



Two large cedar stumps bear witness to logging of an ancient cedar forest more than a century ago. In the background, an opening in today's forest is a classic Type B wetland, surrounded by alder-cedar Type A forested wetland.

DNR's 'Ode to Joyce' Timber Sale, and 'StumpTown'

Back around 1900, Clallam County was rapidly losing its virgin forests. These were the redwoods of the far northwest: huge trees that had withstood at least a few major Cascadia Subduction Zone (CSZ) earthquakes (like the last one in 1700) only to be felled by teams of skinny tough men living in logging camps. In many places, the remaining stumps were blasted, pulled, burned, and we created small farms and dairies. In some places, in true 'cut-and-run' fashion, the stumps were just left. A few men got rich, and some nice wood went into houses in Seattle and San Francisco, but those skinny men just ran out of logging work to do; they raised a new generation of skinny kids, and passed onward a bias that trees are worth more felled than standing.

We wasted a lot then, and it's happening again, but this time wasting much younger trees.

There is an area along the Olympic Adventure Trail, truly at the heart of the trail and around mile marker 17.5, some call 'StumpTown'. The lush forest is itself spectacular, but at StumpTown it conceals and protects a higher concentration of charred old cedar stumps, now a century later *STILL* standing and slowly rotting away. These stumps are not just at the trail, but off into the forest, to the north towards a collection of glacial linear wetlands.

To an appreciative hiker, they are not just stumps: they are landmarks, archaeological remnants and reminders of a time when a forest was changed forever. But, to DNR and logging crews, who are right now quickly harvesting Ode to Joyce (and 'out of public view', because they gated shut Joyce Access Road!), these 'stumps'

are merely in the way: collateral damages, to be shoved aside and run over by huge machines, while felling the live trees.

A lush wet forest becomes a dry and sterile clearcut, while a small profit is made by the logging company that won DNR's timber sale bidding process. Revenues also flow to government (such as the Joyce fire district), *whether they need it or not*, but today's trees, once cut, are gone, and will not provide much greater revenue tomorrow, when funds will be needed much more. The folly of cutting Ode to Joyce is akin to a beloved brother who feels, given a sudden windfall of cash, he *MUST* spend it, yet fails to recognize the importance of saving for the future. Spend now, quickly ... and say goodbye to those stumps and the rich thoughts they stir.

Type B Wetlands... and other 'overlooked' Wetlands

DNR is guided by environmental rules that protect water quality, not just in streams and water bodies, but also (and critically) in wetlands. At the state level, DNR delineates wetlands using the **Forest Practices Board Manual (FPBM)**. But, it is important to recognize that the state guidelines and procedures all derive from the bible for wetlands, which is the **Wetland Delineation Manual** by the U.S. Army Corps of Engineers. US-ACE's 153-page **Regional Supplement for the Western Mountains, Valleys, and Coast Region**, is a dry yet informative read, last updated in 2010.

Washington state's FPBM roughly copies much of the structure and content of the manuals created by USA-CE.

The predominant wetland types relevant to DNR Timber Sales include:

- riparian wetlands (related to streams)
- seeps (e.g., spring areas)
- slope wetlands (commonly seep-like, or accumulating surface flows at the base of sloped areas)
- Type A versus Type B wetlands (see WAC 222-16-035); both types require wetland management zones (WMZ), with Type A more restrictive
- forested versus nonforested wetlands; 'forested' is defined as 30% or greater forest canopy coverage; forested wetlands larger than 0.25 acres (~35-yards x 35-yards) are considered Type A wetlands

Generally, wetlands are verified using three key attributes: soils, hydrology (water flow), and plants. Wetlands designation requires that all three attributes must indicate water flows poorly, is retained within the soils in anaerobic conditions, and favors existing hydrophytic (water-loving) plants. Notably, a location that naturally existed as a prolific wetland – like those massive cedar trees prior to logging in early statehood – can become a non-wetland (aka, 'upland') with various human inputs: ditches to draw water away, spray applications to destroy nature's efforts at plant diversity that interfere with DNR's timber plans, harvesting all the mature alder and cedar trees and replanting with 'upland' tree species (on soils no longer shaded from the sun, now parched all summer long), etc. More than a century ago, it was a cut-and-run; the logging camps did the harvesting of the giants, but let nature do the replanting, giving us today's diversifying forest that DNR insists on cutting. And, to stack the odds against future wetlands, DNR will quickly replant with upland trees like doug fir.

