

**ODFW AQUATIC INVENTORY PROJECT
RESTORATION MONITORING
STREAM HABITAT REPORT**

STREAM: BEAR CREEK UPPER
 GCG: 1-NC
 SITE ID: 365
 BASIN: NESTUCCA
 TREATMENT DATE: 2007
 SURVEY DATE: 8/22/2008
 SURVEY CREW: Gwyn Woolley-Scott / Linda Campbell
 USGS MAPS: BEAVER
 ECOREGION: Coastal Uplands
 REPORT PREPARED BY: Matt Strickland / Sharon Tippery / Charles Stein

SURVEY DESCRIPTION:

Channel morphology: Constrained by high terraces
 Dominant landuse(s): Large timber (30-50 cm dbh)
 Dominant riparian vegetation: Mixed conifer/deciduous: size class 30-50cm dbh
 Primary channel length (meters) and area (m²): 391 : 1,566
 Secondary channel length (meters) and area (m²) 25 : 64
 VWI average: 13.9 VWI Range: 4.5 - 20 Average Gradient: 3.0%
 Pieces LWD per 100m: 28.7 Wood Volume (m³) per 100m: 22.1
 Percent pools: 27% Complex pools (LWD pieces>=3): 6 Pools >=1m deep: 0
 Percent substrate (avg):

| | <u>Silt / organics</u> | <u>Sand</u> | <u>Gravel</u> | <u>Cobble</u> | <u>Boulder</u> | <u>Bedrock</u> |
|------------------|------------------------|-------------|---------------|---------------|----------------|----------------|
| All units | 3 | 15 | 33 | 39 | 11 | 0 |
| Pool units | 6 | 19 | 31 | 37 | 7 | 0 |
| Fast water units | 0 | 11 | 33 | 45 | 11 | 0 |

COMMENTS:

This is a post-treatment, restoration survey. The crew noted multiple habitat structures consisting primarily of interlocking, placed log jams. They also noted observing juvenile salmonids throughout the survey.

**OREGON DEPARTMENT OF FISH AND WILDLIFE
HABITAT INVENTORY**

**BEAR CREEK UPPER
GCG: 1-NC SITE ID: 365**

Survey Date: 8/22/2008

Report Date: 12/29/2008

T03S-R09W-S08SW

REACH 1

Valley and Channel Summary

Valley Characteristics (Percent Reach Length)

| <u>Narrow Valley Floor</u> | | <u>Broad Valley Floor</u> | |
|----------------------------|------|---------------------------|----------|
| Steep V-shape | 0% | Constraining Terraces | 100% |
| Moderate V-shape | 0% | Multiple Terraces | 0% |
| Open V-shape | 0% | Wide Floodplain | 0% |
| Valley Width Index | 13.9 | VWI Range: | 4.5 - 20 |

Channel Morphology (Percent Reach Length)

| <u>Constrained</u> | | <u>Unconstrained</u> | |
|--------------------|------|----------------------|----|
| Hillslope | 0% | Single Channel | 0% |
| Bedrock | 0% | Multiple Channel | 0% |
| Terrace | 100% | Braided Channel | 0% |
| Alt. Terrace/Hill | 0% | | |
| Landuse | 0% | | |

Channel Characteristics

| <u>Type</u> | <u>Length (m)</u> | <u>Area (m2)</u> | <u>Dry Units</u> |
|-------------|-------------------|------------------|------------------|
| Primary | 391 | 1,566 | 0 |
| Secondary | 25 | 64 | 0 |

Channel Dimensions (m)

| <u>Wetted</u> | <u>Active</u> | <u>Floodprone</u> n = 5 | <u>First Terrace</u> n = 5 |
|---------------|---------------|-------------------------|----------------------------|
| Width: 3.7 | Width: 6.0 | 8.3 (5 - 11.4) | 13.0 (7 - 25) |
| Depth: 0.24 | Height: 0.7 | 1.3 (1.2 - 1.6) | 2.0 (1.7 - 2.5) |

