

**SPECIAL-STATUS AMPHIBIAN STUDY INTERIM REPORT**

**ATTACHMENT B**

**PROJECT TRANSMISSION LINE RIGHT-OF-WAY SITES  
HABITATS AND SPECIES PHOTOS**



**Figure B-1. Site T1 (PFO/PSS/PEM wetland) met the total area and PEM component criteria of the habitat assessment for potential Oregon spotted frog habitat but not other criteria. Northwestern salamander (*Ambystoma gracile*), Pacific chorus frog (*Hyla regilla*), and northern red-legged frog (*Rana aurora*) were documented. (March 23, 2021)**



**Figure B-2. Site T1 was within a narrow valley and surrounded by a high level of landscape development. The pond noted here is also depicted in Figure B-1. Note that the distribution line shown here within the Project ROW is not part of the FERC-licensed Project. (March 23, 2021)**





**Figure B-3. Site T2 (PEM/PSS wetland) met the total area and PEM component criteria but generally lacked shallow, suitably vegetated, emergent areas (instead, common cattail [*Typha latifolia*] and reed canarygrass [*Phalaris arundinacea*] were predominant). Northwestern salamander and Pacific chorus frog were documented, and habitat was suitable for northern red-legged frog. (March 23, 2021)**



**Figure B-4. The wetland at T2 appeared to be of relatively recent origin, formed by a beaver (*Castor canadensis*) dam and bordered by the prism of an old railroad bed (now the community trail shown here). As illustrated here, the area investigated at some sites extended to contiguous parts of the same wetland outside the ROW. (March 23, 2021)**





**Figure B-5. Site T3 (PEM/PSS wetland) did not meet various criteria, including total area, but was investigated as an example of probable amphibian habitat along the ROW, which was accessible (located in part on City Light land). Egg masses of northwestern salamander and Pacific chorus frog were found. (March 24, 2021)**



**Figure B-6. Site T4 is associated with a large, mapped wetland (PFO/PSS/PEM) intersected by the transmission line ROW. There are multiple private properties along the ROW, with access permission granted at only one location. Northwestern salamander and Pacific chorus frog were documented. Habitat farther north in the mapped wetland appears to be higher quality but is shrub-dominated in the ROW, not comparable to known Oregon spotted frog (*Rana pretiosa*) habitats. Northern red-legged frog and western toad (*Anaxyrus boreas*) are possible in this large wetland, especially outside the ROW. (April 1, 2021)**





**Figure B-7. Site T5 is associated with a beaver-influenced wetland (PFO/PSS) on a small drainage and contains ponds on both sides of the maintenance access road. Although the wetland did not meet the total area criterion of the habitat assessment, the site was investigated as an example of probable amphibian habitat along the ROW, which was accessible (located in part on City Light land). Northwestern salamander, Pacific chorus frog, and northern red-legged frog were documented. (March 25, 2021)**



**Figure B-8. Site T6 is associated with the wetland (PSS/PEM) that surrounds Riley Lake, but the ROW is situated east of the lake adjacent to Lake Riley Road. The ROW contains dense hardhack (*Spiraea douglasii*), with reed canarygrass along the road shoulder. Northwestern salamander and Pacific chorus frog were documented. (March 24, 2021)**





**Figure B-9.** Site T7 was designated at Fortson Ponds (PFO wetland). This pond is outside of the ROW which is on higher ground (indicated by red line) and no Project-related vegetation management occurs at the pond. Most of the pond shoreline was not accessible without a boat. Site investigation was limited to a field reconnaissance. Pacific chorus frog and northern red-legged frog were documented; habitat was also suitable for northwestern salamander. (April 1, 2021)



**Figure B-10.** Site T8 is associated with a PFO/PSS wetland. Within the ROW, vegetation is mostly flooded hardhack with beaked sedge (*Carex utriculata*) in smaller areas of PEM. Pacific chorus frog was the only amphibian documented. (March 25, 2021)