How does DNR handle existing wetlands? Laziness prevails. A Type B Wetland is commonly depicted onto timber sale maps, and easily defined without actual site visits, using aerial imagery (either aerial photos or satellite images). It appears that DNR focuses on Type B wetlands alone, in their Timber Sale mapping, solely because these are readily identifiable on aerial imagery... and do not require fieldwork.

PDF WAC 222-16-035

Wetland typing system.

*The department in cooperation with the departments of fish and wildlife, and ecology, and affected Indian tribes shall classify wetlands. The wetlands will be classified in order to distinguish those which require wetland management zones and those which do not. Wetlands which require wetland management zones shall be identified using the following criteria:

*(1) "**Nonforested wetlands**" means any wetland or portion thereof that has, or if the trees were mature would have, a crown closure of less than 30 percent.

(a) "**Type A Wetland**" classification shall be applied to all nonforested wetlands which:

(i) Are greater than 0.5 acre in size, including any acreage of open water where the water is completely surrounded by the wetland; and

(ii) Are associated with at least 0.5 acre of ponded or standing open water. The open water must be present on the site for at least 7 consecutive days between April 1 and October 1 to be considered for the purposes of these rules; or

(b) "**Type B Wetland**" classification shall be applied to all other nonforested wetlands greater than 0.25 acre.

*(2) "**Forested wetland**" means any wetland or portion thereof that has, or if the trees were mature would have, a crown closure of 30 percent or more.

*(3) "**All forested and nonforested bogs**" greater than 0.25 acres shall be considered **Type A Wetlands**.

*(4) For the purposes of determining acreage to classify or type wetlands under this section, approximate determination using aerial photographs and maps, including the national wetlands inventory, shall be sufficient. In addition, the innermost boundary of the wetland management zone on Type A or B Wetlands may be determined by either of two methods: Delineation of the wetland edge, or identifying the point where the crown cover changes from less than 30 percent to 30 percent or more.

[Statutory Authority: Chapter 34.05 RCW, RCW 76.09.040, 176.09.1050, 176.09.1370, 76.13.120(9), WSR 01-12-042, 5-222-16-

Forested wetlands get short shrift. They offer very important ecological benefits to the often adjacent Type B wetlands, serving the same valuable functions for water quality, habitat, complexity and diversity. But, delineating this type of wetland absolutely requires fieldwork. The problem is, DNR has a bias to cut trees, amplified by pressure to produce new Timber Sale proposals each month. So, the fieldwork is shorted. And, very likely, the pro-tree data provided by the scientists (biologists and geologists) are subordinated to the pro-harvest opinions of DNR managers and the timber industry mouthpieces. Net result: many legitimate forested wetlands, that were the heart and soul of our ancient forests back before 1900, get converted into sterile clearcuts and replanted with fir seedlings to try and ‘force’ them to become harvestable tree plantations (whether the trees and critters or even the people ... *yes, whether we like it, or not*).

The screencap below shows text from the FPBM (pg. M8-19), which discusses ‘Problem Area Wetlands’, and includes a

specific focus on the complexities of glacial till. The preamble to this list of problem areas reads: *“There are certain types of wetlands and/*