W:D ratio: 9.4

Stream Flow Type: LF

Average Unit Gradient: 3.0%

Water temperature (°C): 12.0 - 12.0

Entrenchment (ACW:FPW ratio): 1.4

Habitat Units/100m (total channel length): 9.6

Habitat Units/100m (primary channel length): 10.2

Riparian, Bank, and Wood Summary

| | <u>Primary</u> | <u>Secondary</u> |
|----------------------|----------------|------------------|
| Land Use: | LT | ST |
| Riparian Vegetation: | M30 | S |

Bank Condition and Shade

| <u>Bank Status</u> | <u>Percent Reach Length</u> | <u>Shade (% of 180)</u> |
|--------------------|-----------------------------|-------------------------|
| Actively Eroding: | 6% | Reach avg: 95% |
| Undercut Banks: | 13% | Range: 75 - 100 |

Large Wood Debris

| | <u>Total</u> | <u>Total / 100m primary channel</u> |
|-----------------------------|--------------|-------------------------------------|
| All pieces (>=3m x 0.15m): | 112 | 28.7 |
| Volume (m ³): | 87 | 22.1 |
| Key pieces (>=12m x 0.60m): | 0 | 0.0 |

OREGON DEPARTMENT OF FISH AND WILDLIFE

BEAR CREEK UPPER

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T03S-R09W-S08SW

REACH 1

HABITAT DETAIL

| Habitat Type | Number Units | Total Length (m) | Avg Width (m) | Avg Depth (m) | Total Area (m ²) | Large Boulders (#>0.5m) | Substrate Percent Wetted Area | | | | | |
|--------------------|-----------------|------------------------|---------------------|---------------------|------------------------------------|-------------------------------|----------------------------------|-----|------|-----|------|------|
| | | | | | | | S/O | Snd | Grvl | Cbl | Bldr | Bdrk |
| POOL-BACKWATER | 1 | 4 | 3.0 | 0.40 | 12 | 0 | 5 | 57 | 19 | 10 | 10 | 0 |
| POOL-LATERAL SCOUR | 12 | 86 | 4.1 | 0.43 | 354 | 3 | 5 | 18 | 33 | 39 | 6 | 0 |
| POOL-PLUNGE | 3 | 21 | 4.3 | 0.55 | 89 | 0 | 12 | 23 | 21 | 31 | 13 | 0 |
| RAPID/BOULDERS | 16 | 254 | 3.5 | 0.11 | 948 | 7 | 0 | 11 | 33 | 45 | 11 | 0 |
| RIFFLE | 3 | 39 | 4.0 | 0.15 | 177 | 0 | 0 | 9 | 34 | 48 | 9 | 0 |
| STEP/BOULDERS | 2 | 6 | 2.9 | 0.08 | 19 | 0 | 0 | 7 | 14 | 24 | 55 | 0 |
| STEP/COBBLE | 2 | 7 | 4.0 | 0.06 | 28 | 0 | 0 | 10 | 34 | 51 | 5 | 0 |
| STEP/LOG | 1 | 1 | 3.0 | 0.02 | 3 | 0 | 5 | 11 | 84 | 0 | 0 | 0 |
| Total: | 40 | 416 | 3.7 | 0.24 | 1,630 | 10 | Avg: 3 | 15 | 33 | 39 | 11 | 0 |