**Figure B-11. At Site T9 the ROW is located along the access road intersecting parts of a large PFO/PSS/PEM wetland associated with Hilt Creek. The wetland extends far beyond the ROW and beyond the 0.5-mile distance mapped by Study TR-02. Multiple locations were examined proximate to or more distant from the ROW, including Hilt Lake, to maximize the likelihood of detecting species. The site was first visited on March 26, 2021 and examined again on April 5. Northwestern salamander, Pacific chorus frog, and northern red-legged frog were documented. The wetland may also contain suitable habitat for western toad. (April 5, 2021)**



**Figure B-12. T9 is along a section of the transmission line that spans an area of relatively high elevation (approximately 1,000 ft) and topographic relief, characteristics not comparable to known Oregon spotted frog habitats. Locations examined included this deep pool proximate to, but outside of the ROW. (March 26, 2021)**





**Figure B-13.** Site T10 is associated with an excavated pond with mostly steep edges. It did not represent potential habitat for Oregon spotted frog but was investigated as an example of amphibian habitat along the ROW, which was accessible (located on City Light land). Northwestern salamander and Pacific chorus frog were documented. (The site had been surveyed previously by City Light in 2012, when survey results also included one northern red-legged frog egg mass.) (June 24, 2021)



**Figure B-14.** Northern red-legged frog was the only ranid frog found, detected at four sites (egg mass at T9 is illustrated here) and possible at two other sites. (April 5, 2021)





**Figure B-15. Pacific chorus frog was documented at all 10 sites by auditory detection, observation of adults, or presence of egg masses (shown here at T9). (April 5, 2021)**



**Figure B-16. Northwestern salamander was found at 8 of the sites (egg mass shown here at T5) and was presumed to occur at one other site. (March 25, 2021)**





**Figure B-17. Site T10 was not examined during the early spring amphibian breeding period but northwestern salamander was documented by the presence of larvae. The larva shown here had a total length of 23 mm total length, which illustrates the slow growth and development characteristic of this species. (June 24, 2021)**



**Figure B-18. At Site T10, Pacific chorus frog detections included hatching stage embryos in egg masses (shown here) as well as larger, later stage tadpoles. (June 24, 2021)**



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**ATTACHMENT C**

**SKAGIT RIVER FLOODPLAIN SITES HABITATS AND SPECIES PHOTOS**





**Figure C-1.** Site S1 was associated with Lower Lucas Slough where aerial imagery suggested a PEM wetland north of this channel. Site investigation indicated no potential amphibian habitat north of the channel. The area is commercial forest land. No Project-related activities occur. (March 31, 2021)



**Figure C-2.** Site S1. This juvenile red-legged frog (*Rana aurora*) was found next to the channel on the south side of S1 and was the only amphibian found. (March 31, 2021)





**Figure C-3. Investigation of Site S2 at False Lucas Slough on a fish and wildlife mitigation land parcel indicated few shallow areas that were not covered in dense reed canarygrass, slough sedge (*Carex obnupta*), or hardhack (*Spiraea douglasii*). No Project-related activities occur. (April 6, 2021)**



**Figure C-4. Site S2. Most of the area had water too deep to wade but with no potential for Oregon spotted frog (*Rana pretiosa*) oviposition habitat. The only amphibian species detected at the site was northwestern salamander (*Ambystoma gracile*) (submerged egg masses). (April 6, 2021)**





**Figure C-5. Site S3 was at the northeast end of Barnaby Slough on a fish and wildlife mitigation land parcel where no Project-related activities occur. Water along the steeply sloped east edge was too deep to potentially support Oregon spotted frog oviposition but was suitable for northwestern salamander (egg masses detected). (March 31, 2021)**



**Figure C-6. Site S3 also included a large area with dense common cattail (*Typha latifolia*) and reed canarygrass, conditions unsuitable for Oregon spotted frog. (March 31, 2021)**





**Figure C-7.** Site S4 was one of two sites associated with Harrison Slough, here on a fish and wildlife mitigation land parcel where no Project-related activities occur. Site investigation focused on shorelines and areas that could be waded. Egg masses of northwestern salamander and northern red-legged frog were found. Harrison Slough was one of several sites in the study area that had been surveyed by City Light in 2011-2012 (did not detect Oregon spotted frog). (April 5, 2021)



