |  | 0 |  |  |  |  | 38.783990 | -123.509120 | M11N15W 23 | Contributor |
| NEG | 2008-05-17 | 2125 | 0 |  |  |  |  | 38.789922 | -123.501894 | ${ }_{23}^{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Quarter-section centroid |
| NEG | 2009-04-06 | 2038 | 0 |  |  |  |  | 38.789922 | -123.501894 | $\begin{aligned} & \text { M 11N 15W } \\ & 23 \end{aligned}$ | Quarter-section centroid |
| NEG | 2009-04-13 | 2015 | 0 |  |  |  |  | 38.789922 | -123.501894 | M 11N 15W 23 | Quarter-section centroid |
| NEG | 2011 | 2400 | 0 |  |  |  |  | 38.783380 | -123.516870 | M 11N 15W 22 | Contributor |
| NEG | 2011 | 2400 | 0 |  |  |  |  | 38.794570 | -123.517684 | $\begin{aligned} & \text { M 11N } 15 \mathrm{~W} \\ & 15 \end{aligned}$ | Contributor |
| NEG | 2011-03-04 | $\begin{aligned} & 2241- \\ & 2251 \end{aligned}$ | 0 |  |  |  |  | 38.793119 | -123.499775 | $\underset{23}{M 11 N 15 W}$ | Contributor |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | $\begin{aligned} & \text { Latitude DD } \\ & \text { NAD83 } \end{aligned}$ | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| POS | 1992-04-03 |  | 1 | UM |  |  |  | 38.822985 | -123.532630 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & \hline 10 \end{aligned}$ | Contributor |
| NEG | 1992-05-15 |  | 0 |  |  |  |  | 38.800879 | -123.506508 | $\underset{14}{\mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W}}$ | Section centroid |
| POS | 1992-06-02 |  | 2 | UMUF | Y |  | 1 | 38.820896 | -123.530391 | $\begin{aligned} & \text { M 11N } 15 W \\ & 10 \end{aligned}$ | Quarter-section centroid |
| NEG | 1992-06-04 |  | 0 |  |  |  |  | 38.820896 | -123.530391 | $\begin{aligned} & \text { M 11N 15W } \\ & 10 \end{aligned}$ | Quarter-section centroid |
| POS | 1992-06-11 |  | 2 | UMUF | Y |  | 1 | 38.820896 | -123.530391 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 10 \end{aligned}$ | Quarter-section centroid |
| POS | 1992-12-01 |  | 1 | UM |  |  |  | 38.831542 | -123.549065 | $\begin{aligned} & \text { M } 11 \text { N } 15 W \\ & 04 \end{aligned}$ | Quarter-section centroid |
| POS | 1993-02-02 | 1910 | 1 | UF |  |  |  | 38.820896 | -123.530391 | $\begin{aligned} & \text { M } 11 \text { N } 15 W \\ & 10 \end{aligned}$ | Quarter-section centroid |
| POS | 1993-04-28 | 2049 | 1 | UF |  |  |  | 38.820896 | -123.530391 | $\begin{aligned} & \text { M } 11 \text { N } 15 W \end{aligned}$ | Quarter-section centroid |
| POS | 1993-05-02 | 0552 | 2 | UMUF |  |  |  | 38.816899 | -123.525397 | $\begin{aligned} & \text { M 11 } 10 \end{aligned}$ | Section centroid |
| POS | 1993-05-13 | 2007 | 1 | UU |  |  |  | 38.820896 | -123.530391 | $\begin{aligned} & \text { M 11N 15W } \\ & 10 \end{aligned}$ | Quarter-section centroid |
| POS | 1993-05-13 |  | 1 | UF |  |  |  | 38.815953 | -123.532529 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 10 \end{aligned}$ | Contributor |
| POS | 1993-06-01 |  | 2 | UMUF | Y |  | 1 | 38.820896 | -123.530391 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 10 \end{aligned}$ | Quarter-section centroid |
| POS | 1993-06-01 | 1754 | 2 | UMUF |  |  |  | 38.820896 | -123.530391 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 10 \end{aligned}$ | Quarter-section centroid |
| POS | 1993-07-14 | 1239 | 2 | UMUF | Y |  | 1 | 38.820896 | -123.530391 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 10 \end{aligned}$ | Quarter-section centroid |
| NEG | 1993-11-13 | 1137 | 0 |  |  |  |  | 38.820896 | -123.530391 | $\begin{aligned} & \text { M 11N 15W } \\ & 10 \end{aligned}$ | Quarter-section centroid |
| POS | 1994-03-09 | 1337 | 2 | UMUF | Y |  |  | 38.816899 | -123.525397 | M 11N 15W 10 | Section centroid |
| POS | 1994-04-14 | 1645 | 2 | UMUF | Y | Y |  | 38.822840 | -123.532871 | M 11N 15W 10 | Contributor |

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|  | Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude DD <br> NAD83 | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | NEG | 1994-05-23 |  | 0 |  |  |  |  | 38.838332 | -123.544209 | M 11N 15W 04 | Section centroid |
|  | POS | 1994-06-01 |  | 2 | UMUF | Y |  | 1 | 38.820896 | -123.530391 | $\begin{aligned} & \text { M 11N 15W } \\ & 10 \end{aligned}$ | Quarter-section centroid |
|  | NEG | 1994-06-08 |  | 0 |  |  |  |  | 38.838332 | -123.544209 | M 11N 15W $04$ | Section centroid |
|  | POS | 1995-02-10 |  | 1 | UU |  |  |  | 38.820896 | -123.530391 | $\begin{aligned} & \text { M 11N } 15 \mathrm{~W} \\ & 10 \end{aligned}$ | Quarter-section centroid |
|  | POS | 1995-03-29 |  | 1 | UU |  |  |  | 38.820896 | -123.530391 | M11N15W 10 | Quarter-section centroid |
|  | POS | 1995-04-11 | 1452 | 1 | UM |  |  |  | 38.820896 | -123.530391 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 10 \end{aligned}$ | Quarter-section centroid |
|  | POS | 1995-05-10 |  | 2 | UMUF | Y |  |  | 38.820896 | -123.530391 | M 11N 15W 10 | Quarter-section centroid |
| $\begin{aligned} & w \\ & \infty \end{aligned}$ | NEG | 1995-07-27 |  | 0 |  |  |  |  | 38.816899 | -123.525397 | ${ }_{10}^{\mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W}}$ | Section centroid |
|  | NEG | 1995-08-07 |  | 0 |  |  |  |  | 38.838332 | -123.544209 | M 11N 15W $04$ | Section centroid |
|  | NEG | 1995-08-29 |  | 0 |  |  |  |  | 38.838332 | -123.544209 | $\begin{aligned} & \text { M } 11 \text { N } 15 W \\ & 04 \end{aligned}$ | Section centroid |
|  | POS | 1995-12-07 | 1905 | 1 | UU |  |  |  | 38.820896 | -123.530391 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 10 \end{aligned}$ | Quarter-section centroid |
|  | NEG | 1996-02-20 |  | 0 |  |  |  |  | 38.816899 | -123.525397 | $\begin{aligned} & \text { M } 11 \text { N } 15 W \end{aligned}$ | Section centroid |
|  | POS | 1996-03-13 | 0754 | 3 | UMUF | Y |  |  | 38.820896 | -123.530391 | $\begin{aligned} & \text { M 11N 15W } \\ & 10 \end{aligned}$ | Quarter-section centroid |
|  | NEG | 1996-03-16 |  | 0 |  |  |  |  | 38.817542 | -123.544362 | $\begin{aligned} & \text { M 11N 15W } \\ & 09 \end{aligned}$ | Section centroid |
|  | NEG | 1996-03-19 |  | 0 |  |  |  |  | 38.816899 | -123.525397 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 10 \end{aligned}$ | Section centroid |
|  | NEG | 1996-03-23 |  | 0 |  |  |  |  | 38.817542 | -123.544362 | $\begin{aligned} & \text { M 11N 15W } \\ & 09 \end{aligned}$ | Section centroid |
|  | NEG | 1996-04-02 |  | 0 |  |  |  |  | 38.838332 | -123.544209 | M 11N 15W $04$ | Section centroid |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | $\begin{aligned} & \text { Latitude DD } \\ & \text { NAD83 } \end{aligned}$ | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| POS | 2001-06-04 | 2148 | 1 | UM |  |  |  | 38.844760 | -123.537874 | M 11N 15W 04 | Contributor |
| POS | 2001-06-04 | 1200 | 1 | UM |  |  |  | 38.845070 | -123.520994 | $\begin{aligned} & \text { M 11N 15W } \\ & 03 \end{aligned}$ | Quarter-section centroid |
| NEG | 2002 |  | 0 |  |  |  |  | 38.845070 | -123.520994 | M 11N 15W $03$ | Quarter-section centroid |
| NEG | 2002-05-08 | 1200 | 0 |  |  |  |  | 38.838332 | -123.544209 | $\begin{aligned} & \text { M 11N 15W } \\ & 04 \end{aligned}$ | Section centroid |
| POS | 2002-05-28 | 1200 | 1 | UU |  |  |  | 38.846207 | -123.534670 | M11N15W 03 | Contributor |
| POS | 2002-05-28 | 2344 | 1 | UF |  |  |  | 38.852767 | -123.526836 | $\mathrm{M}_{33} 12 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| POS | 2002-06-04 |  | 1 | UF |  |  |  | 38.845149 | -123.535434 | $\begin{aligned} & \text { M 11 N 15W } \\ & 04 \end{aligned}$ | Contributor |
| POS | 2002-07-25 | 2053 | 1 | UU |  |  | . | 38.856064 | -123.529027 | $\mathrm{M}_{33} 12 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2003-05-23 | 1200 | 0 |  |  |  |  | 38.845401 | -123.537464 | $\begin{aligned} & \text { M 11N } 15 W \\ & 04 \end{aligned}$ | Activity center |
| NEG | 2003-07-10 | 1200 | 0 |  |  |  |  | 38.845401 | -123.537464 | $\begin{aligned} & \text { M 11N } 15 W \\ & 04 \end{aligned}$ | Activity center |
| POS | 2003-07-10 | 2132 | 1 | UF |  |  |  | 38.846954 | -123.530826 | $\begin{aligned} & \text { M 11N 15W } \\ & 03 \end{aligned}$ | Contributor |
| POS | 2003-07-30 | $\begin{aligned} & 1940- \\ & 2005 \end{aligned}$ | 1 | AU |  |  |  | 38.846380 | -123.534337 | $\begin{aligned} & \text { M 11N 15W } \\ & 03 \end{aligned}$ | Contributor |
| NEG | 2004-03-04 | 2400 | 0 |  |  |  |  | 38.845401 | -123.537464 | $\begin{aligned} & \text { M 11N 15W } \\ & 04 \end{aligned}$ | Activity center |
| AC | 2004-05-13 | $\begin{aligned} & 1622- \\ & 1703 \end{aligned}$ | 2 | UMUF | Y | Y |  | 38.845401 | -123.537464 | $\begin{aligned} & \mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W} \\ & 04 \end{aligned}$ | Contributor |
| POS | 2004-06-28 | 2211 | 1 | UU |  |  |  | 38.855122 | -123.524041 | $\begin{aligned} & \text { M } 12 \mathrm{~N} 15 \mathrm{~W} \\ & 33 \end{aligned}$ | Contributor |
| POS | 2004-07-06 | $\begin{aligned} & 1847- \\ & 1910 \end{aligned}$ | 1 | AF |  |  | 2 | 38.845736 | -123.537294 | M 11N 15W 04 | Contributor |
| POS | 2005-03-29 | 2400 | 1 | AU |  |  | 0 | 38.845248 | -123.539445 | M 11N 15W 04 | Quarter-section centroid |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | $\begin{aligned} & \text { Latitude DD } \\ & \text { NAD83 } \end{aligned}$ | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEG | 2005-04-20 | 2400 | 0 |  |  |  |  | 38.845209 | -123.530237 | M 11N 15W | Quarter-section centroid |
| NEG | 2005-05-02 | 2400 | 0 |  |  |  |  | 38.845209 | -123.530237 | $\begin{aligned} & \text { M 11N 15W } \\ & 03 \end{aligned}$ | Quarter-section centroid |
| POS | 2005-05-02 | $\begin{aligned} & 1719- \\ & 1822 \end{aligned}$ | 2 | AMAF | Y | N | 0 | 38.845637 | -123.537062 | M 11N 15W 04 | Contributor |
| POS | 2005-06-09 | 2210 | 1 | UU |  |  |  | 38.839887 | -123.529506 | M 11N 15W 03 | Contributor |
| NEG | 2005-06-09 | 2400 | 0 |  |  |  |  | 38.845248 | -123.539445 | M 11N15W 04 | Quarter-section centroid |
| POS | 2005-06-14 | $\begin{aligned} & 1718- \\ & 1749 \end{aligned}$ | 1 | AU |  | $N$ | 0 | 38.845783 | -123.536798 | M 11N 15W 04 | Contributor |
| NEG | 2005-07-21 | 2400 | 0 |  |  |  |  | 38.845209 | -123.530237 | M11N15W 03 | Quarter-section centroid |
| NEG | 2005-07-26 | 2400 | 0 |  |  |  |  | 38.845248 | -123.539445 | $\begin{aligned} & \text { M 11N 15W } \\ & 04 \end{aligned}$ | Quarter-section centroid |
| POS | 2005-08-23 | 2212 | 1 | UM |  |  |  | 38.845052 | -123.537012 | M 11N 15W 04 | Contributor |
| POS | 2005-08-24 | 2400 | 1 | AM |  |  |  | 38.843047 | -123.540039 | M 11N 15W $04$ | Contributor |
| POS | 2006 |  | 2 | AMAF | Y |  |  | 38.846079 | -123.537089 | M 11N 15W $04$ | Contributor |
| POS | 2006-05-04 | 2150 | 1 | UF |  |  |  | 38.843925 | -123.541106 | M 11N15W 04 | Contributor |
| NEG | 2006-05-04 |  | 0 |  |  |  |  | 38.845209 | -123.530237 | M 11N 15W 03 | Quarter-section centroid |
| POS | 2006-05-04 | 2200 | 1 | UF |  |  |  | 38.843775 | -123.538327 | M 11N 15W 04 | Contributor |
| POS | 2006-06-14 |  | 1 | AU |  | N |  | 38.846079 | -123.537089 | $\begin{aligned} & \text { M 11N 15W } \\ & 04 \end{aligned}$ | Contributor |
| NEG | 2006-07-19 |  | 0 |  |  |  |  | 38.845209 | -123.530237 | $\begin{aligned} & \text { M 11N } 15 W \\ & 03 \end{aligned}$ | Quarter-section centroid |
| NEG | 2006-07-27 |  | 0 |  |  |  |  | 38.845209 | -123.530237 | M 11N 15W $03$ | Quarter-section centroid |