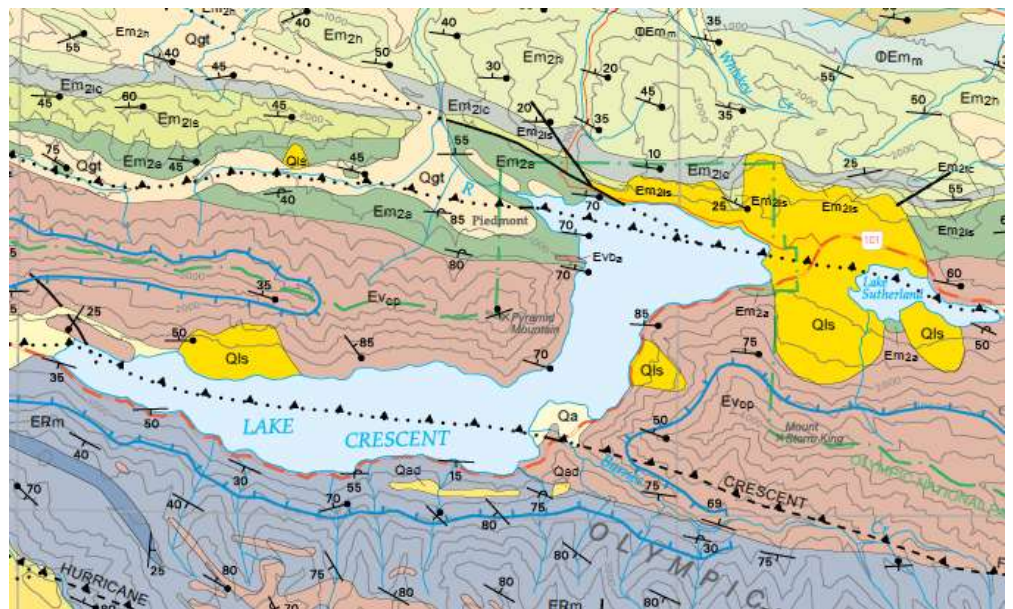
2. **Wetlands on Glacial Till.** Sloping wetlands can occur in glaciated areas where thin soils cover relatively impermeable glacial till or where layers of glacial till have different hydraulic conditions that permit groundwater seepage. Such areas are seldom if ever flooded, but downslope groundwater movement keeps the soils saturated for a sufficient portion of the growing season to produce anaerobic and reducing conditions in the soil. This promotes the development of hydric soils and hydrophytic vegetation. Since these are groundwater dominated systems, indicators of wetland hydrology may be lacking during the drier portion of the growing season (e.g. summer or early fall in Washington). Likewise, soil profiles may be difficult to examine in particularly stony tills.

or conditions that may make wetland identification difficult because field indicators of the three criteria may be absent, at least during certain times of the year. These wetlands are considered problem areas and not disturbed wetlands because the difficulty in identification is due to the peculiarity of their ecology and not the result of human activities or catastrophic natural events, with the exception of newly created wetlands. These are sites in which assistance from wetland specialists from DNR, DOE, or other sources may be advisable.”

The role of Glaciers: Glacial Linear Wetlands

One of the fascinating qualities of Clallam County is its rich glacial history. Repeatedly, from long before man even resided in North America, slow climate changes resulted in massive continental glaciers flowing south and west from the BC mountains.

The last such glacial event included a layer of flowing ice more than 3,000-ft deep, covering all of the lowlands as well as areas up to 4,000-ft elevation. All of Lake Crescent was buried, as was Pyramid Peak, just west of Lake Crescent (straight up and due south, above the Spruce Railroad trailhead). Here is a portion of Schasse’s 2003 geologic map, and note especially the blue line with blue hash marks; this depicts the furthest advance of the glacier, as mapped in the



field, by observing granite boulders that were flowed from BC mountains to rest on Clallam soils, when the glacier melted away.

Our glacial history did much more than provide us with a rich BC rock collection (notice these anew, next time you are at the beach); it also shaped our landscape, and ultimately defined our wetlands. These glaciers were not just sheets of ice; they were massive sculpting forces. Their weight had a plowing effect, that would scrape away all the vegetation, all the soils, and even a large amount of any bedrock if it had cracks or was crumbly. Plants and soils were all removed. The result is that topsoils on DNR timber lands, like the topsoils under most roads and structures in Joyce, are extremely thin: rarely more than a foot.

DNR timber sales to the south of Joyce rise up hills above the Olympic Adventure Trail, to elevations above 2,000-ft. Much of the area continues to be covered with a layer of glacial debris (till and outwash) from the last



glacial episode, but the few areas of actual bedrock tend to be marine sediments formed ~40 million years ago. The forces that pushed up the Olympic Mountains, and that today stir fears of 'the next CSZ earthquake', have folded these older marine sediment layers; at the base of the hills, on average, these layers tilt 20-degrees downward toward the Strait of Juan de Fuca. And, geologically speaking, these marine sediment layers are fairly thin, alternating rapidly from one layer to the next. This is why, when you study satellite images of the plains around Joyce, you see a pattern of fine lineations, trending slightly north of east to west. These lineations reflect different trees on different layers: softer/wet layers alternate with harder/dry layers, creating alternating bands of wetland trees versus upland trees.