**Figure C-8.** Site S4. Pacific chorus frogs (*Hyla regilla*), which had not yet bred at the site, were observed and heard in this area separate from the main body of the slough. (April 5, 2021)





**Figure C-9.** Site S5 was at the northeast end of Harrison Slough on private property adjacent to and contiguous with the fish and wildlife mitigation land parcel. The site was outside of the Project Boundary. No Project-related activities occur. The area is not forested. Northwestern salamander, Pacific chorus frog, and northern red-legged frog were documented. City Light surveys at Harrison Slough in 2011 also detected long-toed salamander (*Ambystoma macrodactylum*). (March 31, 2021)



**Figure C-10.** Site S5. The shallow north end was largely filled with slough sedge and soft rush (*Juncus effusus*); and may only provide oviposition habitat for Pacific chorus frogs. (March 31, 2021)





**Figure C-11. Site S6 was associated with a slough on the north side of the Skagit River at Washington Eddy, where accessible inlets were investigated. Part of the slough is on a fish and wildlife mitigation land parcel; the rest is outside of the Project Boundary. No Project-related activities occur. The only species detected by egg masses was northwestern salamander. (April 6, 2021)**



**Figure C-12. Site S6. Juvenile northern red-legged frogs (yearlings and older) were numerous along this channel on the northeast edge of the site. Egg masses were not found but may have occurred elsewhere on the site in areas too deep to access. (April 6, 2021)**





**Figure C-13. All the northern red-legged frog egg masses found at the Skagit River floodplain sites (egg mass at Site S5 shown here) were unequivocally identified as this species. (March 31, 2021)**



**Figure C-14. Northwestern salamander was detected at all but one of the floodplain sites between Illabot Creek and the confluence of the Sauk River. (March 31, 2021)**





**Figure C-15. Site CLP (County Line Ponds) is on City Light land formerly used as a source of aggregate during Project construction. No Project-related activities occur. Northern red-legged frog was the only species detected by presence of egg masses on April 2, 2021. Northwestern salamander was not found here or at the other borrow pit ponds (NP1 and NP2), despite apparently suitable habitat. If these relatively new ponds have not been colonized, it may indicate a lack of nearby source populations. (April 2, 2021)**



**Figure C-16. Site CLP. Four male western toads (*Anaxyrus boreas*) (two shown here) were detected at one location where they floated at the surface and occasionally swam toward one another. These males were gathering to await the arrival of females. Movements of toads were detected on the same date at a second location but were too wary to be counted. (April 2, 2021)**





**Figure C-17. Site CLP. By this date male western toads had gathered in larger numbers and were readily detected. At this location an undetermined number of males (but more than 20) were observed, mostly associated with large patches of mannagrass (*Glyceria* sp.). The toads periodically interacted with neighbors and made bird-like twittering sounds (i.e., “release call”) in response to neighbor proximity and contact, including occasional observed attempted amplexus. (April 6, 2021)**



**Figure C-18. Site CLP. Male western toad at location shown in Figure 17. (April 6, 2021)**





**Figure C-19. Site CLP. A large, loose school of western toad tadpoles was observed in the area shown in Figure C-15. Planned field work for 2022 will include an effort to document western toad egg strings here and record the characteristics of oviposition sites. (June 24, 2021)**



**Figure C-20. Site CLP. Tadpoles of northern red-legged frog (shown) and Pacific chorus frogs were also found. (June 24, 2021)**





**Figure C-20. Site NP1 was associated with the large Newhalem (or “Ag” for Aggregate) Pond. The margins of the pond were mostly steeply sloped with limited shallow areas, and correspondingly limited areas of emergent vegetation. Northern red-legged frog was the only species detected by egg mass presence on April 2, 2021. Pacific chorus frog was detected by vocalizations and subsequent finding of tadpoles on June 14. Western toad tadpoles were also found in June. (April 2, 2021)**



**Figure C-21. Site NP1. This school of western toad tadpoles stretched at least 100 feet along the northeast shore. Planned field work for 2022 will include an effort to identify and document the oviposition site. (The white material at the surface was from wind-blown cottonwood seeds.) (June 14, 2021)**