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|  | Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude DD NAD83 | Longitude $D D$ NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | POS | 2007-03-20 | 1950 | 2 | UMUF | Y |  |  | 38.844931 | -123.535789 | M 11N 15W 04 | Contributor |
|  | POS | 2007-03-29 | 2350 | 1 | UM |  |  |  | 38.831137 | -123.521250 | M 11N 15W 03 | Quarter-section centroid |
|  | POS | 2007-04-03 | 2023 | 1 | UU |  |  |  | 38.844954 | -123.552314 | M 11N 15W 04 | Contributor |
|  | POS | 2007-04-03 | 2124 | 1 | UU |  |  |  | 38.840791 | -123.540621 | M 11N 15W 04 | Contributor |
|  | POS | 2007-04-05 | 1900 | 1 | UM |  |  |  | 38.831137 | -123.521250 | M 11N 15W 03 | Quarter-section centroid |
|  | POS | 2007-04-10 | 2126 | 1 | UM |  |  |  | 38.839965 | -123.541836 | M 11N15W 04 | Contributor |
|  | POS | 2007-04-10 | 2147 | 1 | UM |  |  |  | 38.838729 | -123.540375 | M 11N 15W 04 | Contributor |
| $w$ | POS | 2007-04-10 | $\begin{aligned} & 1604- \\ & 1641 \end{aligned}$ | 1 | AM |  | N |  | 38.845469 | -123.536462 | $\begin{aligned} & \text { M 11N 15W } \\ & 04 \end{aligned}$ | Contributor |
| $\underset{c o}{\Gamma}$ | POS | 2007-04-18 | 2128 | 1 | UU |  |  |  | 38.840741 | -123.539860 | M 11N 15W 04 | Contributor |
|  | NEG | 2007-05-30 | 1200 | 0 |  |  |  |  | 38.844667 | -123.501736 | $\begin{aligned} & \text { M 11N 15W } \\ & 02 \end{aligned}$ | Quarter-section centroid |
|  | NEG | 2007-06-06 | 1200 | 0 |  |  |  |  | 38.845248 | -123.539445 | $\begin{aligned} & \text { M 11N 15W } \\ & 04 \end{aligned}$ | Quarter-section centroid |
|  | NEG | 2008 |  | 0 |  |  |  |  | 38.845401 | -123.537464 | M 111N 15W 04 | Activity center |
|  | NEG | 2008-03-19 |  | 0 |  |  |  |  | 38.845401 | -123.537464 | M 11N 15W 04 | Activity center |
|  | POS | 2008-03-19 | 2159 | 1 | UU |  |  |  | 38.849356 | -123.533760 | M 11N 15W 03 | Contributor |
|  | NEG | 2008-03-25 |  | 0 |  |  |  |  | 38.845401 | -123.537464 | M 11N 15W 04 | Activity center |
|  | NEG | 2008-03-31 |  | 0 |  |  |  |  | 38.845401 | -123.537464 | M 11N 15W 04 | Activity center |
|  | NEG | 2008-05-16 |  | 0 |  |  |  |  | 38.845401 | -123.537464 | M11N15W 04 | Activity center |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude DD NAD83 | Longitude $D D$ NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEG | 2008-06-18 |  | 0 |  |  |  |  | 38.845401 | -123.537464 | M 11N 15W 04 | Activity center |
| POS | 2010-05-31 |  | 2 | UMUF | Y |  | 0 | 38.845311 | -123.537371 | M 11N15W 04 | Contributor |
| POS | 2011-05-09 |  | 2 | UMUF | Y |  |  | 38.845475 | -123.537084 | M 11N 15W 04 | Contributor |
| POS | 2011-07-25 |  | 1 | UM |  |  |  | 38.845205 | -123.536920 | M 11N 15W <br> 04 | Contributor |
| POS | 2012-05-13 | 2114 | 1 | UF |  |  |  | 38.849265 | -123.532452 | $\begin{aligned} & \text { M 11N } 15 \mathrm{~W} \\ & 03 \end{aligned}$ | Contributor |
| POS | 2012-05-13 |  | 2 | UMUF | Y |  | 0 | 38.846820 | -123.536425 | $\begin{aligned} & \text { M 11N 15W } \\ & 04 \end{aligned}$ | Contributor |
| POS | 2012-06-12 |  | 1 | UM |  |  |  | 38.845629 | -123.534769 | M 11N 15W 03 | Contributor |
| $\frac{w}{\alpha} \mathrm{~N} \text { POS }$ | 2012-06-17 | 2350 | 1 | UM |  |  |  | 38.840220 | -123.524918 | $\begin{aligned} & \text { M 11N 15W } \\ & 03 \end{aligned}$ | Contributor |
| POS | 2012-06-17 | 2247 | 1 | UF |  |  |  | 38.850695 | -123.539602 | $\begin{aligned} & \text { M 11N 15W } \\ & 04 \end{aligned}$ | Contributor |
| POS | 2012-06-17 | 0010 | 1 | UM |  |  |  | 38.847502 | -123.535546 | $\begin{aligned} & \text { M 11N 15W } \\ & 04 \end{aligned}$ | Contributor |
| POS | 2012-07-15 | 0019 | 1 | UM |  |  |  | 38.844680 | -123.535522 | $\mathrm{M}_{04} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| POS | 2012-07-15 | 2205 | 1 | UM |  |  |  | 38.844806 | -123.550597 | M 11N 15W <br> 04 | Contributor |
| POS | 2012-07-15 | 2114 | 1 | UM |  |  |  | 38.844871 | -123.557263 | $\begin{aligned} & \text { M 11N } 15 W \\ & 05 \end{aligned}$ | Contributor |
| POS | 2012-07-15 | 2212 | 1 | UM |  |  |  | 38.843588 | -123.548821 | M 11 N 15 W 04 | Contributor |
| POS | 2012-07-15 | 2331 | 1 | UF |  |  |  | 38.847935 | -123.526014 | $\underset{03}{\mathrm{M}} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| POS | 2013 |  | 2 | UMUF | Y |  |  | 38.846232 | -123.537171 | M 04 11 N 15 W | Contributor |
| POS | 2013-04-22 | 2331 | 1 | UM |  | * |  | 38.849364 | -123.535961 | $\underset{04}{\mathrm{M}} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |


| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | $\begin{aligned} & \text { Latitude DD } \\ & \text { NAD83 } \end{aligned}$ | $\begin{aligned} & \text { Longitude DD } \\ & \text { NAD83 } \end{aligned}$ | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| POS | 2013-04-22 | 2034 | 2 | UMUF | Y |  |  | 38.844760 | -123.537874 | $\begin{aligned} & \text { M 11N 15W } \\ & 04 \end{aligned}$ | Contributor |
| POS | 2013-04-22 | 2333 | 1 | UF |  |  |  | 38.847895 | -123.530177 | $\begin{aligned} & \mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W} \\ & 03 \end{aligned}$ | Contributor |
| NEG | 2013-05-01 | 1200 | 0 |  |  |  |  | 38.845401 | -123.537464 | $\begin{aligned} & \text { M 11N 15W } \\ & 04 \end{aligned}$ | Activity center |
| Pos | 2013-05-26 | 0106 | 1 | UM |  |  |  | 38.849487 | -123.552153 | $\begin{aligned} & \text { M 11N } 15 W \\ & 04 \end{aligned}$ | Contributor |
| POS | 2013-05-26 | 0041 | 1 | UU |  |  |  | 38.845352 | -123.538385 | $\begin{aligned} & \text { M 11N 15W } \\ & 04 \end{aligned}$ | Contributor |
| POS | 2013-05-28 | 1200 | 1 | UF |  | N |  | 38.846232 | -123.537171 | $\underset{04}{\mathrm{M}} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2013-05-28 | 1200 | 0 |  |  |  |  | 38.845268 | -123.548592 | ${ }_{04}^{\mathrm{M}} 11 \mathrm{~N} 15 \mathrm{~W}$ | Quarter-section centroid |
| NEG | 2013-07-17 | 1200 | 0 |  |  |  |  | 38.845268 | -123.548592 | $\begin{aligned} & \text { M 11N 15W } \\ & 04 \end{aligned}$ | Quarter-section centroid |
| POS | 2013-08-01 | 1200 | 1 | UM |  | N |  | 38.845242 | -123.536829 | $\begin{aligned} & \mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W} \\ & 04 \end{aligned}$ | Contributor |
| POS | 2013-08-07 | 1200 | 1 | UM |  |  |  | 38.844884 | -123.536400 | $\begin{aligned} & \text { M 11N 15W } \\ & 04 \end{aligned}$ | Contributor |
| NEG | 2014-03-07 | 1200 | 0 |  |  |  |  | 38.845248 | -123.539445 | ${ }_{04}^{\mathrm{M}} 11 \mathrm{~N} 15 \mathrm{~W}$ | Quarter-section centroid |
| POS | 2014-04-08 | 2015 | 1 | UU |  |  |  | 38.839883 | -123.541891 | M 11N 15W 04 | Contributor |
| POS | 2014-04-08 | 2108 | 1. | UM |  |  |  | 38.846227. | -123.526256 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 03 \end{aligned}$ | Contributor |
| POS | 2014-05-02 | 1200 | 1 | UM |  | $N$ |  | 38.844784 | -123.536328 | M11N15W 04 | Contributor |
| POS | 2014-05-02 | 2054 | 1 | UM |  |  |  | 38.844729 | -123.532778 | $\begin{aligned} & \text { M 11N 15W } \\ & 03 \end{aligned}$ | Contributor |
| POS | 2014-05-13 | 2156 | 1 | UM |  |  |  | 38.846276 | -123.543011 | M 11N 15W 04 | Contributor |
| POS | 2014-05-14 | 2214 | 1 | UF |  |  |  | 38.843029 | -123.543678 | M 11N 15W 04 | Contributor |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | $\begin{aligned} & \text { Latitude DD } \\ & \text { NAD83 } \end{aligned}$ | $\begin{aligned} & \text { Longitude DD } \\ & \text { NAD83 } \end{aligned}$ | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEG | 2013-07-04 | 1200 | 0 |  |  |  |  | 38.831137 | -123.521250 | M 11N 15W $03$ | Quarter-section centroid |
| POS | 2013-07-09 | $\begin{aligned} & 0915- \\ & 1000 \end{aligned}$ | 1 | UM |  |  |  | 38.831137 | -123.521250 | M 11N 15W $03$ | Quarter-section centroid |
| POS | 2014 |  | 1 | UU |  |  |  | 38.835599 | -123.518932 | M 11N 15W $03$ | Activity center |
| POS | 2015 |  | 1 | UU |  |  |  | 38.835083 | -123.517514 | M 11N 15W 03 | Activity center |
| POS | 2016 | 2400 | 1 | UF |  |  |  | 38.833708 | -123.518559 | M 11N 15W $03$ | Contributor |
| Masterowl: MEN0371 Subspecies: NORTHERN |  |  |  |  |  |  |  |  |  |  |  |
| POS | 1990-08-07 |  | 2 | UMUF | Y |  | 1 | 38.792521 | -123.513749 | $\begin{aligned} & \text { M 11N } 15 W \\ & 23 \end{aligned}$ | Contributor |
| NEG | 1991-02-22 |  | 0 |  |  |  |  | 38.797442 | -123.511389 | ${ }_{14}^{M 11 N 15 W}$ | Quarter-section centroid |
| NEG | 1991-04-30 |  | 0 |  |  |  |  | 38.800879 | -123.506508 | ${ }_{14}^{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| NEG | 1991-05-15 |  | 0 |  |  |  |  | 38.800879 | -123.506508 | $\underset{14}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| NEG | 1991-05-23 |  | 0 |  |  |  |  | 38.800879 | -123.506508 | $\begin{aligned} & \text { M 11N } 15 W \\ & 14 \end{aligned}$ | Section centroid |
| NEG | 1991-06-11 |  | 0 |  |  |  |  | 38.800879 | -123.506508 | ${ }_{14}^{M 11 N 15 W}$ | Section centroid |
| NEG | 1991-06-13 |  | 0 |  |  |  |  | 38.800879 | -123.506508 | $\begin{aligned} & \text { M 11N } 15 \mathrm{~W} \\ & 14 \end{aligned}$ | Section centroid |
| NEG | 1991-06-18 |  | 0 |  |  |  |  | 38.800879 | -123.506508 | $\underset{14}{\text { M 11N } 15 W}$ | Section centroid |
| NEG | 1991-07-01 |  | 0 |  |  |  |  | 38.800879 | -123.506508 | $\begin{aligned} & \text { M 11N } 15 W \\ & 14 \end{aligned}$ | Section centroid |
| NEG | 1991-07-09 |  | 0 |  |  |  |  | 38.800879 | -123.506508 | $\begin{aligned} & \text { M 11N } 15 W \end{aligned}$ | Section centroid |
| NEG | 1991-07-12 |  | 0 |  |  |  |  | 38.800879 | -123.506508 | $\begin{aligned} & \text { M } 11 \text { N } 15 W \end{aligned}$ | Section centroid |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude DD NAD83 | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| POS | 1991-07-17 |  | 1 | UU |  |  |  | 38.800879 | -123.506508 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 14 \end{aligned}$ | Section centroid |
| POS | 1991-07-23 |  | 1 | UU |  |  |  | 38.800879 | -123.506508 | $\underset{14}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| POS | 1991-11-10 |  | 2 | UMUF |  |  |  | 38.800879 | -123.506508 | $\begin{aligned} & \mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W} \\ & 14 \end{aligned}$ | Section centroid |
| POS | 1992-03-12 |  | 1 | UU |  |  |  | 38.804698 | -123.511084 | $\underset{14}{\mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W}}$ | Quarter-section centroid |
| POS | 1992-03-26 |  | 1 | UU |  |  |  | 38.810326 | -123.501553 | $\begin{aligned} & \text { M 11N } 15 W \\ & 11 \end{aligned}$ | Contributor |
| POS | 1992-03-26 |  | 1 | UU |  |  |  | 38.804698 | -123.511084 | ${ }_{14}^{M 11 N 15 W}$ | Quarter-section centroid |
| POS | 1992-04-22 |  | 1 | UU |  |  |  | 38.800879 | -123.506508 | $\begin{aligned} & \text { M 11N 15W } \\ & 14 \end{aligned}$ | Section centroid |
| NEG | 1992-04-27 |  | 0 |  |  |  |  | 38.800879 | -123.506508 | $\begin{aligned} & \text { M 11N } 15 \mathrm{~W} \\ & 14 \end{aligned}$ | Section centroid |
| POS | 1992-06-04 |  | 1 | UU |  |  |  | 38.800879 | -123.506508 | $\begin{aligned} & \mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W} \\ & 14 \end{aligned}$ | Section centroid |
| POS | 1993-03-22 | 2120 | 1 | UU |  |  |  | 38.797442 | -123.511389 | ${ }_{14}^{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Quarter-section centroid |
| POS | 1993-03-22 |  | 1 | UU |  |  |  | 38.797442 | -123.511389 | $\begin{aligned} & \text { M 11N } 15 W \end{aligned}$ | Quarter-section centroid |
| POS | 1993-05-13 | 2228 | 1 | UM |  |  |  | 38.801074 | -123.511231 | $\begin{aligned} & \text { M 11N } 15 W \end{aligned}$ | Half-section centroid |
| POS | 1993-05-13 |  | 1 | UM |  |  |  | 38.799460 | -123.513569 | M 11N 15W <br> 14 | Contributor |
| NEG | 1993-05-18 |  | 0 |  |  |  |  | 38.800879 | -123.506508 | M 11N 15W 14 | Section centroid |
| POS | 1993-06-02 | 1200 | 2 | UMUF | Y |  |  | 38.804698 | -123.511084 | M 11N 15W 14 | Quarter-section centroid |
| POS | 1993-06-03 |  | 2 | UMUF | Y |  |  | 38.804698 | -123.511084 | M 11N 15W 14 | Quarter-section centroid |
| POS | 1993-06-04 | 1719 | 2 | UMUF |  |  |  | 38.804698 | -123.511084 | M 11N 15W 14 | Quarter-section centroid |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude $D D$ NAD83 | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEG | 1998-03-03 |  | 0 |  |  |  |  | 38.800879 | -123.506508 | $\begin{aligned} & \text { M } 111 \mathrm{~N} 15 \mathrm{~W} \\ & \hline \end{aligned}$ | Section centroid |
| NEG | 1998-04-07 |  | 0 |  |  |  |  | 38.815693 | -123.506613 | $\underset{11}{\mathrm{M}} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| POS | 1998-04-07 |  | 1 | UU |  |  |  | 38.805323 | -123.520509 | $\begin{aligned} & \text { M 11N 15W } \\ & 15 \end{aligned}$ | Quarter-section centroid |
| NEG | 1998-04-14 |  | 0 |  |  |  |  | 38.815693 | -123.506613 | $\begin{aligned} & \text { M 11N 15W } \\ & 11 \end{aligned}$ | Section centroid |
| POS | 1998-04-14 |  | 2 | UMUF | Y |  |  | 38.812793 | -123.520552 | $\begin{aligned} & \text { M 11N 15W } \\ & 10 \end{aligned}$ | Quarter-section centroid |
| NEG | 1998-04-20 |  | 0 |  |  |  |  | 38.800879 | -123.506508 | $\begin{aligned} & \text { M 11N 15W } \\ & 14 \end{aligned}$ | Section centroid |
| POS | 1998-04-20 |  | 2 | UMUF | Y |  |  | 38.812793 | -123.520552 | $\begin{aligned} & \text { M 11N 15W } \\ & 10 \end{aligned}$ | Quarter-section centroid |
| NEG | 1998-05-05 |  | 0 |  |  |  |  | 38.800879 | -123.506508 | $\underset{14}{\mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W}}$ | Section centroid |
| POS | 1998-05-08 |  | 1 | UU |  |  |  | 38.812793 | -123.520552 | $\begin{aligned} & \mathrm{M} \\ & 10 \end{aligned} \mathrm{INN}^{2} 15 \mathrm{~W}$ | Quarter-section centroid |
| NEG | 1998-05-17 |  | 0 |  |  |  |  | 38.801922 | -123.525471 | ${ }_{15}^{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| NEG | 1998-06-02 |  | 0 |  |  |  |  | 38.786442 | -123.506602 | M11N 15W 23 | Section centroid |
| NEG | 1998-06-05 |  | 0 |  |  |  |  | 38.816899 | -123.525397 | $\begin{aligned} & \text { M 11N } 15 W \\ & 10 \end{aligned}$ | Section centroid |
| NEG | 1998-06-18 |  | 0 |  |  |  |  | 38.800879 | -123.506508 | M 11 IN 15 W <br> 14 | Section centroid |
| NEG | 1998-07-28 |  | 0 |  |  |  |  | 38.800879 | -123.506508 | M 11N 15W 14 | Section centroid |
| POS | 1999-03-20 | 1609 | 2 | UMUF | Y | Y |  | 38.810610 | -123.519062 | $\begin{aligned} & \text { M 11N 15W } \\ & 10 \end{aligned}$ | Contributor |
| NEG | 2000-03-02 | 2219 | 0 |  |  |  |  | 38.812793 | -123.520552 | M 11N 15W <br> 10 | Quarter-section centroid |
| POS | 2000-03-05 | 1038 | 2 | UMUF | Y |  |  | 38.812793 | -123.520552 | $\underset{10}{M 11 N} 15 W$ | Quarter-section centroid |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | $\begin{aligned} & \text { Latitude DD } \\ & \text { NAD83 } \end{aligned}$ | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEG | 2011 | 2400 | 0 |  |  |  |  | 38.802262 | -123.504678 | $\begin{aligned} & \mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W} \\ & 14 \end{aligned}$ | Contributor |
| NEG | 2011 | 2400 | 0 |  |  |  |  | 38.794570 | -123.517684 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 15 \end{aligned}$ | Contributor |
| NEG | 2011 | 2400 | 0 |  |  |  |  | 38.801984 | -123.525606 | $\mathrm{M}_{15} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| POS | 2011-03-04 | $\begin{aligned} & 1700- \\ & 1730 \end{aligned}$ | 2 | UMUF | Y |  |  | 38.815693 | -123.506613 | M 11N 15W $11$ | Section centroid |
| POS | 2011-03-06 | $\begin{aligned} & 2319- \\ & 2329 \end{aligned}$ | 1 | UM |  |  |  | 38.801984 | $-123.525606$ | $\begin{aligned} & \text { M 11N 15W } \\ & 15 \end{aligned}$ | Section centroid |
| NEG | 2011-04-01 | $\begin{aligned} & 2030- \\ & 2040 \end{aligned}$ | 0 |  |  |  |  | 38.801984 | -123.525606 | ${ }_{15}^{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| POS | 2011-04-03 | $\begin{aligned} & 0945- \\ & 1050 \end{aligned}$ | 1 | UM |  |  |  | 38.801922 | -123.525471 | $\begin{aligned} & \text { M 11N 15W } \\ & 15 \end{aligned}$ | Section centroid |
| POS | 2011-05-16 | $\begin{aligned} & 2000- \\ & 2014 \end{aligned}$ | 1 | UM |  |  |  | 38.801984 | -123.525606 | $\underset{15}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| NEG | 2012 | 2400 | 0 |  |  |  |  | 38.797460 | -123.512839 | M 11N 15W $14$ | Contributor |
| NEG | 2012 | 2400 | 0 |  |  |  |  | 38.802262 | -123.504678 | $\begin{aligned} & \text { M 11N 15W } \\ & 14 \end{aligned}$ | Contributor |
| NEG | 2012 | 2400 | 0 |  |  |  |  | 38.801984 | -123.525606 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 15 \end{aligned}$ | Section centroid |
| NEG | 2012 | 2400 | 0 |  |  |  |  | 38.814692 | -123.524189 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 10 \end{aligned}$ | Contributor |
| NEG | 2012 | 2400 | 0 |  |  |  |  | 38.813749 | -123.531468 | $\begin{aligned} & \text { M 11N } 15 W \\ & 10 \end{aligned}$ | Contributor |
| NEG | 2012 | 2400 | 0 |  |  |  |  | 38.794570 | -123.517684 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 15 \end{aligned}$ | Contributor |
| NEG | 2012 | 2400 | 0 |  |  |  |  | 38.801984 | -123.525606 | ${ }_{15}^{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| POS | 2012-03-08 | $\begin{aligned} & 1000- \\ & 1130 \end{aligned}$ | 1 | UF |  |  |  | 38.816899 | -123.525397 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 10 \end{aligned}$ | Section centroid |
| NEG | 2012-04-28 | $\begin{aligned} & 1800- \\ & 1900 \end{aligned}$ | 0 |  |  |  |  | 38.801922 | -123.525471 | ${ }_{15}^{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude DD NAD83 | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| POS | 1994-06-01 | 2021 | 2 | UMUF | Y |  |  | 38.859648 | -123.549189 | M 12N 15W $32$ | Section centroid |
| POS | 1994-06-02 | 1620 | 2 | UMUF | Y |  |  | 38.859648 | -123.549189 | M 12N 15W 32 | Section centroid |
| NEG | 1995 |  | 0 |  |  |  |  | 38.862884 | -123.552799 | M 12N 15W 32 | Activity center |
| POS | 1997 |  | 1 | AU |  |  | 0 | 38.863393 | -123.553897 | M 12N 15W 32 | Quarter-section centroid |
| POS | 1997-06-23 | 2400 | 1 | UU |  |  |  | 38.855903 | -123.544481 | $\underset{32}{M} 12 N 15 W$ | Quarter-section centroid |
| POS | 1997-07-15 | 1101 | 2 | UMUF | Y |  |  | 38.860188 | -123.555037 | $\underset{32}{\mathrm{M}} 12 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| POS | 2000 |  | 2 | UMUF | Y | Y | 1 | 38.863040 | -123.554264 | $\underset{32}{\mathrm{M}} 12 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| POS | 2001 |  | 2 | UMUF | Y | N |  | 38.858261 | -123.547184 | $\begin{aligned} & \mathrm{M} \\ & 32 \end{aligned} \text { 12N } 15 \mathrm{~W}$ | Contributor |
| POS | 2001-05-23 | 1200 | 2 | UMUF | Y | N |  | 38.858261 | -123.547184 | $\begin{aligned} & \mathrm{M} \\ & 32 \end{aligned} \text { 12N } 15 \mathrm{~W}$ | Contributor |
| POS | 2002 |  | 2 | UMUF | Y | $N$ |  | 38.863052 | -123.553618 | $\begin{aligned} & \mathrm{M} \\ & 32 \end{aligned} \text { 12N 15W }$ | Contributor |
| NEG | 2002-05-06 | 1200 | 0 |  |  |  |  | 38.862884 | -123.552799 | $\begin{aligned} & \mathrm{M} \\ & 32 \end{aligned} \text { 12N } 15 \mathrm{~W}$ | Activity center |
| NEG | 2002-05-08 | 1200 | 0 |  |  |  |  | 38.862884 | -123.552799 | $\begin{aligned} & \mathrm{M} \\ & 32 \end{aligned} 12 \mathrm{~N} \text { 15W }$ | Activity center |
| POS | 2002-06-27 | 1200 | 1 | UU |  |  |  | 38.863052 | -123.553618 | ${ }_{32}^{\text {M 12N } 15 W}$ | Contributor |
| POS | 2002-07-02 | 2048 | 1 | UU. |  |  |  | 38.861204 | -123.553719 | M 12N 15W 32 | Contributor |
| POS | 2002-07-08 | 1200 | 2 | UMUF | Y | N |  | 38.863052 | -123.553618 | ${ }_{32}^{\mathrm{M}} 12 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| POS | 2002-07-29 | 1200 | 2 | UMUF | Y | N |  | 38.863052 | -123.553618 | ${ }_{32}{ }^{12 N} 15 \mathrm{~W}$ | Contributor |
| POS | 2003-05-21 | 2049 | 1 | UU |  |  |  | 38.863033 | -123.553814 | ${ }_{32}^{\mathrm{M}} 12 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | $\begin{aligned} & \text { Latitude DD } \\ & \text { NAD83 } \end{aligned}$ | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| POS | 2012-05-13 | 2231 | 1 | UU |  |  |  | 38.865040 | -123.543631 | $\begin{aligned} & \text { M 12N } 15 W \end{aligned}$ | Contributor |
| NEG | 2012-06-09 |  | 0 |  |  |  |  | 38.862884 | -123.552799 | $\begin{aligned} & \mathrm{M} 12 \mathrm{~N} 15 \mathrm{~W} \\ & 32 \end{aligned}$ | Activity center |
| NEG | 2012-07-09 |  | 0 |  |  |  |  | 38.863396 | -123.553895 | $\begin{aligned} & \mathrm{M} \\ & 32 \end{aligned} 12 \mathrm{~N} 15 \mathrm{~W}$ | Quarter-section centroid |
| POS | 2013-04-21 | 2259 | 1 | UF |  |  |  | 38.858384 | -123.549709 | ${ }_{32}^{M} 12 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| POS | 2013-04-29 | 2014 | 1 | UM |  |  |  | 38.856859 | -123.544281 | $\begin{aligned} & \text { M 12N 15W } \\ & 32 \end{aligned}$ | Contributor |
| POS | 2013-04-29 | 2257 | 2 | UMUF | Y |  |  | 38.862085 | -123.554026 | $\mathrm{M}_{32} 12 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| POS | 2013-05-01 | 1200 | 1 | UF |  | N |  | 38.858630 | -123.550991 | ${ }_{32}^{M} 12 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| $\underset{\sim}{\alpha} \mathrm{pOS}$ | 2013-06-18 | 0110 | 1 | UM |  |  |  | 38.861388 | -123.552902 | $\mathrm{M}_{32} 12 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2013-07-09 | 1200 | 0 |  |  |  |  | 38.859646 | -123.549186 | $\mathrm{M}_{32} 12 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| NEG | 2014-04-03 | 1200 | 0 |  |  |  |  | 38.862884 | -123.552799 | ${ }_{32}^{M} 12 N 15 W$ | Activity center |
| POS | 2014-04-08 | 2001 | 1 | UM |  |  |  | 38.859056 | -123.556063 | $\mathrm{M}_{32} 12 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2014-05-02 | 1200 | 0 |  |  |  |  | 38.862884 | -123.552799 | $\mathrm{M}_{32}^{\mathrm{M}} 12 \mathrm{~N} 15 \mathrm{~W}$ | Activity center |
| NEG | 2014-05-05 | 1200 | 0 |  |  |  |  | 38.862884 | -123.552799 | $\begin{aligned} & \text { M } 12 \mathrm{~N} 15 \mathrm{~W} \\ & 32 \end{aligned}$ | Activity center |
| POS | 2014-05-13 | 2117 | 1 | UF |  |  |  | 38.850781 | -123.550870 | $\begin{aligned} & \text { M 11N 15W } \\ & 04 \end{aligned}$ | Contributor |
| NEG | 2014-05-14 | 1200 | 0 |  |  |  |  | 38.862884 | -123.552799 | $\begin{aligned} & \text { M } 12 \mathrm{~N} 15 \mathrm{~W} \\ & 32 \end{aligned}$ | Activity center |
| NEG | 2014-05-19 | 1200 | 0 |  |  |  |  | $38.862884$ | -123.552799 | M 12N 15W <br> 32 | Activity center |
| POS | 2014-05-19 | 2055 | 1 | UM |  |  |  | 38.857150 | -123.559079 | $\underset{31}{M} 12 N 15 W$ | Contributor |