HABITAT SUMMARY

| Habitat Group | Number Units | Total Length (m) | Avg Width (m) | Avg Depth (m) | Wetted Area | | Large Boulders | |
|-------------------|-----------------|------------------------|---------------------|---------------------|-------------------|---------|----------------|--------------------------|
| | | | | | (m ²) | Percent | Number | (# / 100m ²) |
| Dammed & BW Pools | 1 | 4 | 3.0 | 0.40 | 12 | 0.74% | 0 | 0.0 |
| Scour Pools | 15 | 106 | 4.1 | 0.46 | 443 | 27.20% | 3 | 0.7 |
| Glides | 0 | 0 | | | 0 | 0.00% | 0 | 0.0 |
| Riffles | 3 | 39 | 4.0 | 0.15 | 177 | 10.83% | 0 | 0.0 |
| Rapids | 16 | 254 | 3.5 | 0.11 | 948 | 58.18% | 7 | 0.7 |
| Cascades | 0 | 0 | | | 0 | 0.00% | 0 | 0.0 |
| Step/Falls | 5 | 13 | 3.4 | 0.06 | 50 | 3.05% | 0 | 0.0 |
| Dry | 0 | 0 | | | 0 | 0.00% | 0 | 0.0 |
| Culverts | 0 | 0 | | | 0 | 0.00% | 0 | 0.0 |

POOL SUMMARY

| | Total of all Channel Lengths | | Primary Channel Length |
|---------------------------------------|------------------------------|---------------|------------------------|
| | <u>Total</u> | <u># / Km</u> | <u># / Km</u> |
| All Pools: | 16 | 38.5 | 40.9 |
| Pools >=1m deep: | 0 | 0.0 | 0.0 |
| Complex pools (LWD pieces>=3): | 6 | 14.4 | 15.4 |
| Pool frequency (channel widths/pool): | 4.3 | | |
| Residual pool depth (avg): | 0.36 | | |

OREGON DEPARTMENT OF FISH AND WILDLIFE
HABITAT INVENTORY

BEAR CREEK UPPER
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RIPARIAN ZONE
VEGETATION SUMMARY

REACH 1

Summary of Riparian Zone (0-30m) 3 transects

| | |
|---------------------------------|-----|
| Total hardwoods/1000 | 203 |
| Total conifers/1000 ft | 894 |
| Total conifers >20" dbh/1000 ft | 20 |
| Total conifers >35" dbh/1000 ft | 0 |

Average number of trees in a 5-meter wide band

| Diameter class (cm) | Zone 1 0-10 meters | | Zone 2 10 - 20 meters | | Zone 3 20 - 30 meters | | Zones 1-3 0-30 meters | |
|---------------------|-----------------------|----------|--------------------------|----------|--------------------------|----------|--------------------------|----------|
| | Conifer | Hardwood | Conifer | Hardwood | Conifer | Hardwood | Conifer | Hardwood |
| 3-15cm | 2.7 | 1.0 | 2.0 | 0.0 | 2.7 | 0.3 | 7.3 | 1.3 |
| 15-30cm | 0.3 | 1.3 | 3.3 | 0.0 | 3.3 | 0.3 | 7.0 | 1.7 |
| 30-50cm | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 50-90cm | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 |
| >90cm | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total/100m2 | 3.3 | 2.7 | 5.3 | 0.0 | 6.0 | 0.7 | 4.9 | 1.1 |

Canopy closure and ground cover

| | Zone 1 0-10 meters | | Zone 2 10 - 20 meters | | Zone 3 20 - 30 meters | |
|------------------|-----------------------|--|--------------------------|--|--------------------------|--|
| | (%) | | (%) | | (%) | |
| Canopy closure | 90 | | 86 | | 89 | |
| Shrub cover | 69 | | 68 | | 56 | |
| Grass/forb cover | 31 | | 33 | | 44 | |

Predominant landform in each zone

| | Zone 1 0-10 meters | | Zone 2 10 - 20 meters | | Zone 3 20 - 30 meters | |
|-------------------|-----------------------|--|--------------------------|--|--------------------------|--|
| | (%) | | (%) | | (%) | |
| Hillslope | 0 | | 0 | | 33 | |
| High terrace | 100 | | 100 | | 67 | |
| Low terrace | 0 | | 0 | | 0 | |
| Floodplain | 0 | | 0 | | 0 | |
| Wetland/meadow | 0 | | 0 | | 0 | |
| Stream channel | 0 | | 0 | | 0 | |
| Roadbed/Railroad | 0 | | 0 | | 0 | |
| Riprap | 0 | | 0 | | 0 | |
| Surface slope (%) | 13 | | 2 | | 8 | |