**Figure C-22. Site NP2 was the small Newhalem Pond, which was even more uniformly steep-sided than the large pond. The site was not surveyed for egg masses in April but was subsequently surveyed for tadpoles on June 14, 2021. Northern red-legged frog was the only species found. (June 14, 2021)**



**Figure C-23. Site NP2. The few northern red-legged frog tadpoles found at the site were smaller than those found at NP1 on the same date and in an earlier stage of development but were unequivocally identified as this species. (June 14, 2021)**



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**ATTACHMENT D**

**PROJECT RESERVOIR SITES HABITATS AND SPECIES PHOTOS**





**Figure D-1. Site G1, on the north shore of Gorge Lake downstream of Stetattle Creek, was not associated with a mapped wetland but was examined. The site does not appear suitable for western toad (*Anaxyrus boreas*) breeding. (June 22, 2021)**



**Figure D-2. Site G2 on Gorge Lake was associated with a small, riverine/lake fringe wetland (PEM/PSS) within and proximate to an inlet. Wetland vegetation was limited to riparian shrubs and this patch of woolly sedge (*Carex pellita*). The site may be subject to water level fluctuation. No amphibians were found. (June 22, 2021)**





**Figure D-3.** Site D1 in the Thunder Arm of Diablo Lake is associated with riverine wetlands with mostly woody vegetation. Flowing and relatively cold water likely limits or precludes amphibian use. The location shown here is at the upstream end of a side channel on the west side of Thunder Arm (view looking east-southeast). (June 22, 2021)



**Figure D-4.** Site D1. Downstream of the location shown in Figure D-3, the side channel narrows and contains emergent vegetation. No amphibians were observed. The side channel is accessible to fish. (June 22, 2021)





**Figure D-5. Site R1 was at the mouth of Big Beaver Creek on Ross Lake. There was no aquatic habitat separate from the lake. At this location on the north shore, most of the site vegetation was above the water surface elevation on this date. The site is not potential breeding habitat for Columbia spotted frog (*Rana luteiventris*) or other early breeding amphibians. Detections were limited to adult and juvenile western toads. (June 15, 2021)**



**Figure D-6. Site R1. The recorded water surface elevation of Ross Lake was more than 6 feet higher on this date compared to June 15. (June 23, 2021)**





**Figure D-7. Site R2 was on the east side of Ross Lake south of Roland Creek. The mapped wetland at this site borders a steep-sloped inlet with no apparent amphibian habitat. A seepage or small, seasonal drainage (shown in photo) occurs at the apex of the inlet, which is inundated at full pool. No amphibians were found. (June 17, 2021)**



**Figure D-8. Site R3 was at the inlet on the south side of Roland Point. No amphibians were found on this date. NPS subsequently reported finding western toads at R3; the exact location and other details are not available. (June 15, 2021)**





**Figure D-9.** Site R4 was on the isthmus between Roland Point and Jerusalem Island. Amphibian habitat was associated with a pool separate from Ross Lake. Larvae of long-toed salamander (*Ambystoma macrodactylum*; tentative identification) and Pacific chorus frog (*Hyla regilla*) were found on this date. Western toad tadpoles were not found but were observed in a NPS photograph reportedly from this site (no other details available). (June 15, 2021)



**Figure D-10.** Site R4. On this date rising water connected the pool to Ross Lake at the north end of the isthmus. (June 23, 2021)





**Figure D-11. Site R5 was associated with a small, mapped wetland (PEM) which was dry except at the shoreline of Ross Lake when examined. No amphibians were found. (June 17, 2021)**



**Figure D-12. Site R6 was associated with a mapped wetland (PEM) around the inlet north of Dry Creek. Areas surveyed on this date were dry except at the shoreline of Ross Lake and no amphibians were found. NPS subsequently reported finding western toads at a location further in the inlet in a depression separate from Ross Lake that was not explored on June 15; the exact location and other details are not available. (June 15, 2021)**