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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude DD <br> NAD83 | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEG | 2002-04-11 | 1430 | 0 |  |  |  |  | 38.796779 | -123.482953 | $\begin{aligned} & \text { M 11N } 15 W \\ & 13 \end{aligned}$ | Quarter-section centroid |
| AC | 2002-05-14 | 1500 | 2 | UMUF | Y |  |  | 38.798709 | -123.480809 | $\begin{aligned} & \text { M 11N 15W } \\ & 13 \end{aligned}$ | Contributor |
| POS | 2002-05-15 | 1300 | 1 | UM |  |  |  | 38.804149 | -123.483060 | ${ }_{13}^{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Quarter-section centroid |
| POS | 2002-05-15 | 1300 | 1 | UM |  |  |  | 38.800465 | -123.483006 | $\begin{aligned} & \text { M 11N 15W } \\ & 13 \end{aligned}$ | Half-section centroid |
| NEG | 2003-04-10 | $\begin{aligned} & 1725- \\ & 1925 \end{aligned}$ | 0 |  |  |  |  | 38.796779 | -123.482953 | $\underset{13}{\text { M 11N } 15 W}$ | Quarter-section centroid |
| NEG | 2003-05-15 | 1705 | 0 |  |  |  |  | 38.796779 | -123.482953 | $\underset{13}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Quarter-section centroid |
| NEG | 2003-06-10 | $\begin{aligned} & 1800- \\ & 2020 \end{aligned}$ | 0 |  |  |  |  | 38.796779 | -123.482953 | $\begin{aligned} & \text { M 11N } 15 W \\ & 13 \end{aligned}$ | Quarter-section centroid |
| NEG | 2006 |  | 0 |  |  |  |  | 38.798709 | -123.480809 | $\begin{aligned} & \text { M 11N 15W } \\ & 13 \end{aligned}$ | Activity center |
| NEG | 2011-03-04 | $\begin{aligned} & 2227- \\ & 2237 \end{aligned}$ | 0 |  |  |  |  | 38.803014 | -123.474921 | $\begin{aligned} & \text { M 11N 14W } \\ & 18 \end{aligned}$ | Contributor |
| NEG | 2011-03-04 | $\begin{aligned} & 2213- \\ & 2223 \end{aligned}$ | 0 |  |  |  |  | 38.803358 | -123.486652 | $\begin{aligned} & \text { M 11N } 15 W \\ & 13 \end{aligned}$ | Contributor |
| NEG | 2011-04-01 | $\begin{aligned} & 2230- \\ & 2240 \end{aligned}$ | 0 |  |  |  |  | 38.803358 | -123.486652 | $\begin{aligned} & \mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W} \\ & 13 \end{aligned}$ | Contributor |
| NEG | 2011-04-03 | $\begin{aligned} & 1859- \\ & 1909 \end{aligned}$ | 0 |  |  |  |  | 38.803014 | -123.474921 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 14 \mathrm{~W} \\ & 18 \end{aligned}$ | Contributor |
| POS | 2011-05-12 | $\begin{aligned} & 1615- \\ & 1630 \end{aligned}$ | 2 | UMUF | Y |  |  | 38.800499 | -123.487642 | $\begin{aligned} & \text { M 11 N } 15 W \\ & 13 \end{aligned}$ | Section centroid |
| NEG | 2012 | 2400 | 0 |  |  |  |  | 38.791161 | -123.486695 | $\begin{aligned} & \text { M 11N 15W } \\ & 24 \end{aligned}$ | Contributor |
| NEG | 2012 | 2400 | 0 |  |  |  |  | 38.790009 | -123.478609 | $\begin{aligned} & \text { M 11 N } 15 W \end{aligned}$ | Contributor |
| NEG | 2012 | 2400 | 0 |  |  |  |  | 38.800699 | -123.487242 | M 11N 15W $13$ | Contributor |
| NEG | 2012 | 2400 | 0 |  |  |  |  | $38.798537$ | -123.470552 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 14 \mathrm{~W} \\ & \hline 18 \end{aligned}$ | Contributor |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude DD NAD83 | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEG | 2012 | 2400 | 0 |  |  |  |  | 38.791490 | -123.470585 | $\begin{aligned} & \text { M 11N 14W } \\ & 19 \end{aligned}$ | Contributor |
| POS | 2012-03-10 | $\begin{aligned} & 1700- \\ & 1830 \end{aligned}$ | 2 | UMUF | Y |  |  | 38.800499 | -123.487642 | $\begin{aligned} & \text { M 11N 15W } \\ & 13 \end{aligned}$ | Section centroid |
| NEG | 2012-03-25 | $\begin{aligned} & 1915- \\ & 1940 \end{aligned}$ | 0 |  |  |  |  | 38.800318 | -123.483186 | M 11N 15W $13$ | Contributor |
| POS | 2012-04-27 | $\begin{aligned} & 1815- \\ & 1915 \end{aligned}$ | 2 | UMUF | Y |  |  | 38.800499 | -123.487642 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 13 \end{aligned}$ | Section centroid |
| NEG | 2013 | 2400 | 0 |  |  |  |  | 38.798537 | -123.470552 | $\begin{aligned} & \text { M 11N } 14 W \\ & 18 \end{aligned}$ | Contributor |
| NEG | 2013 | 2400 | 0 |  |  |  |  | 38.791161 | -123.486695 | M 11N 15W $24$ | Contributor |
| NEG | 2013-03-08 | $\begin{aligned} & 1936- \\ & 1946 \end{aligned}$ | 0 |  |  |  |  | 38.790009 | -123.478609 | M 11N 15W 24 | Contributor |
| POS | 2013-03-08 | $\begin{aligned} & 1915- \\ & 1925 \end{aligned}$ | 1 | UU |  |  |  | 38.791490 | -123.470585 | $\begin{aligned} & \text { M 11N 14W } \\ & 19 \end{aligned}$ | Contributor |
| POS | 2013-03-08 | $\begin{aligned} & 1715- \\ & 1718 \end{aligned}$ | 2 | UMUF | Y |  |  | 38.800318 | -123.483186 | M11N15W 13 | Contributor |
| NEG | 2013-04-19 | $\begin{aligned} & 2249- \\ & 2259 \end{aligned}$ | 0 |  |  |  |  | 38.791490 | -123.470585 | M11N 14W <br> 19 | Contributor |
| NEG | 2013-04-19 | $\begin{aligned} & 2327- \\ & 2337 \end{aligned}$ | 0 |  |  |  |  | 38.790009 | -123.478609 | $\begin{aligned} & \text { M 11N } 15 W \\ & 24 \end{aligned}$ | Contributor |
| NEG | 2013-04-27 | $\begin{aligned} & 0206- \\ & 0216 \end{aligned}$ | 0 |  |  |  |  | 38.791490 | -123.470585 | $\begin{aligned} & \text { M 11N 14W } \\ & 19 \end{aligned}$ | Contributor |
| POS | 2013-04-27 | $\begin{aligned} & 0245- \\ & 0255 \end{aligned}$ | 1 | UU |  |  |  | 38.790009 | -123.478609 | $\begin{aligned} & \mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W} \\ & 24 \end{aligned}$ | Contributor |
| NEG | 2013-05-26 | $\begin{aligned} & 0204- \\ & 0214 \end{aligned}$ | 0 |  |  |  |  | 38.790009 | -123.478609 | M 11N 15W 24 | Contributor |
| NEG | 2013-06-03 | $\begin{aligned} & 0226- \\ & 0236 \end{aligned}$ | 0 |  |  |  |  | 38.790009 | -123.478609 | M 11N 15W 24 | Contributor |
| NEG | 2013-07-06 | $\begin{aligned} & 0309- \\ & 0319 \end{aligned}$ | 0 |  |  |  |  | 38.790009 | -123.478609 | $\begin{aligned} & \text { M 11N 15W } \\ & 24 \end{aligned}$ | Contributor |
| POS | 2013-07-10 | $\begin{aligned} & 0830- \\ & 0945 \end{aligned}$ | 2 | UMUF | Y |  |  | 38.799693 | -123.468785 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 14 \mathrm{~W} \\ & 18 \end{aligned}$ | Section centroid |