Summary of Riparian Zone (0-30m) for all reaches**3 transects****Summary of riparian zone (0-100 feet) extrapolated to 1,000 feet along stream**

| | |
|---------------------------------|-----|
| Total hardwoods/1000 | 203 |
| Total conifers/1000 ft | 894 |
| Total conifers >20" dbh/1000 ft | 20 |
| Total conifers >35" dbh/1000 ft | 0 |

Average number of trees in a 5-m wide band

| Diameter class (cm) | Zones 1-3 | |
|------------------------|--------------------|-----------------|
| | <u>0-30 meters</u> | |
| | <u>Conifer</u> | <u>Hardwood</u> |
| 3-15cm | 7.3 | 1.3 |
| 15-30cm | 7.0 | 1.7 |
| 30-50cm | 0.0 | 0.0 |
| 50-90cm | 0.3 | 0.3 |
| >90cm | 0.0 | 0.0 |

RIPARIAN ZONE VEGETATION

Reach 1

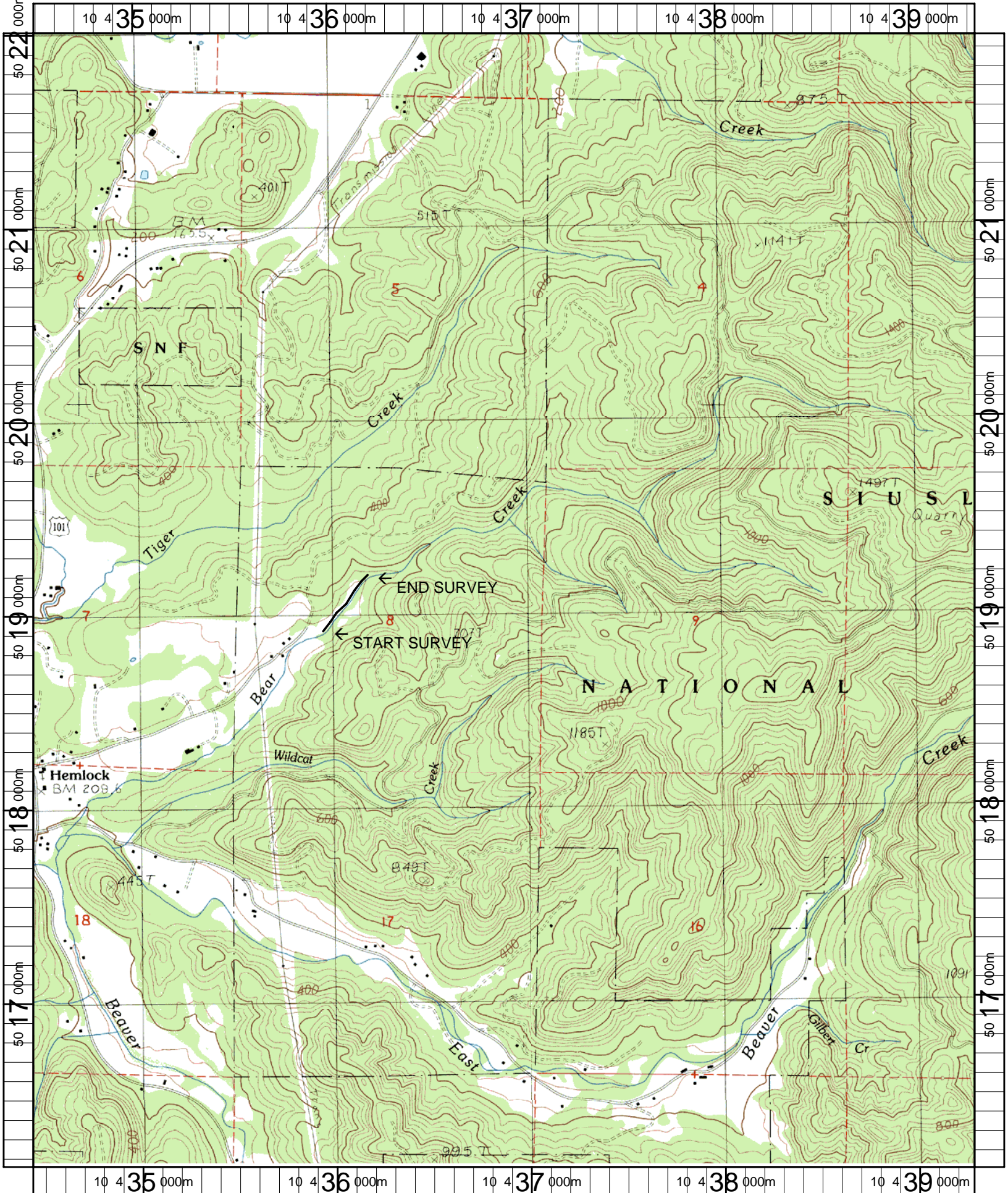
Reach 1

| Unit | Side | Zone | Surface | Slope | Cover (percent) | | | | Diameter class (cm) | | | | | Notes | |
|------|------|------|---------|-------|-----------------|-------|-------|----------|---------------------|-------|-------|-------|-----|-------|-------------------------------|
| | | | | | Canopy | Shrub | Grass | | 3-15 | 15-30 | 30-50 | 50-90 | >90 | | |
| 10 | LT | 1 | HT | 9 | 90 | 60 | 40 | Conifer | 3 | | | | | | REPLANTED - CONIFER SEEDLINGS |
| | | | | | | | | Hardwood | 1 | | | | | | |
| 10 | LT | 2 | HT | -1 | 90 | 60 | 40 | Conifer | 1 | 2 | | | | | |
| | | | | | | | | Hardwood | | | | | | | |
| 10 | LT | 3 | HT | 1 | 80 | 50 | 50 | Conifer | 2 | | | | | | |
| | | | | | | | | Hardwood | | | | | | | |
| 10 | RT | 1 | HT | 13 | 100 | 95 | 5 | Conifer | | | | | | | |
| | | | | | | | | Hardwood | 1 | 3 | | | | | |