**Figure D-13. Site R6. Pacific chorus frog tadpoles were found in this location on the edge of the area flooded at full pool where logs appeared to be a barrier to fish. (August 5, 2021)**



**Figure D-14. Site R7 was associated with a small, mapped wetland (PFO/PEM) which was dry when examined except at the shoreline of Ross Lake. No amphibians were found. (June 15, 2021)**





**Figure D-15.** Site R8, on the alluvial delta south of the mouth of Silver Creek, was associated with a relatively large, mapped wetland (PEM) which was sparsely vegetated and dry except along the lake shoreline. No amphibians were found. (June 17, 2021)



**Figure D-16.** Site R9, on the northeast side of Ross Lake south of the international border, was associated with the largest mapped wetland (PEM) on the lake. Most of the aquatic habitat was along the shoreline, which was searched the length of the site. Conditions suitable for Columbia spotted frog or other ranid frogs were not apparent. Adult and juvenile western toads, and adult Pacific chorus frogs were found at terrestrial locations. Redside shiners (*Richardsonius balteatus*) were abundant. (June 16, 2021)





**Figure D-17. Site R9. This side channel with pools of standing water in places was one of the few areas of aquatic habitat separate from the lake on this date. An adult Pacific chorus frog was the only amphibian found. The grass here is reed canarygrass (*Phalaris arundinacea*). (June 16, 2021)**



**Figure D-18. Site R9. This pool near the international border was also separate from Ross Lake. It is likely a flooded borrow pit. No amphibians were found here. Unidentified fish were observed. (June 16, 2021)**





**Figure D-19. This photo from Study GE-03 Sediment Deposition in Reservoirs Affecting Resource Areas of Concern shows one of several borrow pits west of R9 that are exposed during the drawdown. Vegetation around these borrow pits was absent or limited to sparse, low-growing annuals. (May 13, 2021)**



**Figure D-20. The borrow pits and other pools in the drawdown zone that were not examined for amphibians in 2021 will be investigated in 2022, beginning in April or May. (May 16, 2021)**





**Figure D-21. Site R9. The study found no western toad breeding locations at R9 in 2021 but breeding might have occurred sometime after the first survey. In 2020 on August 5, a City Light biologist observed metamorphosing western toad tadpoles on the north side (at left in this photo) of the Hozomeen boat launch. This photo shows the location when recorded water surface elevation at Ross Dam was about 1,586 feet. (June 16, 2021)**



**Figure D-22. Site R9. This is the Hozomeen boat launch viewed looking north. The recorded water surface elevation at Ross Dam was about 1,601.6 feet on this date. (August 4, 2021)**





**Figure D-23. Site R9.** The study lead accompanied NPS Aquatic Biologist Ashley Rawhouser during a NPS night survey of the site on July 8, 2021, when large numbers of Pacific chorus frogs were calling. Subsequent search for Pacific chorus frog tadpoles on August 4 by dip-netting was largely unsuccessful: one tadpole was found near the east edge of the site just south of the international border in an area of flooded reed canarygrass where large logs appeared to be a barrier to fish. In this panoramic view, the building at left is just south of the border. (August 4, 2021)



**Figure D-24. Site R10** was associated with a large, mapped wetland (PFO/PEM) on the northwest side of Ross Lake south of the international border. Conditions suitable for Columbia spotted frog or other ranid frogs, particularly habitats that could support breeding, were not apparent. Western toad and Pacific chorus frog were the only species documented. Borrow pits and other pools in the adjacent drawdown zone that were not examined for amphibians in 2021 will be investigated in 2022. (June 17, 2021)





**Figure D-25. Site R10. Similar to Sites R6 and R9, Pacific chorus frog tadpoles were found only in a limited area at the upper margin of the site. (August 4, 2021)**



**Figure D-26. Juvenile western toads, including yearlings and older, were found at Sites R1, R9, and R10. (June 15, 2021)**





**Figure D-27.** This adult western toad at Site R1 had loose skin, likely indicative of a female having recently bred, although the breeding location here or in Big Beaver Valley cannot be determined. (June 15, 2021)