Glacial linear wetlands occur very frequently in this area. These are surface exposures of softer bedrock layers, scoured out between harder rock layers, serving as traps for water delivered by the local hydrology. Our high rate of precipitation, coupled with geologically very young and mixed soils that tend to block water flow,

translates to a simple reality: post-glacially, water (and the lighter sediments and organic debris carried by that water) will pool into these narrow troughs, slowly building glacial linear wetlands. This happens everywhere, be it on the generally flat plains around and north of Joyce, or at the base of the steeper hills to the south. But, these glacial linear wetlands become especially pronounced at the latter locations, because of the amplified inflow of springwater and rainwater downslope into the troughs. The Ode to Joyce Timber Sale, especially at Units 1 & 2, offers a classic example of the diversity and complexity around glacial linear wetlands.

DNR's Process for marking out a new Timber Sale

DNR is obsessed with image. They want the public to believe the forests entrusted to them are optimally managed to produce trees as a revenue source for state and local government. They work to steer us away from any perception that DNR might actually be a captured regulator serving a handful of wealthy timber interests... which undermines their credibility as a true regulator.

Every month, DNR presents a new slate of proposed timber sales to the Board of Natural Resources (BNR). In rough terms, and in recent years, ten sales packets are proposed each month, totaling a cut of around 50 million board feet of logs. Like any agency, DNR has limited staff and other resources. So, it is to be expected they will do their best to comply with federal and state regulations using the quickest and least-effort methods. In the case of wetlands delineation, this means each new Timber Sale results from roughly this sequence of steps:

1. A high-level review identifies general areas and sets a general date window for sale and harvest. At this first step, personnel review only maps, imagery, and data tables.
2. A closer review, in-office (not yet on the ground), defines potential harvest-limiting details, such as likely wetlands and streams. At this point the Timber Sale plan is armed with a good knowledge of road access, age and general quality of timber stands, and target areas for deeper *field* investigation to define lands that are supposed to be protected in the interest of water quality.
3. Likely, the next step appears to be a timber-focused person going on-site to pre-cruise the timber – flagging likely new roads and landing areas, plus flagging proposed cut units. The bias of this person towards cutting trees translates to a tendency to not see obvious wetlands while flagging; thus, you end up with large swaths of forested wetlands within the cut area, or landings (log loading sites) situated in the middle of topographic depressions. That is fair enough, because the overall program should be able to rely on a healthy system of ‘checks-and-balances’ review; i.e., a money-focused person, followed by a science-focused biologist and/or geologist, should balance into an appropriate final plan. But, does it? What does the DNR culture allow?
4. Wetland delineation can and should happen, enabling the precise location of no-harvest protective buffers. But, it will only happen when the likely wetlands and streams are field-checked by a biologist and/or geologist, and when their findings are accepted by the Timber Sale planning leads.
5. Net result: meaningful wetland delineation is not happening. Therefore, proper application of wetland buffers is not being applied.

There is a bias in DNR's processes, and that bias is to the benefit of the timber industry; it is to the detriment of environment and wildlife. The significant fraction of citizens unhappy with and disenfranchised by the current setup are also losing – not just their right to enjoy a forest today, but also their responsibility to preserve what future generations deserve to experience.

When the cut is done, botanical complexity is gone, and what was a cool shade becomes a bright, glaring sun. Triage time for the forest means, for each Timber Sale unit, new plant communities must rapidly evolve, trying to recover while rapidly drying out. Invasives and upland plants will prevail; it will be many decades before a delicate but common plant like Wild Ginger can reestablish.

Despite the harsh transition, for at least a few months, it will be easy for any citizen to see what happened while hiking through the demolished forestland. And when they do, the evidence will be there to show: where were the *REAL* wetland boundaries, ignored by DNR, when they sold this timber to devastation? How badly has DNR failed us?