| 10 | RT | 2 | HT | 8 | 80 | 95 | 5 | Conifer | | | | | | | |
| | | | | | | | | Hardwood | | | | | | | |
| 10 | RT | 3 | HT | 5 | 80 | 95 | 5 | Conifer | 3 | | | | | | |
| | | | | | | | | Hardwood | | | | | | | |
| 19 | LT | 1 | HT | 15 | 90 | 90 | 10 | Conifer | 1 | | | | | | REPLANTED - CONIFER SEEDLINGS |
| | | | | | | | | Hardwood | | | | 1 | | | |
| 19 | LT | 2 | HT | 0 | 90 | 90 | 10 | Conifer | 2 | 1 | | | | | |
| | | | | | | | | Hardwood | | | | | | | |
| 19 | LT | 3 | HT | 5 | 95 | 50 | 50 | Conifer | | 3 | | | | | |
| | | | | | | | | Hardwood | | | | | | | |
| 19 | RT | 1 | HT | 15 | 95 | 60 | 40 | Conifer | | 1 | | | | | |
| | | | | | | | | Hardwood | | 1 | | | | | |
| 19 | RT | 2 | HT | 2 | 95 | 50 | 50 | Conifer | | 4 | | | | | |
| | | | | | | | | Hardwood | | | | | | | |
| 19 | RT | 3 | HS | 12 | 100 | 50 | 50 | Conifer | | 3 | | | | | |
| | | | | | | | | Hardwood | | | | | | | |
| 29 | LT | 1 | HT | 8 | 70 | 60 | 40 | Conifer | 2 | | | | 1 | | REPLANTED - CONIFER SEEDLINGS |
| | | | | | | | | Hardwood | | | | | | | |
| 29 | LT | 2 | HT | 2 | 70 | 50 | 50 | Conifer | | 3 | | | | | |
| | | | | | | | | Hardwood | | | | | | | |
| 29 | LT | 3 | HT | 1 | 90 | 30 | 70 | Conifer | | 4 | | | | | |
| | | | | | | | | Hardwood | | | | | | | |
| 29 | RT | 1 | HT | 15 | 95 | 50 | 50 | Conifer | 2 | | | | | | |
| | | | | | | | | Hardwood | 1 | | | | | | |
| 29 | RT | 2 | HT | 3 | 90 | 60 | 40 | Conifer | 3 | | | | | | |
| | | | | | | | | Hardwood | | | | | | | |
| 29 | RT | 3 | HS | 21 | 90 | 60 | 40 | Conifer | 3 | | | | | | |
| | | | | | | | | Hardwood | 1 | 1 | | | | | |