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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude DD <br> NAD83 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| NEG | $2003-07-09$ | 1200 | 0 |  |  | Longitude DD |  |  |
| NAD83 |  |  |  |  |  |  |  |  |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | $\begin{aligned} & \text { Latitude DD } \\ & \text { NAD83 } \end{aligned}$ | $\begin{aligned} & \text { Longitude DD } \\ & \text { NAD83 } \end{aligned}$ | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEG | 2005-07-21 | 2400 | 0 |  |  |  |  | 38.831403 | -123.530458 | $\begin{aligned} & \text { M } 11 \text { N } 15 W \\ & 03 \end{aligned}$ | Quarter-section centroid |
| NEG | 2006 |  | 0 |  |  |  |  | 38.838981 | -123.526527 | M 11N 15W $03$ | Activity center |
| NEG | 2006-05-04 |  | 0 |  |  |  |  | 38.831403 | -123.530458 | M 11N 15W 03 | Quarter-section centroid |
| NEG | 2006-06-14 |  | 0 |  |  |  |  | 38.831403 | -123.530458 | M 11N 15W 03 | Quarter-section centroid |
| POS | 2006-07-19 | 2201 | 1 | UF |  |  |  | 38.845024 | -123.529256 | M 11N15W 03 | Contributor |
| POS | 2006-07-19 | 2208 | 1 | UM |  |  |  | 38.845229 | -123.529892 | M 11N 15W 03 | Contributor |
| POS | 2007-04-03 | 2022 | 1 | UU |  |  |  | 38.838009 | -123.522084 | M 11N 15W 03 | Contributor |
| $w$ POS | 2007-04-03 | 2105 | 1 | UU |  |  |  | 38.838476 | -123.526466 | M 11N15W 03 | Contributor |
| $\stackrel{\downarrow}{\sim}$ | 2007-04-10 | 2150 | 1 | UM |  |  |  | 38.835367 | -123.538518 | M 11 N 15 W 04 | Contributor |
| POS | 2007-04-10 | 2210 | 1 | UM |  |  |  | 38.834275 | -123.542784 | M 11N 15W 04 | Contributor |
| POS | 2007-04-18 | 2205 | 1 | UU |  |  |  | 38.831950 | -123.540739 | M 11N 15W 04 | Contributor |
| POS | 2007-04-18 | 2105 | 1 | UM |  |  |  | 38.842089 | -123.526700 | M 11N 15W 03 | Contributor |
| POS | 2007-04-18 | 2221 | 1 | UU |  |  |  | 38.835612 | -123.545928 | M 11N 15W 04 | Contributor |
| NEG | 2007-04-18 | 1200 | 0 |  |  |  |  | 38.845209 | -123.530237 | M 11N 15W 03 | Quarter-section centroid |
| POS | 2007-05-07 | 1903 | 2 | UMUF | Y |  |  | 38.841246 | -123.527788 | M 11N 15W 03 | Contributor |
| POS | 2007-05-08 | $\begin{aligned} & 1250- \\ & 1315 \end{aligned}$ | 2 | UMAF | Y | N |  | 38.838780 | -123.527159 | M 11 N 15 W $03$ | Contributor |
| POS | 2008 |  | 2 | UMUF | Y | Y | $0 \cdots$ | - 38.838981 | -123.526527 | $\begin{aligned} & \text { M 11N } 15 W \\ & 03 \end{aligned}$ | Contributor |
|  |  |  |  |  |  |  | Page 69 |  |  |  |  |


| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude $D D$ NAD83 | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| POS | 2008-03-04 | 1900 | 1 | UM |  |  |  | 38.841131 | -123.529216 | M 11N 15W 03 | Contributor |
| POS | 2008-03-04 | 1847 | 1 | UU |  |  |  | 38.839723 | -123.527869 | $\begin{aligned} & \text { M 11N } 15 W \\ & 03 \end{aligned}$ | Contributor |
| NEG | 2008-03-04 |  | 0 |  |  |  |  | 38.838981 | -123.526527 | M11N15W $03$ | Activity center |
| POS | 2008-03-11 |  | 1 | AM |  |  |  | 38.837915 | -123.527176 | $\begin{aligned} & . M_{03} 11 N 15 W \end{aligned}$ | Contributor |
| POS | 2008-03-11 | 1920 | 1 | UU |  |  |  | 38.838615 | -123.525626 | $\begin{aligned} & \text { M 11N 15W } \\ & 03 \end{aligned}$ | Contributor |
| POS | 2008-03-11 | 1931 | 1 | UU |  |  |  | 38.837924 | -123.528973 | $\mathrm{M}_{03} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| POS | 2008-03-19 |  | 2 | UMUF | Y | N |  | 38.838981 | -123.526527 | $\underset{03}{\mathrm{M}} 11 \mathrm{~N} 15 \mathrm{~W}$ | Activity center |
| AC | 2008-05-16 |  | 2 | UMUF | Y | Y |  | 38.838981 | -123.526527 | $\underset{03}{\mathrm{M}} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| POS | 2008-06-18 |  | 1 | UM |  |  |  | 38.839473 | -123.527360 | M 11N 15W <br> 03 | Contributor |
| NEG | 2010-05-31 |  | 0 |  |  |  |  | 38.838981 | -123.526527 | M 11N 15W 03 | Activity center |
| NEG | 2010-07-18 |  | 0 |  |  |  |  | 38.845074 | -123.520997 | $\underset{03}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Quarter-section centroid |
| NEG | 2011-05-09 |  | 0 |  |  |  |  | 38.845205 | -123.530242 | $\underset{03}{\mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W}}$ | Quarter-section centroid |
| NEG | 2011-07-25 |  | 0 |  |  |  |  | 38.845205 | -123.530242 | $\begin{aligned} & \text { M 11N } 15 W \mathrm{~W} \\ & 03 \end{aligned}$ | Quarter-section centroid |
| NEG | 2012-05-13 |  | 0 |  |  |  |  | 38.838981 | -123.526527 | $\begin{aligned} & \mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W} \\ & 03 \end{aligned}$ | Activity center |
| NEG | 2012-06-09 |  | 0 |  |  |  |  | 38.838981 | -123.526527 | $\begin{aligned} & \text { M 11N 15W } \\ & 03 \end{aligned}$ | Activity center |
| NEG | 2012-06-12 |  | 0 |  |  |  |  | 38.831398 | -123.530456 | M 11 N 15 W | Quarter-section centroid |
| POS | 2012-07-15 | 2314 | 1 | UM |  |  |  | 38.843738 | -123.519279 | M 11N 15W <br> 03 | Contributor |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | $\begin{aligned} & \text { Latitude DD } \\ & \text { NAD83 } \end{aligned}$ | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| POS | 2012-07-15 | 2340 | 1 | UM |  |  |  | 38.840609 | -123.524697 | $\begin{aligned} & \text { M 11N } 15 W \\ & 03 \end{aligned}$ | Contributor |
| NEG | 2013-06-17 | 1200 | 0 |  |  |  |  | 38.831398 | -123.530456 | $\begin{aligned} & \text { M 11N 15W } \\ & 03 \end{aligned}$ | Quarter-section centroid |
| POS | 2015 |  | 1 | UU |  |  |  | 38.838405 | -123.527466 | $\begin{aligned} & \text { M 11N 15W } \\ & 03 \end{aligned}$ | Activity center |
| NEG | 2016-06-28 | 1200 | 0 |  |  |  |  | 38.845070 | -123.520994 | M 11N 15W $03$ | Quarter-section centroid |
| Masterowl: MEN0587 Subspecies: NORTHERN |  |  |  |  |  |  |  |  |  |  |  |
| NEG | 1991-06-13 |  | 0 |  |  |  |  | 38.829496 | -123.492240 | $\begin{aligned} & \text { M 11N 15W } \\ & 01 \end{aligned}$ | Quarter-section centroid |
| POS | 1991-09-23 |  | 1 | UU |  |  |  | 38.815034 | -123.487614 | ${ }_{12}^{\mathrm{M}} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| POS | 1992-03-12 |  | 1 | UU |  |  |  | 38.815034 | -123.487614 | ${ }_{12}^{M 11 N 15 W}$ | Section centroid |
| POS | 1994-08-10 |  | 1 | UU |  |  |  | 38.818748 | -123.483101 | $\begin{aligned} & M 11 \mathrm{~N} 15 \mathrm{~W} \\ & 12 \end{aligned}$ | Quarter-section centroid |
| NEG | 1995-04-02 |  | 0 |  |  |  |  | 38.815034 | -123.487614 | ${ }_{12}^{\mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W}}$ | Section centroid |
| POS | 1995-07-12 |  | 1 | UU |  |  |  | 38.818748 | -123.483101 | $\begin{aligned} & \text { M } 11 \text { N } 15 W \end{aligned}$ | Quarter-section centroid |
| NEG | 1995-07-13 |  | 0 |  |  |  |  | 38.815034 | -123.487614 | ${ }_{12} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| POS | 2000-04-04 | 2106 | 1 | UM |  |  |  | 38.818566 | -123.492165 | $M_{12} 11 \mathrm{~N} 15 \mathrm{~W}$ | Quarter-section centroid |
| NEG | 2000-04-06 | 1248 | 0 |  |  |  |  | 38.815034 | -123.487614 | $M_{12}^{M 11 N 15 W}$ | Section centroid |
| POS | 2000-04-14 | 2208 | 1 | UU |  |  |  | 38.818566 | -123.492165 | ${ }_{12} 11 \text { N } 15 W$ | Quarter-section centroid |
| NEG | 2000-04-15 | 1419 | 0 |  |  |  |  | 38.836678 | -123.487923 | $\begin{aligned} & \text { M 11N } 15 \mathrm{~W} \\ & 01 \end{aligned}$ | Section centroid |
| POS | 2000-06-28 | 1646 | 1 | UM |  |  |  | 38.829435 | -123.483231 | $\begin{aligned} & \text { M 11N 15W } \\ & 01 \end{aligned}$ | Quarter-section centroid |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | $\underset{\substack{\text { Latitude } \\ \text { NAD83 }}}{ }$ | $\begin{aligned} & \text { Longitude DD } \\ & \text { NAD83 } \end{aligned}$ | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| POS | 2001-03-10 | 0029 | 1 | UF |  |  |  | 38.823126 | -123.482633 | M11N15W 01 | Contributor |
| POS | 2001-03-11 | 2042 | 1 | UF |  |  |  | 38.819989 | -123.488660 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 12 \end{aligned}$ | Contributor |
| NEG | 2001-05-16 | 0031 | 0 |  |  |  |  | 38.829496 | -123.492240 | $\begin{aligned} & \text { M 11N 15W } \\ & 01 \end{aligned}$ | Quarter-section centroid |
| POS | 2003-06-02 | 2315 | 1 | UM |  |  |  | 38.826484 | -123.484618 | $\begin{aligned} & \text { M 11N 15W } \\ & 01 \end{aligned}$ | Contributor |
| POS | 2003-06-03 | 1845 | 1 | UU |  |  |  | 38.829435 | -123.483231 | $\begin{aligned} & \text { M 11N } 15 \mathrm{~W} \\ & 01 \end{aligned}$ | Quarter-section centroid |
| POS | 2003-06-03 | $\begin{aligned} & 1615- \\ & 1850 \end{aligned}$ | 1 | UF |  |  |  | 38.826222 | -123.486178 | $\begin{aligned} & \text { M 11N 15W } \\ & 01 \end{aligned}$ | Contributor |
| POS | 2003-06-26 | $\begin{aligned} & 1926- \\ & 2018 \end{aligned}$ | 1 | UU |  |  |  | 38.825304 | -123.489656 | $\begin{gathered} \text { M 11N 15W } \\ 01 \end{gathered}$ | Contributor |
| NEG | 2004 |  | 0 |  |  |  |  | 38.825304 | -123.489656 | $\begin{aligned} & \mathrm{M} \\ & 01 \end{aligned} 11 \mathrm{~N} 15 \mathrm{~W}$ | Activity center |
| NEG | 2006 |  | 0 |  |  |  |  | 38.825304 | -123.489656 | M 11N 15W 01 | Activity center |
| POS | 2007 |  | 2 | UMUF | Y |  |  | 38.825304 | -123.489656 | $\begin{aligned} & \text { M 11N } 15 \mathrm{~W} \\ & 01 \end{aligned}$ | Activity center |
| POS | 2007-03-31 | 0008 | 1 | UM |  |  |  | 38.829496 | -123.492240 | $\begin{aligned} & \text { M 11N 15W } \\ & 01 \end{aligned}$ | Quarter-section centroid |
| NEG | 2011 | 2400 | 0 |  |  |  |  | 38.832850 | -123.488601 | M 11N 15W 01 | Contributor |
| NEG | 2011-03-04 | $\begin{aligned} & 1910- \\ & 1920 \end{aligned}$ | 0 |  |  |  |  | 38.830594 | -123.482424 | M 11 N 15W 01 | Contributor |
| POS | 2011-03-04 | $\begin{aligned} & 1855- \\ & 1905 \end{aligned}$ | 1 | UM |  |  |  | 38.826484 | -123.484618 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 01 \end{aligned}$ | Contributor |
| NEG | 2011-03-04 | $\begin{aligned} & 1830- \\ & 1840 \end{aligned}$ | 0 |  |  |  |  | 38.823126 | -123.482633 | $\begin{aligned} & \text { M } 11 \text { N } 15 W \\ & 01 \end{aligned}$ | Contributor |
| NEG | 2011-04-01 | $\begin{aligned} & 2357-1 \\ & 0007 \end{aligned}$ | 0 |  |  |  |  | 38.830594 | -123.482424 | $\begin{aligned} & \text { M 11N 15W } \\ & 01 \end{aligned}$ | Contributor |
| AC | 2011-04-02 | $\begin{aligned} & 1600- \\ & 1730 \end{aligned}$ | 1 | UM |  |  |  | 38.825304 | -123.489656 | M 11N 15W <br> 01 | Contributor |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | $\begin{aligned} & \text { Latitude DD } \\ & \text { NAD83 } \end{aligned}$ | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| POS | 2011-05-02 | $\begin{aligned} & 1600- \\ & 1730 \end{aligned}$ | 1 | UM |  |  |  | 38.815034 | -123.487614 | ${ }_{12}^{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| POS | 2011-05-12 | $\begin{aligned} & 1900- \\ & 1910 \end{aligned}$ | 1 | UM |  |  |  | 38.826484 | -123.484618 | $\begin{aligned} & \text { M 11N 15W } \\ & 01 \end{aligned}$ | Contributor |
| POS | 2015 |  | 1 | UU |  |  |  | 38.825304 | -123.489656 | M 11N 15W 01 | Activity center |
| Masterowl: MEN0593 Subspecies: NORTHERN |  |  |  |  |  |  |  |  |  |  |  |
| NEG | 2003-05-22 | 2026 | 0 |  |  |  |  | 38.863479 | -123.571718 | $\mathrm{M}_{31}^{\mathrm{M}} 12 \mathrm{~N} 15 \mathrm{~W}$ | Quarter-section centroid |
| NEG | 2003-07-10 | 2100 | 0 |  |  |  |  | 38.859743 | -123.567228 | ${ }_{31}^{M} 12 N 15 W$ | Section centroid |
| POS | 2004-06-28 | 2111 | 1 | UM |  |  |  | 38.865232 | -123.574406 | $\underset{31}{M} 12 N 15 W$ | Contributor |
| POS | 2004-06-28 | 2058 | 1 | UM |  |  |  | 38.857631 | -123.573354 | $\begin{aligned} & \mathrm{M} \\ & 31 \end{aligned} 12 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| POS | 2004-07-06 | 2122 | 1 | UM |  |  |  | 38.859196 | -123.572214 | $\underset{31}{\mathrm{M}} 12 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| POS | 2004-07-06 | 2400 | 1 | UU |  | N | 0 | 38.863424 | -123.569862 | $\begin{aligned} & \text { M 12N 15W } \\ & 31 \end{aligned}$ | Contributor |
| POS | 2004-07-12 | 2400 | 2 | UMUF | Y | N | 0 | 38.865057 | -123.569633 | $\underset{31}{M} 12 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| POS | 2005-04-20 | 2400 | 1 | UM |  |  |  | 38.863728 | -123.568550 | $\underset{31}{\mathrm{M}} 12 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| POS | 2005-06-09 | 2056 | 1 | UU |  |  |  | 38.862375 | -123.570775 | $\underset{31}{M} 12 N 15 W$ | Contributor |
| AC | 2005-06-14 | $\begin{aligned} & 1645- \\ & 1739 \end{aligned}$ | 2 | AMAF | Y |  | 2 | 38.863523 | -123.569897 | $\begin{aligned} & \text { M 12N 15W } \\ & 31 \end{aligned}$ | Contributor |
| POS | 2005-06-23 | $\begin{aligned} & 1100- \\ & 1215 \end{aligned}$ | 1 | AF |  |  | 2 | 38.865619 | -123.570801 | $\underset{31}{M} 12 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| POS | 2005-07-26 | 2400 | 1 | AM |  |  | 2 | 38.865853 | -123.568994 | ${ }_{31}^{M} 12 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| POS | 2006 |  | 1 | UF |  |  |  | 38.864642 | -123.567854 | ${ }_{31}^{\mathrm{M}} 12 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude $D D$ NAD83 | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEG | 2006-05-04 |  | 0 |  |  |  |  | 38.863479 | -123.571718 | ${ }_{31}^{\mathrm{M}} 12 \mathrm{~N} 15 \mathrm{~W}$ | Quarter-section centroid |
| POS | 2006-05-04 | 2030 | 1 | UU |  |  |  | 38.862449 | -123.568471 | $\underset{31}{\mathrm{M} 12 \mathrm{~N}} 15 \mathrm{~W}$ | Contributor |
| POS | 2006-05-05 | $\begin{aligned} & 1007- \\ & 1110 \end{aligned}$ | 1 | AF |  | $N$ |  | 38.864642 | -123.567854 | $\begin{gathered} \text { M } 12 \mathrm{~N} 15 \mathrm{~W} \\ 31 \end{gathered}$ | Contributor |
| NEG | 2006-06-14 |  | 0 |  |  |  |  | 38.863479 | -123.571718 | $\begin{aligned} & \mathrm{M} \\ & 31 \end{aligned}$ | Quarter-section centroid |
| NEG | 2006-07-19 |  | 0 |  |  |  |  | 38.863479 | -123.571718 | $\begin{aligned} & \mathrm{M} \\ & 31 \end{aligned}$ | Quarter-section centroid |
| NEG | 2007-04-03 | 1200 | 0 |  |  |  |  | 38.863479 | -123.571718 | ${ }_{31}^{\mathrm{M}} 12 \mathrm{~N} 15 \mathrm{~W}$ | Quarter-section centroid |
| POS | 2007-04-03 | 2118 | 1 | UU |  |  |  | 38.844722 | -123.566947 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 05 \end{aligned}$ | Contributor |
| NEG | 2007-04-10 | 1200 | 0 |  |  |  |  | 38.845686 | -123.568914 | $\begin{aligned} & \mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W} \\ & 05 \end{aligned}$ | Quarter-section centroid |
| POS | 2007-04-18 | 2055 | 1 | UU |  |  |  | 38.852265 | -123.568793 | $\begin{aligned} & \text { M 11N 15W } \\ & 05 \end{aligned}$ | Contributor |
| NEG | 2007-05-15 | 1200 | 0 |  |  |  |  | 38.863479 | -123.571718 | ${ }_{31}^{\mathrm{M}} 12 \mathrm{~N} 15 \mathrm{~W}$ | Quarter-section centroid |
| POS | 2007-06-07 | 0015 | 1 | UM |  |  |  | 38.847904 | -123.572365 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 05 \end{aligned}$ | Contributor |
| POS | 2007-06-07 | 1200 | 1 | UM |  |  |  | 38.864617 | -123.569318 | $\underset{31}{M} 12 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| POS | 2008 |  | 1 | AM |  |  |  | 38.860941 | -123.572723 | $\underset{31}{M} 12 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2008-04-07 |  | 0 |  |  |  |  | 38.863523 | -123.569897 | $\underset{31}{M} 12 N 15 W$ | Activity center |
| POS | 2008-04-16 | 2308 | 1 | UM |  |  |  | 38.860354 | -123.571140 | ${ }_{31}^{\mathrm{M}} 12 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2008-04-17 |  | 0 |  |  |  |  | 38.863523 | -123.569897 | M 12N 15W 31 | Activity center |
| NEG | 2008-04-28 |  | 0 |  |  |  |  | 38.863523 | -123.569897 | ${ }_{31}^{\mathrm{M}} 12 \mathrm{~N} 15 \mathrm{~W}$ | Activity center |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude DD <br> NAD83 | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Masterowl: SON0017 Subspecies: NORTHERN |  |  |  |  |  |  |  |  |  |  |  |
| POS | 1990-02-02 |  | 1 | UU |  |  |  | 38.773615 | -123.463826 | ${ }_{30}^{\mathrm{M} 11 \mathrm{~N} 14 \mathrm{~W}}$ | Quarter-section centroid |
| POS | 1990-02-07 |  | 1 | UM |  |  |  | 38.766342 | -123.464101 | ${ }_{30}^{\mathrm{M}} 11 \mathrm{~N} 14 \mathrm{~W}$ | Quarter-section centroid |
| POS | 1990-03-21 |  | 2 | UMUF | Y | Y |  | 38.767034 | -123.473487 | $\begin{aligned} & \text { M 11N } 14 \mathrm{~W} \\ & 30 \end{aligned}$ | Quarter-section centroid |
| POS | 1990-04-04 | 1700 | 1 | UM |  |  |  | 38.768549 | -123.470988 | $\mathrm{M}_{30}^{\mathrm{M}} 11 \mathrm{~N} 14 \mathrm{~W}$ | Contributor |
| POS | 1990-06-17 | 2045 | 0 |  |  |  | 2 | 38.773390 | -123.454662 | $\underset{29}{\dot{M} 11 N 14 W}$ | Quarter-section centroid |
| NEG | 1991-04-23 |  | 0 |  |  |  |  | 38.771320 | -123.487547 | $\underset{25}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| POS | 1991-04-24 | 2010 | 2 | UMUF | Y |  |  | 38.767034 | -123.473487 | $\begin{aligned} & \text { M 11N 14W } \\ & 30 . \end{aligned}$ | Quarter-section centroid |
| POS | 1991-05-21 |  | 1 | UU |  |  |  | 38.773390 | -123.454662 | $\begin{aligned} & \text { M 11N 14W } \\ & 29 \end{aligned}$ | Quarter-section centroid |
| POS | 1991-07-17 | 9999 | 1 | UU |  |  |  | 38.770325 | -123.468628 | ${ }_{30}^{\mathrm{M} 11 \mathrm{~N} 14 \mathrm{~W}}$ | Section centroid |
| POS | 1991-07-17 | 9999 | 1 | UU |  |  |  | 38.771320 | -123.487547 | ${ }_{25}^{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| POS | 1991-07-17 |  | 1 | UU |  |  |  | 38.785883 | -123.487589 | $\underset{24}{M 11 N 15 W}$ | Section centroid |
| POS | 1991-08-07 |  | 1 | UU |  |  |  | . 38.767034 | -123.473487 | ${ }_{30}^{\mathrm{M} 11 \mathrm{~N} 14 \mathrm{~W}}$ | Quarter-section centroid |
| POS | 1991-08-07 |  | 1 | UU |  |  |  | 38.767528 | -123.482860 | $\underset{25}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Quarter-section centroid |
| POS | 1991-08-15 | 2040 | 1 | UU |  |  |  | 38.767528 | -123.482860 | ${ }_{25}^{M} 11 N 15 W$ | Quarter-section centroid |
| POS | 1991-10-02 |  | 1 | UU |  |  |  | 38.767528 | -123.482860 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 25 \end{aligned}$ | Quarter-section centroid |
| NEG | 1992-03-10 |  | 0 |  |  |  |  | 38.770325 | -123.468628 | $\begin{aligned} & \mathrm{M} 11 \mathrm{~N} 14 \mathrm{~W} \\ & 30 \end{aligned}$ | Section centroid |