**Figure D-28.** This adult western toad was found in the shade of an overturned kayak at the Dry Creek Campground near Site R6. (August 5, 2021)



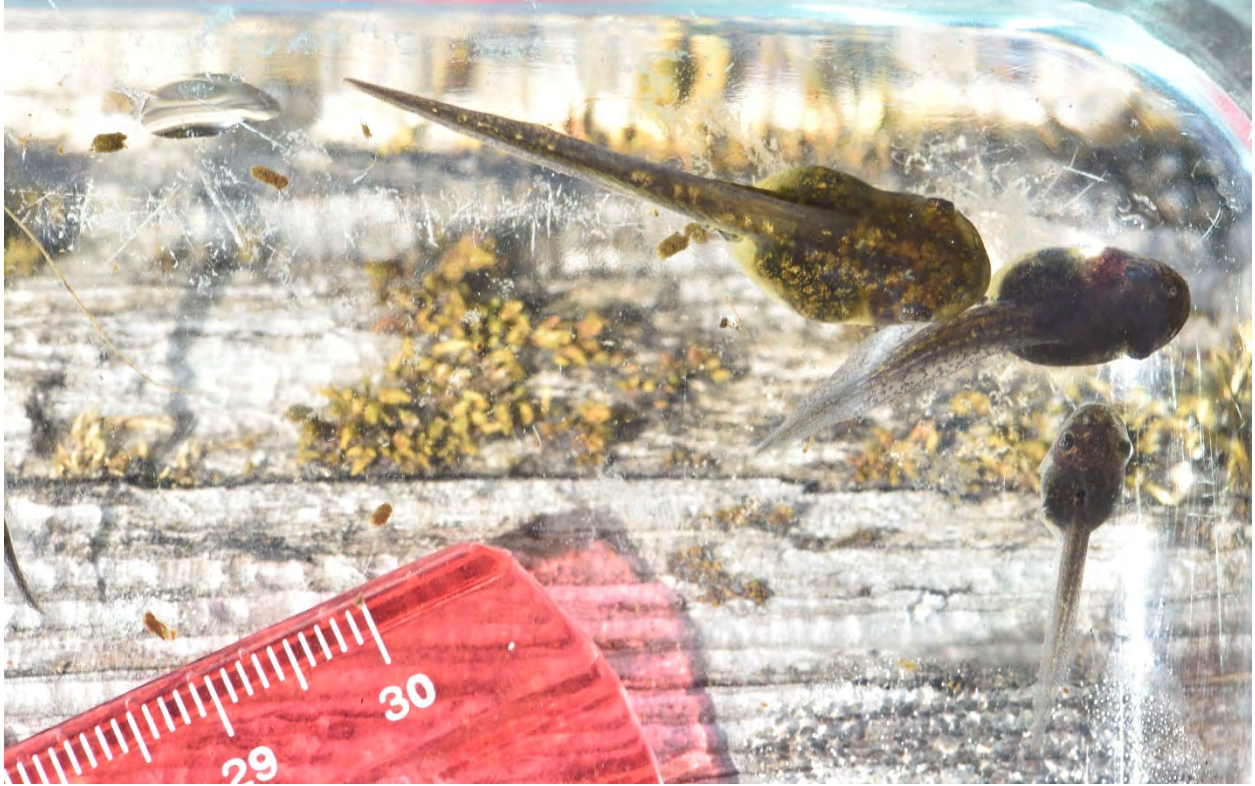


**Figure D-29. Pacific chorus frog was detected at Sites R4, R6, R9, and R10, and likely also occurs with western toad at R3. (June 16, 2021)**



**Figure D-30. Each of the verified sites for Pacific chorus frog included presence of tadpoles. This tadpole at stage 37 (Gosner 1960) found at Site R4 is from an early breeding period, perhaps as early as late April. (June 23, 2021)**





**Figure D-31. Most of the Pacific chorus frog tadpoles found at Ross Lake in 2021 were from late breeding activity, which may have occurred in early July. (August 4, 2021)**



**Figure D-32. These larvae at Site R4 were tentatively identified as long-toed salamander. (June 15, 2021)**