COMMENT SUMMARY

MONITORING AREA: 1-NC SITE ID: 365 STREAM: BEAR CREEK UPPER

| UNIT# | TYPE | CHAN | DIST. (m) | COMMENTS | NOTES |
|-------|------|------|-----------|----------|--|
| 10 | RB | 01 | 116.3 | /TJ | |
| 11 | RB | 11 | 116.3 | | T=11C |
| 13 | LP | 00 | 146.3 | HS | INTERLOCKING LOG JAM |
| 15 | PP | 00 | 162.3 | | (2) 5CM FISH |
| 21 | SL | 00 | 226.3 | | H=0.50M |
| 23 | PP | 00 | 259.8 | | (5) 5-10CM FISH |
| 25 | LP | 00 | 271.8 | | (1) 3CM FISH |
| 27 | LP | 00 | 294.4 | HS | INTERLOCKING LOG JAM |
| 28 | SB | 00 | 295.4 | | H=0.20M |
| 37 | RB | 01 | 366.8 | SS/ | |
| 40 | RB | 00 | 390.8 | | 2 PHOTOS AT END, POOR GPS SATELLITE COVERAGE |



Name: BEAVER
 Date: 4/26/2007
 Scale: 1 inch equals 2000 feet

Location: 10 0436885 E 5019062 N
 Caption: BEAR CREEK UPPER RESTORATION SITE - NESTUCCA BASIN

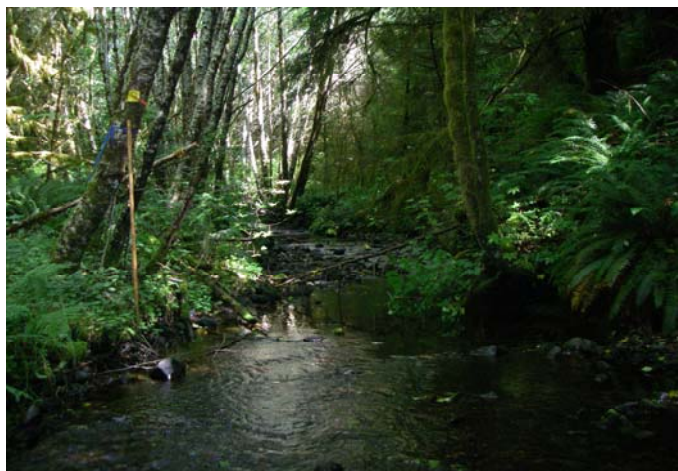
NC-365 Bear Creek Upper (Post-Treatment) 2008 Summer Habitat Survey Photographs



Start of survey



Large wood habitat structure



End of survey