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|  | Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | $\begin{aligned} & \text { Latitude DD } \\ & \text { NAD83 } \end{aligned}$ | $\begin{aligned} & \text { Longitude DD } \\ & \text { NAD83 } \end{aligned}$ | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | POS | 1994-04-01 |  | 1 | UM |  |  |  | 38.768981 | -123.475595 | $\begin{aligned} & \text { M 11N 14W } \\ & 30 \end{aligned}$ | Contributor |
|  | NEG | 1994-04-06 |  | 0 |  |  |  |  | 38.770325 | -123.468628 | ${ }_{30}^{\mathrm{M} 11 \mathrm{~N} 14 \mathrm{~W}}$ | Section centroid |
|  | POS | 1994-04-27 |  | 2 | UMUF | Y |  |  | 38.768981 | -123.475595 | ${ }_{30}^{M} 11 \mathrm{~N} 14 \mathrm{~W}$ | Contributor |
|  | POS | 1995-03-30 |  | 2 | UMUF | Y |  |  | 38.768549 | -123.470988 | $\begin{aligned} & \text { M 11N 14W } \\ & 30 \end{aligned}$ | Contributor |
|  | NEG | 1995-04-10 |  | 0 |  |  |  |  | 38.769964 | -123.450450 | $\begin{aligned} & \text { M 11N 14W } \\ & 29 \end{aligned}$ | Section centroid |
|  | POS | 1995-04-20 |  | 1 | UU |  |  |  | 38.768549 | -123.470988 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 14 \mathrm{~W} \\ & 30 \end{aligned}$ | Contributor |
|  | NEG | 1995-05-04 |  | 0 |  |  |  |  | 38.784113 | -123.450136 | $\underset{20}{\text { M 11N } 14 W}$ | Section centroid |
| $w$ | POS | 1995-05-10 |  | 1 | UU |  |  |  | 38.780545 | -123.454511 | $\begin{aligned} & \text { M 11N } 14 \mathrm{~W} \\ & 20 \end{aligned}$ | Quarter-section centroid |
| $\begin{aligned} & C O \\ & W \end{aligned}$ | POS | 1995-05-10 | 9999 | 1 | UU |  |  |  | 38.773615 | -123.463826 | $\underset{30}{\mathrm{M} 11 \mathrm{~N} 14 \mathrm{~W}}$ | Quarter-section centroid |
|  | POS | 1995-05-11 |  | 2 | UMUF | Y | Y |  | 38.768981 | -123.475595 | $\begin{aligned} & \text { M 11N 14W } \\ & 30 \end{aligned}$ | Contributor |
|  | NEG | 1995-05-18 |  | 0 |  |  |  |  | 38.770325 | -123.468628 | ${ }_{30}^{\mathrm{M} 11 \mathrm{~N} 14 \mathrm{~W}}$ | Section centroid |
|  | NEG | 1995-05-25 |  | 0 |  |  |  |  | 38.770325 | -123.468628 | ${ }_{30}^{\mathrm{M} 11 \mathrm{~N} 14 \mathrm{~W}}$ | Section centroid |
|  | POS | 1995-05-29 |  | 2 | UMUF | Y |  |  | 38.770325 | -123.468628 | $\mathrm{M}_{30}^{\mathrm{M} 11 \mathrm{~N} 14 \mathrm{~W}}$ | Section centroid |
|  | POS | 1995-06-01 | 0925 | 2 | UMUF | Y | Y |  | 38.768981 | -123.475595 | ${ }_{30}^{\mathrm{M} 11 \mathrm{~N} 14 \mathrm{~W}}$ | Contributor |
|  | POS | 1995-07-06 |  | 2 | UMUF | Y | Y | 1 | 38.768981 | -123.475595 | ${ }_{30}^{M 11 N} 14 W$ | Contributor |
|  | POS | 1995-09-18 |  | 1 | UU |  |  |  | 38.773604 | -123.445765 | M 11N 14W $29$ | Quarter-section centroid |
|  | NEG | 1996-02-26 |  | 0 |  |  |  |  | 38.770325 | -123.468628 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 14 \mathrm{~W} \\ & 30 \end{aligned}$ | Section centroid |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude DD NAD83 | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| POS | 1996-03-03 |  | 1 | UU |  |  |  | 38.767034 | -123.473487 | $\begin{aligned} & \text { M 11N } 14 \mathrm{~W} \\ & 30 \end{aligned}$ | Quarter-section centroid |
| POS | 1996-03-04 |  | 1 | UU |  |  |  | 38.767034 | -123.473487 | $\begin{aligned} & \text { M 11N 14W } \\ & 30 \end{aligned}$ | Quarter-section centroid |
| NEG | 1996-03-13 | 0937 | 0 |  |  |  |  | 38.767034 | -123.473487 | $\begin{aligned} & \text { M 11N 14W } \\ & 30 \end{aligned}$ | Quarter-section centroid |
| POS | 1996-03-17 |  | 2 | UMUF | Y |  |  | 38.767034 | -123.473487 | $\begin{aligned} & \text { M 11N 14W } \\ & 30 \end{aligned}$ | Quarter-section centroid |
| POS | 1996-03-18 |  | 2 | UMUF | Y |  |  | 38.767034 | -123.473487 | $\begin{aligned} & \text { M 11N } 14 \mathrm{~W} \\ & 30 \end{aligned}$ | Quarter-section centroid |
| POS | 1996-05-09 |  | 1 | UU |  |  |  | 38.767034 | -123.473487 | $\underset{30}{\mathrm{M} 11 \mathrm{~N} 14 \mathrm{~W}}$ | Quarter-section centroid |
| NEG | 1996-06-30 |  | 0 |  |  |  |  | 38.769964 | -123.450450 | $\begin{aligned} & \text { M 11N 14W } \\ & 29 \end{aligned}$ | Section centroid |
| NEG | 1996-06-30 |  | 0 |  |  |  |  | 38.770325 | -123.468628 | $\begin{aligned} & \text { M 11N 14W } \\ & 30 \end{aligned}$ | Section centroid |
| NEG | 1996-08-05 |  | 0 |  | . |  |  | 38.770325 | -123.468628 | $\begin{aligned} & \text { M 11N 14W } \\ & 30 \end{aligned}$ | Section centroid |
| POS | 1997-03-03 |  | 2 | UMUF |  |  |  | 38.767034 | -123.473487 | $\begin{aligned} & \text { M 11N 14W } \\ & 30 \end{aligned}$ | Quarter-section centroid |
| POS | 1997-04-14 |  | 2 | UMUF | Y | Y |  | 38.768549 | -123.470988 | ${ }_{30}^{\mathrm{M} 11 \mathrm{~N} 14 \mathrm{~W}}$ | Contributor |
| NEG | 1997-04-29 |  | 0 |  |  |  |  | 38.771320 | -123.487547 | $\underset{25}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| POS | 1997-05-27 |  | 2 | UMUF | Y |  |  | 38.767034 | -123.473487 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 14 \mathrm{~W} \\ & 30 \end{aligned}$ | Quarter-section centroid |
| NEG | 1997-06-10 |  | 0 |  |  |  |  | 38.771320 | -123.487547 | $\underset{25}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| NEG | 1997-06-17 |  | 0 |  |  |  |  | 38.771320 | -123.487547 | $\begin{aligned} & \text { M } 11 \text { N } 15 W \end{aligned}$ | Section centroid |
| POS | 1997-07-01 |  | 1 | UU |  |  |  | 38.767528 | -123.482860 | ${ }_{25}^{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Quarter-section centroid |
| POS | 1997-07-01 | 9999 | 1 | UU |  |  |  | 38.759878 | -123.473693 | ${ }_{31}^{M 11 N 14 W}$ | Quarter-section centroid |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | $\begin{aligned} & \text { Latitude DD } \\ & \text { NAD83 } \end{aligned}$ | $\begin{aligned} & \text { Longitude DD } \\ & \text { NAD83 } \end{aligned}$ | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| POS | 1997-07-22 |  | 1 | UU |  |  |  | 38.767034 | -123.473487 | ${ }_{30}^{\text {M 11N } 14 W}$ | Quarter-section centroid |
| POS | 1998-03-03 |  | 2 | UMUF | Y |  |  | 38.767034 | -123.473487 | ${ }_{30}^{\mathrm{M}} 11 \mathrm{~N} 14 \mathrm{~W}$ | Quarter-section centroid |
| POS | 1998-04-28 |  | 2 | UMUF | Y |  |  | 38.767034 | -123.473487 | $\mathrm{M}_{30}^{\mathrm{M} 11 \mathrm{~N} 14 \mathrm{~W}}$ | Quarter-section centroid |
| POS | 1998-06-09 |  | 1 | UU |  |  |  | 38.767034 | -123.473487 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 14 \mathrm{~W} \\ & 30 \end{aligned}$ | Quarter-section centroid |
| NEG | 1998-07-13 |  | 0 |  |  |  |  | 38.769964 | -123.450450 | $\begin{aligned} & \text { M 11N 14W } \\ & 29 \end{aligned}$ | Section centroid |
| NEG | 1998-07-20 |  | 0 |  |  |  |  | 38.769964 | -123.450450 | $\begin{aligned} & \text { M 11N 14W } \\ & 29 \end{aligned}$ | Section centroid |
| POS | 1998-07-24 |  | 1 | UM |  |  |  | 38.767034 | -123.473487 | $\begin{aligned} & \text { M } 11 \text { IN } 14 \mathrm{~W} \\ & 30 \end{aligned}$ | Quarter-section centroid |
| POS | 1998-07-29 |  | 2 | UMUF | Y |  |  | 38.767034 | -123.473487 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 14 \mathrm{~W} \\ & 30 \end{aligned}$ | Quarter-section centroid |
| NEG | 1998-08-13 |  | 0 |  |  |  |  | 38.771320 | -123.487547 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 25 \end{aligned}$ | Section centroid |
| NEG | 1998-08-20 |  | 0 |  |  |  |  | 38.771320 | -123.487547 | $\underset{25}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| NEG | 1998-08-27 |  | 0 |  |  |  |  | 38.771320 | -123.487547 | $\underset{25}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| NEG | 1999 | 2400 | 0 |  |  |  |  | 38.771384 | -123.457321 | $\underset{29}{M} 11 \mathrm{~N} 14 \mathrm{~W}$ | Contributor |
| NEG | 1999 | 2400 | 0 |  |  |  |  | 38.775071 | -123.448740 | $\begin{aligned} & \text { M 11N 14W } \\ & 29 \end{aligned}$ | Contributor |
| POS | 1999-03-15 | 1753 | 2 | UMUF | Y |  |  | 38.771723 | -123.474797 | $\begin{aligned} & \text { M 11N 14W } \\ & 30 \end{aligned}$ | Contributor |
| NEG | 1999-03-17 | 0015 | 0 |  |  |  |  | 38.771320 | -123.487547 | $\underset{25}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| NEG | 1999-03-19 | 1926 | 0 |  |  |  |  | 38.771320 | -123.487547 | $\underset{25}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| NEG | 1999-03-28 | 2250 | 0 |  |  |  |  | 38.771320 | -123.487547 | M 11N 15W 25 | Section centroid |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | $\begin{aligned} & \text { Latitude DD } \\ & \text { NAD83 } \end{aligned}$ | $\begin{aligned} & \text { Longitude DD } \\ & \text { NAD83 } \end{aligned}$ | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEG | 2012 | 2400 | 0 |  |  |  |  | 38.761477 | -123.494327 | $\mathrm{M}_{36} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2012 | 2400 | 0 |  |  |  |  | 38.766429 | -123.487526 | $\underset{25}{M 11 N} 15 W$ | Contributor |
| NEG | 2012 | 2400 | 0 |  |  |  |  | 38.751819 | -123.488838 | M11N15W 36 | Contributor |
| NEG | 2012-03-07 | $\begin{aligned} & 2019- \\ & 2029 \end{aligned}$ | 0 |  |  |  |  | 38.775640 | -123.474278 | $\underset{30}{\text { M 11N } 14 W}$ | Contributor |
| POS | 2012-03-07 | $\begin{aligned} & 2118- \\ & 2128 \end{aligned}$ | 1 | UM |  |  |  | 38.761461 | -123.484415 | M11N15W 36 | Contributor |
| POS | 2012-03-26 | $\begin{aligned} & 1300- \\ & 1430 \end{aligned}$ | 2 | UMUF | Y |  |  | 38.770325 | -123.468628 | $\underset{30}{\mathrm{M}} 11 \mathrm{~N} 14 \mathrm{~W}$ | Section centroid |
| POS | 2012-03-29 | $\begin{aligned} & 2356- \\ & 0006 \end{aligned}$ | 1 | UU |  |  |  | 38.761461 | -123.484415 | $\underset{36}{\text { M } 11 \mathrm{~N} 15 \mathrm{~W}}$ | Contributor |
| NEG | 2012-04-27 | $\begin{aligned} & 2225- \\ & 2235 \end{aligned}$ | 0 |  |  |  |  | 38.761461 | -123.484415 | ${ }_{36}^{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| POS | 2012-06-29 | $\begin{aligned} & 0001- \\ & 0011 \end{aligned}$ | 1 | UM |  |  |  | 38.761461 | -123.484415 | $\underset{36}{\mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W}}$ | Contributor |
| NEG | 2012-07-06 | $\begin{aligned} & 0213- \\ & 0223 \end{aligned}$ | 0 |  |  |  |  | 38.761461 | -123.484415 | ${ }_{36} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2013 | 2400 | 0 |  |  |  |  | 38.757367 | -123.487494 | ${ }_{36}^{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2013 | 2400 | 0 |  |  |  |  | 38.756052 | -123.479172 | $\mathrm{M}_{36} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2013 | 2400 | 0 |  |  |  |  | 38.760569 | -123.475284 | $\begin{aligned} & \text { M 11N 14W } \end{aligned}$ | Contributor |
| NEG | 2013 | 2400 | 0 |  |  |  |  | 38.761461 | -123.484415 | M11N15W <br> 36 | Contributor |
| NEG | 2013 | 2400 | 0 |  |  |  |  | 38.761477 | -123.494327 | $\mathrm{M}_{36} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2013 | 2400 | 0 |  |  |  |  | 38.766429 | -123.487526 | $\underset{25}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2013 | 2400 | 0 |  |  |  |  | 38.751819 | -123.488838 | M11N15W <br> 36 | Contributor |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | $\begin{aligned} & \text { Latitude DD } \\ & \text { NAD83 } \end{aligned}$ | $\begin{aligned} & \text { Longitude DD } \\ & \text { NAD83 } \end{aligned}$ | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEG | 1995-05-10 |  | 0 |  |  |  |  | 38.771628 | -123.506267 | $\begin{aligned} & \mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W} \\ & 26 \end{aligned}$ | Section centroid |
| POS | 1995-05-26 |  | 1 | UU |  |  |  | 38.775076 | -123.492350 | $\underset{25}{M} 11 N 15 W$ | Quarter-section centroid |
| POS | 1995-05-26 |  | 2 | UMUF | Y |  |  | 38.767819 | -123.501532 | $\begin{aligned} & \mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W} \\ & 26 \end{aligned}$ | Quarter-section centroid |
| NEG | 1995-05-29 |  | 0 |  |  |  |  | 38.775076 | -123.492350 | ${ }_{25}^{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Quarter-section centroid |
| NEG | 1995-06-29 |  | 0 |  |  |  |  | 38.771628 | -123.506267 | M 11N 15W 26 | Section centroid |
| NEG | 1995-07-11 |  | 0 |  |  |  |  | 38.771628 | -123.506267 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 26 \end{aligned}$ | Section centroid |
| POS | 1995-07-18 |  | 1 | UU |  |  |  | 38.775270 | -123.501745 | M 11N 15W 26 | Quarter-section centroid |
| NEG | 1995-07-19 | 1200 | 0 |  |  |  |  | 38.771628 | -123.506267 | ${ }_{26}^{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| NEG | 1995-11-10 | 1809 | 0 |  |  |  |  | 38.771628 | -123.506267 | M 11N 15W 26 | Section centroid |
| POS | 1996-03-03 |  | 1 | UU |  |  |  | 38.767968 | -123.510776 | M 11N 15W 26 | Quarter-section centroid |
| NEG | 1996-03-06 | 2110 | 0 |  |  |  |  | 38.772158 | -123.525161 | M11N15W 27 | Section centroid |
| POS | 1996-03-14 | 0616 | 2 | UMUF | Y |  |  | 38.765244 | -123.507338 | M11N15W 26 | Contributor |
| NEG | 1996-03-14 | 0515 | 0 |  |  |  |  | 38.772158 | -123.525161 | $\underset{27}{\text { M 11 N } 15 W}$ | Section centroid |
| NEG | 1996-03-22 |  | 0 |  |  |  |  | 38.772158 | -123.525161 | M 11 N 15W 27 | Section centroid |
| POS | 1996-04-29 |  | 1 | UU |  |  |  | 38.767819 | -123.501532 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & \hline 26 \end{aligned}$ | Quarter-section centroid |
| NEG | 1996-05-02 |  | 0 |  |  |  |  | 38.771628 | -123.506267 | M 11N 15W 26 | Section centroid |
| POS | 1996-05-09 |  | 1 | UU |  |  |  | 38.767968 | -123.510776 | M11N15W 26 | Quarter-section centroid |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | $\begin{aligned} & \text { Latitude DD } \\ & \text { NAD83 } \end{aligned}$ | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEG | 1999-04-08 | 2233 | 0 |  |  |  |  | 38.771320 | -123.487547 | $\underset{25}{M} 11 N 15 W$ | Section centroid |
| NEG | 1999-04-21 | 2058 | 0 |  |  |  |  | 38.771320 | -123.487547 | $\underset{25}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| NEG | 1999-04-24 | 2028 | 0 |  |  |  |  | 38.771628 | -123.506267 | M 11N 15W 26 | Section centroid |
| NEG | 1999-04-28 | 1700 | 0 |  |  |  |  | 38.771628 | -123.506267 | $\begin{aligned} & \text { M 11N } 15 W \\ & 26 \end{aligned}$ | Section centroid |
| NEG | 1999-05-01 | 2334 | 0 |  |  |  |  | 38.771320 | -123.487547 | $\underset{25}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| NEG | 1999-05-13 | 2046 | 0 |  |  |  |  | 38.771628 | -123.506267 | M 11N 15W 26 | Section centroid |
| NEG | 1999-05-14 | 2212 | 0 |  |  |  |  | 38.771320 | -123.487547 | $\begin{aligned} & \mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W} \\ & 25 \end{aligned}$ | Section centroid |
| POS | 1999-05-14 | 2052 | 1 | UM |  |  |  | 38.771628 | -123.506267 | $\begin{aligned} & \text { M 11N } 15 W \\ & 26 \end{aligned}$ | Section centroid |
| NEG | 1999-05-20 | 2343 | 0 |  |  |  |  | 38.771320 | -123.487547 | $\underset{25}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| NEG | 1999-05-21 | 2327 | 0 |  |  |  |  | 38.771320 | -123.487547 | ${ }_{25}^{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| NEG | 1999-06-01 | 2055 | 0 |  |  |  |  | 38.771628 | -123.506267 | $\begin{aligned} & M 11 N 15 W \\ & 26 \end{aligned}$ | Section centroid |
| NEG | 1999-06-02 | 2216 | 0 |  |  |  |  | 38.771320 | -123.487547 | $\underset{25}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| NEG | 1999-06-03 | 2304 | 0 |  |  |  |  | 38.771320 | -123.487547 | $\underset{25}{M 11 N 15 W}$ | Section centroid |
| NEG | 1999-06-09 | 2055 | 0 |  |  |  |  | 38.771628 | -123.506267 | M 11N 15W 26 | Section centroid |
| NEG | 1999-08-29 | 2000 | 0 |  |  |  |  | 38.771628 | -123.506267 | M 11N 15W 26 | Section centroid |
| POS | 2000 |  | 2 | UMUF | Y |  |  | 38.767819 | -123.501532 | $\begin{aligned} & \text { M 11N 15W } \\ & 26 \end{aligned}$ | Quarter-section centroid |
| NEG | 2000-03-03 | 2000 | 0 |  |  |  |  | 38.771628 | -123.506267 | $\begin{aligned} & \text { M 11N 15W } \\ & 26 \end{aligned}$ | Section centroid |


| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | $\begin{aligned} & \text { Latitude DD } \\ & \text { NAD83 } \end{aligned}$ | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEG | 2000-03-12 | 0732 | 0 |  |  |  |  | 38.771628 | -123.506267 | $\underset{26}{M} 11 N 15 W$ | Section centroid |
| NEG | 2000-03-14 | 0026 | 0 |  |  |  |  | 38.771628 | -123.506267 | ${ }_{26}^{M} 11 N 15 W$ | Section centroid |
| NEG | 2000-03-14 | 1902 | 0 |  |  |  |  | 38.771628 | -123.506267 | $\underset{26}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| NEG | 2000-03-30 | 1943 | 0 |  |  |  |  | 38.771320 | -123.487547 | $\begin{aligned} & \mathrm{M} \\ & 25 \end{aligned} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| POS | 2000-04-03 | 1947 | 1 | UM |  |  |  | 38.775270 | -123.501745 | M 11N 15W 26 | Quarter-section centroid |
| POS | 2000-04-03 | 2247 | 1 | UU |  |  |  | 38.771628 | -123.506267 | $\begin{aligned} & \mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W} \\ & 26 \end{aligned}$ | Section centroid |
| POS | 2000-04-03 | 2025 | 1 | UM |  |  |  | 38.771628 | -123.506267 | M 11N 15W 26 | Section centroid |
| POS | 2000-04-04 | 1431 | 2 | UMUF | Y |  |  | 38.767819 | -123.501532 | M 11N 15W 26 | Quarter-section centroid |
| NEG | 2000-04-05 | 2052 | 0 |  |  |  |  | 38.771628 | -123.506267 | $\begin{aligned} & \text { M 11N 15W } \\ & 26 \end{aligned}$ | Section centroid |
| NEG | 2000-04-06 | 2015 | 0 |  |  |  |  | 38.771628 | -123.506267 | M11N15W 26 | Section centroid |
| NEG | 2000-04-07 | 1945 | 0 |  |  |  |  | 38.771628 | -123.506267 | M11N15W 26 | Section centroid |
| POS | 2000-04-13 | 2100 | 1 | UM |  |  |  | 38.771628 | -123.506267 | $\begin{aligned} & \text { M } 11 \text { N } 15 W \end{aligned}$ | Section centroid |
| POS | 2000-04-14 | 2059 | 2 | UMUF | Y |  |  | 38.775270 | -123.501745 | $\begin{aligned} & \text { M 11IN 15W } \\ & 26 \end{aligned}$ | Quarter-section centroid |
| NEG | 2000-04-15 | 1050 | 0 |  |  |  |  | 38.771628 | -123.506267 | $\underset{26}{M 11 N 15 W}$ | Section centroid |
| NEG | 2000-04-18 | 2105 | 0 |  |  |  |  | 38.771628 | -123.506267 | $\underset{26}{\text { M } 11 N 15 W}$ | Section centroid |
| NEG | 2000-04-24 | 0030 | 0 |  |  |  |  | 38.771628 | -123.506267 | M 11N 15W 26 | Section centroid |
| NEG | 2000-06-04 | 2122 | 0 |  |  |  |  | 38.771628 | -123.506267 | M 11N 15W 26 | Section centroid |


| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | $\begin{aligned} & \text { Latitude DD } \\ & \text { NAD83 } \end{aligned}$ | $\begin{aligned} & \text { Longitude DD } \\ & \text { NAD83 } \end{aligned}$ | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| POS | 2000-06-06 | 2352 | 1 | UM |  |  |  | 38.767678 | -123.492242 | $\underset{25}{\mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W}}$ | Quarter-section centroid |
| POS | 2000-06-29 | 1100 | 2 | UMUF | Y |  |  | 38.772547 | -123.500126 | $\underset{26}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2001-03-13 | 1933 | 0 |  |  |  |  | 38.771628 | -123.506267 | $\underset{26}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| NEG | 2001-03-15 | 1611 | 0 |  |  |  |  | 38.771628 | -123.506267 | $\underset{26}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| NEG | 2001-04-04 | 1730 | 0 |  |  |  |  | 38.771628 | -123.506267 | $\begin{aligned} & \text { M 11N } 15 W \\ & 26 \end{aligned}$ | Section centroid |
| NEG | 2001-04-19 | 1630 | 0 |  |  |  |  | 38.771628 | -123.506267 | $\underset{26}{\text { M 11N 15W }}$ | Section centroid |
| NEG | 2001-05-05 | 1145 | 0 |  |  |  |  | 38.771628 | -123.506267 | $\begin{gathered} \text { M 11N } 15 W \end{gathered}$ | Section centroid |
| NEG | 2001-05-08 | 0313 | 0 |  |  |  |  | 38.771320 | -123.487547 | M 11N 15W 25 | Section centroid |
| NEG | 2001-05-16 | 0030 | 0 |  |  |  |  | 38.771320 | -123.487547 | ${ }_{25}{ }^{\text {M }} 11 \mathrm{~N} 15 \mathrm{~W}$ | Section centroid |
| NEG | 2002-03-06 | $\begin{aligned} & 2002-03- \\ & 06 \end{aligned}$ | 0 |  |  |  |  | 38.767819 | -123.501532 | $\underset{26}{M 11 N 15 W}$ | Quarter-section centroid |
| NEG | 2002-03-15 | 2002 | 0 |  |  |  |  | 38.771628 | -123.506267 | $\begin{aligned} & \text { M 11N 15W } \\ & 26 \end{aligned}$ | Section centroid |
| POS | 2002-03-15 | 2033 | 1 | UM |  |  |  | 38.771628 | -123.506267 | $\begin{aligned} & \text { M 11N 15W } \end{aligned}$ | Section centroid |
| POS | 2002-04-11 | 0041 | 1 | UM |  |  |  | 38.765786 | -123.514210 | $\begin{aligned} & \text { M 11N } 15 W \end{aligned}$ | Contributor |
| NEG | 2002-04-11 | 2101 | 0 |  |  |  |  | 38.771628 | -123.506267 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 26 \end{aligned}$ | Section centroid |
| POS | 2002-04-12 | 0041 | 1 | UF |  |  |  | 38.767968 | -123.510776 | $\underset{26}{M} 11 N 15 W$ | Quarter-section centroid |
| POS | 2002-04-12 | 1125 | 1 | UF |  |  |  | 38.765987 | -123.514497 | $\underset{26}{M 11 N 15 W}$ | Contributor |
| NEG | 2002-04-21 | $\begin{aligned} & 1050- \\ & 1305 \end{aligned}$ | 0 |  |  |  |  | 38.767968 | -123.510776 | M 11N 15W <br> 26 | Quarter-section centroid |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude DD NAD83 | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| POS | 2003-04-09 | $\begin{aligned} & 1745- \\ & 1830 \end{aligned}$ | 1 | UF |  |  |  | 38.769260 | -123.503613 | M 11N15W 26 | Contributor |
| NEG | 2003-04-10 | 2330 | 0 |  |  |  |  | 38.771320 | -123.487547 | M 11N 15W 25 | Section centroid |
| POS | 2003-04-29 | $\begin{aligned} & 1901- \\ & 1942 \end{aligned}$ | 1 | UU |  |  |  | 38.769390 | -123.503854 | M11N15W 26 | Contributor |
| POS | 2003-04-30 | 2350 | 1 | UF |  |  |  | 38.771008 | -123.492923 | $\underset{25}{\mathrm{M}}{ }_{25} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| POS | 2004-03-10 | $\begin{aligned} & 1440- \\ & 1535 \end{aligned}$ | 2 | UMUF | Y |  |  | 38.772132 | -123.502149 | $\begin{aligned} & \text { M 11N } 15 W \\ & 26 \end{aligned}$ | Contributor |
| POS | 2004-05-20 | 1840 | 2 | AMAF | Y | Y | 1 | 38.771471 | -123.505195 | $\begin{aligned} & \text { M 11N 15W } \\ & 26 \end{aligned}$ | Contributor |
| POS | 2005 |  | 1 | UU |  | Y |  | 38.771471 | -123.505195 | $\begin{aligned} & \mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W} \\ & 26 \end{aligned}$ | Contributor |
| POS | 2005-06-09 | 1916 | 2 | UMUF | Y | Y | 2 | 38.771471 | -123.505195 | $\begin{aligned} & \mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W} \\ & 26 \end{aligned}$ | Contributor |
| AC | 2006 |  | 1 | UU |  | Y |  | 38.771471 | -123.505195 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 26 \end{aligned}$ | Contributor |
| POS | 2006-04-07 | $\begin{aligned} & 1445- \\ & 1454 \end{aligned}$ | 2 | UMUF | Y |  |  | 38.771471 | -123.505195 | $\begin{gathered} \text { M } 11 \text { N } 15 W \end{gathered}$ | Contributor |
| POS | 2007-04-10 | 2154 | 1 | UM |  |  |  | 38.767819 | -123.501532 | $\underset{26}{M 11 N 15 W}$ | Quarter-section centroid |
| POS | 2007-05-15 | 0111 | 2 | UMUF | Y |  |  | 38.767819 | -123.501532 | $\underset{26}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Quarter-section centroid |
| POS | 2008-05-21 | 0056 | 1 | UU |  |  |  | 38.767819 | -123.501532 | $\begin{aligned} & \text { M } 11 \mathrm{IN} 15 \mathrm{~W} \\ & 26 \end{aligned}$ | Quarter-section centroid |
| NEG | 2009 |  | 0 |  |  |  |  | 38.771471 | -123.505195 | $\underset{26}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Activity center |
| NEG | 2010 |  | 0 |  |  |  |  | 38.771471 | -123.505195 | $\underset{26}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Activity center |
| NEG | 2011 | 2400 | 0 |  |  |  |  | 38.770021 | -123.512985 | $\underset{26}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2011 | 2400 | 0 |  |  |  |  | 38.776040 | -123.500132 | ${ }_{26}^{\mathrm{M}} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude DD <br> NAD 83 | Longitude DD <br> NAD83 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| NEG | 2011 | 2400 | 0 |  | MTRS | Coordinate |  |  |  |
| Source |  |  |  |  |  |  |  |  |  |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude DD <br> NAD83 | Longitude DD <br> NAD83 | MTRS |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | Coordinate

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude DD <br> NAD83 | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEG | 2013-05-31 | $\begin{aligned} & 1400- \\ & 1530 \end{aligned}$ | 0 |  |  |  |  | 38.771628 | -123.506267 | ${ }_{26}^{M 11 N} 15 W$ | Section centroid |
| NEG | 2014 |  | 0 |  |  |  |  | 38.771471 | -123.505195 | $\begin{aligned} & \text { M } 11 \text { N } 15 \mathrm{~W} \\ & 26 \end{aligned}$ | Activity center |
| POS | 2015 |  | 1 | UU |  |  |  | 38.771420 | -123.505189 | $\begin{aligned} & \text { M 11N } 15 W \\ & 26 \end{aligned}$ | Activity center |
| Additional surveys within the search area with no Spotted Owls detected |  |  |  |  |  |  |  |  |  |  |  |
| NEG | 1999-04-12 | $\begin{aligned} & 2333- \\ & 2343 \end{aligned}$ | 0 |  |  |  |  | 38.779090 | -123.525610 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 27 \end{aligned}$ | Contributor |
| NEG | 1999-04-12 | $\begin{aligned} & 2345- \\ & 2355 \end{aligned}$ | 0 |  |  |  |  | 38.773920 | -123.526760 | M 11N 15W $27$ | Contributor |
| NEG | 1999-07-21 | $\begin{aligned} & 0029- \\ & 0039 \end{aligned}$ | 0 |  |  |  |  | 38.773920 | -123.526760 | $\begin{aligned} & \text { M } 11 \text { N } 15 W \end{aligned}$ | Contributor |
| NEG | 1999-07-21 | $\begin{aligned} & 0017- \\ & 0027 \end{aligned}$ | 0 |  |  |  |  | 38.779090 | -123.525610 | M 11N 15W $27$ | Contributor |
| NEG | 2000 | 2400 | 0 |  |  |  |  | 38.834623 | -123.558723 | $\begin{aligned} & \mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W} \\ & 05 \end{aligned}$ | Contributor |
| NEG | 2000 | 2400 | 0 |  |  |  |  | 38.834357 | -123.562924 | $\begin{aligned} & \text { M 11N } 15 W \\ & 05 \end{aligned}$ | Contributor |
| NEG | 2000 | 2400 | 0 |  |  |  |  | 38.830999 | -123.562090 | $\underset{05}{M 11 N} 15 W$ | Contributor |
| NEG | 2000-05-23 | $\begin{aligned} & 0039- \\ & 0049 \end{aligned}$ | 0 |  |  |  |  | 38.773920 | -123.526760 | $\underset{27}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2000-05-23 | $\begin{aligned} & 0051- \\ & 0101 \end{aligned}$ | 0 |  |  |  |  | 38.779090 | -123.525610 | $\begin{aligned} & \text { M 11N } 15 W \\ & 27 \end{aligned}$ | Contributor |
| NEG | 2000-07-13 | $\begin{aligned} & 2314- \\ & 2324 \end{aligned}$ | 0 |  |  |  |  | 38.773920 | -123.526760 | $\begin{aligned} & \text { M 11N } 15 W \\ & 27 \end{aligned}$ | Contributor |
| NEG | 2000-07-13 | $\begin{aligned} & 2302- \\ & 2312 \end{aligned}$ | 0 |  |  |  |  | 38.779090 | -123.525610 | $\underset{27}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2000-07-21 | $\begin{aligned} & 2345- \\ & 2355 \end{aligned}$ | 0 |  |  |  |  | 38.773920 | -123.526760 | $\underset{27}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2000-07-21 | $\begin{aligned} & 2333- \\ & 2343 \end{aligned}$ | 0 |  |  |  |  | 38.779090 | -123.525610 | $\underset{27}{\mathrm{M}} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |


| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | $\begin{aligned} & \text { Latitude DD } \\ & N A D 83 \end{aligned}$ | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEG | 2001-03-31 | $\begin{aligned} & 2300- \\ & 2310 \end{aligned}$ | 0 |  |  |  |  | 38.779090 | -123.525610 | M11N 15W 27 | Contributor |
| NEG | 2001-03-31 | $\begin{aligned} & 2312- \\ & 2322 \end{aligned}$ | 0 |  |  |  |  | 38.773920 | -123.526760 | M11N 15W 27 | Contributor |
| NEG | 2001-05-24 | $\begin{aligned} & 0021- \\ & 0031 \end{aligned}$ | 0 |  |  |  |  | 38.773920 | -123.526760 | $\underset{27}{\text { M 11N } 15 W}$ | Contributor |
| NEG | 2001-05-24 | $\begin{aligned} & 0008- \\ & 0018 \end{aligned}$ | 0 |  |  |  |  | 38.779090 | -123.525610 | ${ }_{27}^{\text {M 11N } 15 W}$ | Contributor |
| NEG | 2001-06-23 | $\begin{aligned} & 0011- \\ & 0021 \end{aligned}$ | 0 |  |  |  |  | 38.779090 | -123.525610 | ${ }_{27}^{M 11 N} 15 W$ | Contributor |
| NEG | 2001-06-23 |  | 0 |  |  |  |  | 38.773920 | -123.526760 | $\underset{27}{\mathrm{M}} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2002-04-10 | $\begin{aligned} & 0113- \\ & 0123 \end{aligned}$ | 0 |  |  |  |  | 38.779090 | -123.525610 | $\underset{27}{\mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W}}$ | Contributor |
| NEG | 2002-04-10 | $\begin{aligned} & 0126- \\ & 0136 \end{aligned}$ | 0 |  |  |  |  | 38.773920 | -123.526760 | $\underset{27}{\mathrm{M}} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2002-05-14 | $\begin{aligned} & 0130- \\ & 0140 \end{aligned}$ | 0 |  |  |  |  | 38.779090 | -123.525610 | ${ }_{27}^{\text {M } 11 \mathrm{~N}} 15 \mathrm{~W}$ | Contributor |
| NEG | 2002-05-14 | $\begin{aligned} & 0147- \\ & 0157 \end{aligned}$ | 0 |  |  |  |  | 38.773920 | -123.526760 | $\underset{27}{\text { M 11N } 15 W}$ | Contributor |
| NEG | 2002-06-15 | $\begin{aligned} & 2152- \\ & 2202 \end{aligned}$ | 0 |  |  |  |  | 38.779090 | -123.525610 | $\underset{27}{\mathrm{M}} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2002-06-15 | $\begin{aligned} & 2134- \\ & 2144 \end{aligned}$ | 0 |  |  |  |  | 38.773920 | -123.526760 | $\underset{27}{\mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W}}$ | Contributor |
| NEG | 2003-03-07 | $\begin{aligned} & 2037- \\ & 2047 \end{aligned}$ | 0 |  |  |  |  | 38.779090 | -123.525610 | $\underset{27}{\text { M 11N 15W }}$ | Contributor |
| NEG | 2003-03-07 | $\begin{aligned} & 2021- \\ & 2031 \end{aligned}$ | 0 |  |  |  |  | 38.773920 | -123.526760 | $\underset{27}{\text { M 11N } 15 W}$ | Contributor |
| NEG | 2003-05-14 | $\begin{aligned} & 2114- \\ & 2124 \end{aligned}$ | 0 |  |  |  |  | 38.773920 | -123.526760 | $\underset{27}{\text { M 11N 15W }}$ | Contributor |
| NEG | 2003-05-14 | $\begin{aligned} & 2159- \\ & 2209 \end{aligned}$ | 0 |  |  |  |  | 38.779090 | -123.525610 | ${ }_{27}^{\text {M 11N } 15 W}$ | Contributor |
| NEG | 2003-06-08 | $\begin{aligned} & 2154- \\ & 2204 \end{aligned}$ | 0 |  |  |  |  | 38.779090 | -123.525610 | $\underset{27}{\mathrm{M}} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |


| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | $\begin{aligned} & \text { Latitude DD } \\ & \text { NAD83 } \end{aligned}$ | $\begin{aligned} & \text { Longitude DD } \\ & \text { NAD83 } \end{aligned}$ | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEG | 2003-06-08 | $\begin{aligned} & 2207- \\ & 2217 \end{aligned}$ | 0 |  |  |  |  | 38.773920 | -123.526760 | M 11N 15W $27$ | Contributor |
| NEG | 2004-04-13 | $\begin{aligned} & 0026- \\ & 0036 \end{aligned}$ | 0 |  |  |  |  | 38.779090 | -123.525610 | $\underset{27}{M 11 N 15 W}$ | Contributor |
| NEG | 2004-04-13 | $\begin{aligned} & 0012- \\ & 0022 \end{aligned}$ | 0 |  |  |  |  | 38.773920 | -123.526760 | $\underset{27}{\mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W}}$ | Contributor |
| NEG | 2004-07-01 | $\begin{aligned} & 2303- \\ & 2313 \end{aligned}$ | 0 |  |  |  |  | 38.773920 | -123.526760 | $\underset{27}{\mathrm{M}} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2004-07-01 | $\begin{aligned} & 2248- \\ & 2258 \end{aligned}$ | 0 |  |  |  |  | 38.779090 | -123.525610 | M 11N 15W 27 | Contributor |
| NEG | 2004-07-09 | $\begin{aligned} & 2127- \\ & 2137 \end{aligned}$ | 0 |  |  |  |  | 38.773920 | -123.526760 | $\underset{27}{M 11 N} 15 W$ | Contributor |
| NEG | 2004-07-09 | $\begin{aligned} & 2114- \\ & 2124 \end{aligned}$ | 0 |  |  |  |  | 38.779090 | -123.525610 | M 11N 15W 27 | Contributor |
| NEG | 2005-06-09 | $\begin{aligned} & 2129- \\ & 2139 \end{aligned}$ | 0 |  |  |  |  | 38.773920 | -123.526760 | M 11N 15W 27 | Contributor |
| NEG | 2005-06-09 | $\begin{aligned} & 2115- \\ & 2125 \end{aligned}$ | 0 |  |  |  |  | 38.779090 | -123.525610 | $\underset{27}{\text { M 11IN } 15 W}$ | Contributor |
| NEG | 2005-06-25 | $\begin{aligned} & 2026- \\ & 2036 \end{aligned}$ | 0 |  |  |  |  | 38.779090 | -123.525610 | M11N15W 27 | Contributor |
| NEG | 2005-06-25 | $\begin{aligned} & 2039- \\ & 2049 \end{aligned}$ | 0 |  |  |  |  | 38.773920 | -123.526760 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 27 \end{aligned}$ | Contributor |
| NEG | 2005-08-27 | $\begin{aligned} & 0013- \\ & 0023 \end{aligned}$ | 0 |  |  |  |  | 38.773920 | -123.526760 | M 11N 15W 27 | Contributor |
| NEG | 2005-08-27 | $\begin{aligned} & 0030- \\ & 0040 \end{aligned}$ | 0 |  |  |  |  | 38.779090 | -123.525610 | M 11N 15W 27 | Contributor |
| NEG | 2006-03-22 | $\begin{aligned} & 2001- \\ & 2012 \end{aligned}$ | 0 |  |  |  |  | 38.814984 | -123.567940 | M 11N 15W 08 | Contributor |
| NEG | 2006-04-26 | $\begin{aligned} & 0331- \\ & 0341 \end{aligned}$ | 0 |  |  |  |  | 38.779090 | -123.525610 | M 11N 15W 27 | Contributor |
| NEG | 2006-04-26 | $\begin{aligned} & 2151- \\ & 2201 \end{aligned}$ | 0 |  |  |  |  | 38.814984 | -123.567940 | M 11N 15W 08 | Contributor |
| NEG | 2006-04-26 | $\begin{aligned} & 0310- \\ & 0320 \end{aligned}$ | 0 |  |  |  |  | 38.773920 | -123.526760 | $\underset{27}{\text { M } 11 \mathrm{~N} 15 \mathrm{~W}}$ | Contributor |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | $\begin{aligned} & \text { Latitude DD } \\ & \text { NAD83 } \end{aligned}$ | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEG | 2006-05-25 | $\begin{aligned} & 2132- \\ & 2142 \end{aligned}$ | 0 |  |  |  |  | 38.814984 | -123.567940 | M11N15W 08 | Contributor |
| NEG | 2006-05-25 | $\begin{aligned} & 0026- \\ & 0036 \end{aligned}$ | 0 |  |  |  |  | 38.779090 | -123.525610 | $\underset{27}{M 11 N 15 W}$ | Contributor |
| NEG | 2006-05-25 | $\begin{aligned} & 0012- \\ & 0022 \end{aligned}$ | 0 |  |  |  |  | 38.773920 | -123.526760 | $\underset{27}{\text { M } 11 \text { N } 15 W}$ | Contributor |
| NEG | 2006-06-03 | $\begin{aligned} & 2100- \\ & 2110 \end{aligned}$ | 0 |  |  |  |  | 38.779090 | -123.525610 | $\underset{27}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2006-06-03 | $\begin{aligned} & 2043- \\ & 2053 \end{aligned}$ | 0 |  |  |  |  | 38.773920 | -123.526760 | $\begin{aligned} & \text { M } 11 \text { N } 15 W \end{aligned}$ | Contributor |
| NEG | 2006-06-19 | $\begin{aligned} & 0409- \\ & 0419 \end{aligned}$ | 0 |  |  |  |  | 38.814984 | -123.567940 | M 11N 15W 08 | Contributor |
| NEG | 2006-07-10 | $\begin{aligned} & 2107- \\ & 2117 \end{aligned}$ | 0 |  |  |  |  | 38.814984 | -123.567940 | M 11N 15W 08 | Contributor |
| NEG | 2006-07-19 | $\begin{aligned} & 2204- \\ & 2214 \end{aligned}$ | 0 |  |  |  |  | 38.814984 | -123.567940 | M 11N 15W 08 | Contributor |
| NEG | 2007-03-02 | $\begin{aligned} & 2147- \\ & 2157 \end{aligned}$ | 0 |  |  |  |  | 38.814984 | -123.567940 | $\begin{aligned} & \text { M } 11 \mathrm{~N} 15 \mathrm{~W} \\ & 08 \end{aligned}$ | Contributor |
| NEG | 2007-03-13 | $\begin{aligned} & 2209- \\ & 2219 \end{aligned}$ | 0 |  |  |  |  | 38.814984 | -123.567940 | M 11 N 15W 08 | Contributor |
| NEG | 2007-03-28 | $\begin{aligned} & 0053- \\ & 0103 \end{aligned}$ | 0 |  |  |  |  | 38.814984 | -123.567940 | M 11N 15W 08 | Contributor |
| NEG | 2007-03-29 | $\begin{aligned} & 2026- \\ & 2036 \end{aligned}$ | 0 |  |  |  |  | 38.773920 | -123.526760 | ${ }_{27}^{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2007-03-29 | $\begin{aligned} & 2039- \\ & 2049 \end{aligned}$ | 0 |  |  |  |  | 38.779090 | -123.525610 | ${ }_{27}^{M 11 N 15 W}$ | Contributor |
| NEG | 2007-04-05 | $\begin{aligned} & 2223- \\ & 2233 \end{aligned}$ | 0 |  |  |  |  | 38.779090 | -123.525610 | $\underset{27}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2007-04-05 | $\begin{aligned} & 2235- \\ & 2245 \end{aligned}$ | 0 |  |  |  |  | 38.773920 | -123.526760 | $\underset{27}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2007-04-25 | $\begin{aligned} & 0031- \\ & 0041 \end{aligned}$ | 0 |  |  |  |  | 38.783960 | -123.526040 | ${ }_{22}^{M 11 N 15 W}$ | Contributor |
| NEG | 2007-04-25 | $\begin{aligned} & 0016- \\ & 0026 \end{aligned}$ | 0 |  |  |  |  | 38.779090 | -123.525610 | $\underset{27}{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |


| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | $\begin{aligned} & \text { Latitude DD } \\ & \text { NAD83 } \end{aligned}$ | Longitude DD NAD83 | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEG | 2007-04-25 | $\begin{aligned} & 0003- \\ & 0013 \end{aligned}$ | 0 |  |  |  |  | 38.773920 | -123.526760 | $\underset{27}{M 11 N 15 W}$ | Contributor |
| NEG | 2007-04-25 | $\begin{aligned} & 2317- \\ & 2327 \end{aligned}$ | 0 |  |  |  |  | 38.791520 | -123.532910 | ${ }_{22}^{M 11 N 15 W}$ | Contributor |
| NEG | 2007-04-25 | $\begin{aligned} & 2334- \\ & 2344 \end{aligned}$ | 0 |  |  |  |  | 38.784860 | -123.535420 | ${ }_{21}^{M} 11 \mathrm{~N} 15 \mathrm{~W}$ | Contributor |
| NEG | 2007-05-12 | $\begin{aligned} & 2331- \\ & 2341 \end{aligned}$ | 0 |  |  |  |  | 38.791520 | -123.532910 | ${ }_{22}^{M 11 N 15 W}$ | Contributor |
| NEG | 2007-05-12 | $\begin{aligned} & 2349- \\ & 2359 \end{aligned}$ | 0 |  |  |  |  | 38.784860 | -123.535420 | $\underset{21}{M} 11 \text { N } 15 W$ | Contributor |
| NEG | 2007-05-12 | $\begin{aligned} & 0019- \\ & 0029 \end{aligned}$ | 0 |  |  |  |  | 38.783960 | -123.526040 | ${ }_{22}^{M 11 N 15 W}$ | Contributor |
| NEG | 2007-05-18 | $\begin{aligned} & 0112- \\ & 0122 \end{aligned}$ | 0 |  |  |  |  | 38.791520 | -123.532910 | ${ }_{22}^{M} 11 \text { N } 15 W$ | Contributor |
| NEG | 2007-05-18 | $\begin{aligned} & 0125- \\ & 0135 \end{aligned}$ | 0 |  |  |  |  | 38.784860 | -123.535420 | $\begin{aligned} & \text { M } 11 \text { N } 15 W \\ & 21 \end{aligned}$ | Contributor |
| NEG | 2007-05-18 | $\begin{aligned} & 0143- \\ & 0153 \end{aligned}$ | 0 |  |  |  |  | 38.783960 | -123.526040 | $\begin{aligned} & \text { M } 11 \text { N } 15 W \end{aligned}$ | Contributor |
| NEG | 2011 | 2400 | 0 |  |  |  |  | 38.765824 | -123.521345 | $\begin{aligned} & \text { M } 11 \text { N } 15 W \\ & 27 \end{aligned}$ | Contributor |
| NEG | 2011 | 2400 | 0 |  |  |  |  | 38.791520 | -123.532910 | ${ }_{22}^{\mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W}}$ | Contributor |
| NEG | 2011 | 2400 | 0 |  |  |  |  | 38.779407 | -123.525176 | $\underset{27}{\text { M } 11 \text { N } 15 W}$ | Contributor |
| NEG | 2011 | 2400 | 0 |  |  |  |  | 38.783960 | -123.526040 | $\begin{aligned} & \text { M 11N 15W } \\ & 22 \end{aligned}$ | Contributor |
| NEG | 2011 | 2400 | 0 |  |  |  |  | 38.784860 | -123.535420 | $\begin{aligned} & \text { M } 11 \text { N } 15 W \\ & 21 \end{aligned}$ | Contributor |
| NEG | 2011 | 2400 | 0 |  |  |  |  | 38.774002 | -123.527015 | $\underset{27}{\text { M } 11 \mathrm{~N} 15 \mathrm{~W}}$ | Contributor |
| NEG | 2012 | 2400 | 0 |  |  |  |  | 38.784860 | -123.535420 | $\begin{aligned} & \text { M } 11 \text { N } 15 W \\ & 21 \end{aligned}$ | Contributor |
| NEG | 2012 | 2400 | 0 |  |  |  |  | 38.791520 | $-123.532910$ | $\underset{22}{\mathrm{M}} 11 \mathrm{~N}$ 15W | Contributor |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | $\begin{aligned} & \text { Latitude DD } \\ & \text { NAD83 } \end{aligned}$ | $\begin{aligned} & \text { Longitude DD } \\ & \text { NAD83 } \end{aligned}$ | MTRS | Coordinate Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEG | 2012 | 2400 | 0 |  |  |  |  | 38.797689 | -123.539838 | $\begin{aligned} & \text { M } 11 \text { N } 15 W \\ & 16 \end{aligned}$ | Contributor |
| NEG | 2012 | 2400 | 0 |  |  |  |  | 38.801273 | -123.535225 | $\text { M } 11 \text { N } 15 W$ | Contributor |
| NEG | 2012 | 2400 | 0 |  |  |  |  | 38.774002 | -123.527015 | $\underset{27}{M 11 N 15 W}$ | Contributor |
| NEG | 2012 | 2400 | 0 |  |  |  |  | 38.779407 | -123.525176 | $\underset{27}{\mathrm{M} 11 \mathrm{~N} 15 \mathrm{~W}}$ | Contributor |
| NEG | 2012 | 2400 | 0 |  |  |  |  | 38.765824 | -123.521345 | $\underset{27}{M 11 N 15 W}$ | Contributor |
| NEG | 2012 | 2400 | 0 |  |  |  |  | 38.796394 | -123.532623 | ${ }_{15}^{M} 11 N 15 W$ | Contributor |
| NEG | 2012 | 2400 | 0 |  |  |  |  | 38.783960 | -123.526040 | ${ }_{22}^{M 11 N 15 W}$ | Contributor |
| NEG | 2013 | 2400 | 0 |  |  |  |  | 38.779407 | -123.525176 | $\underset{27}{M 11 N 15 W}$ | Contributor |
| NEG | 2013 | 2400 | 0 |  |  |  |  | 38.797689 | -123.539838 | $\begin{aligned} & \text { M } 11 \text { N } 15 W \end{aligned}$ | Contributor |
| NEG | 2013 | 2400 | 0 |  |  |  |  | 38.801273 | -123.535225 | $\begin{aligned} & \text { M } 11 \text { N } 15 \mathrm{~W} \\ & \hline \end{aligned}$ | Contributor |
| NEG | 2013 | 2400 | 0 |  |  |  |  | 38.796394 | -123.532623 | ${ }_{15}^{M 11 N} 15 W$ | Contributor |
| NEG | 2013 | 2400 | 0 |  |  |  |  | 38.774002 | -123.527015 | $\underset{27}{M 11 N} 15 W$ | Contributor |
| NEG | 2013 | 2400 | 0 |  |  |  |  | 38.783960 | -123.526040 | M11N 15W 22 | Contributor |
| NEG | 2013 | 2400 | 0 |  |  |  |  | 38.791520 | -123.532910 | $\begin{aligned} & \text { M 11N 15W } \\ & 22 \end{aligned}$ | Contributor |
| NEG | 2013 | 2400 | 0 |  |  |  |  | 38.784860 | -123.535420 | ${ }_{21}^{M 11 N 15 W}$ | Contributor |
| NEG | 2013 | 2400 | 0 |  |  |  |  | 38.765824 | -123.521345 | $\underset{27}{M 11 N 15 W}$ | Contributor |
| NEG | 2018 | 2400 | 0 |  |  |  |  | 38.807800 | -123.544146 | M 11 N 15W 16 | Contributor |

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| Type | Date | Time | \#Adults | Age/Sex | Pair | Nest | \#Young | Latitude DD <br> NAD83 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| NEG | 2018 | 2400 | 0 |  | Longitude DD <br> NAD83 | MTRS |  |  |
| NEG | 2018 | 2400 | 0 |  | 38.801847 | -123.545333 | M 11N 15W | Contrinate |

[^3]
[^0]:    Total Volume in Site, volume is estimated in cubic yards ( $<10,10-50,50-100,100-500,500+\mathrm{cy}$ ), and represents how much material is there now, not how much was there to begin with
    ${ }^{2}$ Total Potential Delivery, volume estimated in cubic yards of total potential sediment discharge.
    ${ }^{3}$ The estimated delivery rate, will all go in one shot, will it be metered over time. $1=$ high rate, all can go in one shot regardless of event magnitude. $5=1$ low rate, it will meter over time.
    4 Indicates the estimated potential for sediment to be delivered to a watercourse. (1) - Will ordinary events meter the material. (5) - Will it take a major event to move material.
    s A schedule for implementing prevention and minimization management measures for controllable sediment discharge sources. The priority shall be based on the volume of sediment and threat to water quality with the highest priority assigned to the largest sediment discharge sources that discharge to waters that support domestic water supplies or fish. $1=$ Low treatment prioriy. $5=$ High treatment priority

    * NCRWCB Reviewer - These two categories are not required pursuant to the order, however, they have been requested by field staff during review of the THP. These two categories form a significant part of the basis of the implementation priority.

[^1]:    ${ }^{1}$ Total Volume in Site, volume is estimated in cubic yards ( $<10,10-50,50-100,100-500,500+\mathrm{cy}$ ), and represents how much material is there now, not how much was there to begin with.
    ${ }^{2}$ Total Potential Delivery, volume estimated in cubic yards of total potential sediment discharge.
    ${ }^{3}$ The estimated delivery rate, will all go in one shot, will it be metered over time. $1=$ high rate, all can go in one shot regardless of event magnitude. $5=$ low rate, it will meter over time.
    4 Indicates the estimated potential for sediment to be delivered to a watercourse. (1) - Will ordinary events meter the material. (5) - Will it take a major event to move material.
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    * NCRWCB Reviewer - These two categories are not required pursuant to the order, however, they have been requested by field staff during review of the THP. These two categories form a significant part of the basis of the implementation priority

[^2]:    ${ }^{7}$ USFWS Estimating the Effects of Auditory and Visual Disturbance to Northern Spotted Owls and Marbled Murrelets in Northern California - 8-14-2006-2887 dated July 31, 2006.
    ${ }^{8}$ Protocol survey consistent with Mack, D. E., W. P. Ritchie, S. K. Nelson, E. Kuo-Harrison, P. Harrison and T. E. Hamer. 2003. Method for surveying marbled murrelets in forests: a revised protocol for land management and research, Pacific Seabird Group Technical Publication Number 2.
    ${ }^{9}$ Antic̣ipated söund levels may be assessed using USFWS Estimating the Effects of Audilory and Visual Disturbance to Northern Spotted Owls and Marbled Murrelets in Northern Calfornia - 8-14-2006-2887 dated July 31, 2006, Table 2; Some Common Sound Levels for Equipment Activity.

[^3]:    "

