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Comments: Dear Valeria Cancino Hernandez:

These are comments for the Glacier Grotto of the National Speleological Society regarding proposed Twin Mountain II Timber Sale DEIS.

After analysis of the scope of the sale and its impacts on wildlife, connectivity, and karst, we urge the Forest Service to choose the NO ACTION alternative, or if not, to at least remove all units containing karst from the selected alternatives.

The size and scope of the proposed harvest is unacceptable. Removing nearly 27 million board feet from almost 1700 acres in these already severely impacted portions of Prince of Wales Island is just nuts. Alternative 2 proposes clear-cutting 24,915 MBF (thousand board) feet across 1106 acres and selectively harvesting 1,915 MBF from 549 acres. Alternative 3 would be a bit more than half that.

In an area that has already been heavily logged, either of these alternatives would negatively affect wildlife habitats by reducing connectivity and requiring greater travel distances for animals to reach appropriate habitat. That means less deer for the locals and reduced productive old growth habitat for animals such as bats, black bears, flying squirrels, marten, brown creepers, goshawks, and numerous other species. Not to mention damage to fish habitat and increased road density.

However, we are afraid that under the current administration's push for more resource extraction, that the NO ACTION alternative is unlikely to be selected. Thus, we need to take a hard look at what the proposal's impacts to karst might be.

Examining past impacts takes some care using tables 59 and 60 in the DEIS. The figures for percent harvested for moderate and high vulnerability karst are not correct because they calculate percentage relative to the total karst acreage rather than the acreage of known moderate or high vulnerability karst.

Table 59 shows that 88% of the forested karstlands have already been harvested. That's already way too much.

Most of it is on karst that has never been assessed for vulnerability, either low, moderate, or high. When correctly calculated, the percent of both moderate and high vulnerability that has already been harvested is just over 40% (rather than the 6% shown). Again, that's way too much and NO high vulnerability karst is ever supposed to be harvested per the karst standards and guidelines.

Initially we thought that most of the karst units were going to be selectively harvested by helicopter, leaving about 2/3 of the trees standing and minimizing any ground disturbance since helicopters fully suspend the logs instead of dragging them out of the forest. Turns out this initial scan included almost all of the helicopter units and almost none of the shovel and cable harvest units.

In reality, almost 300 acres of units that contain karst will be harvested with partial suspension, and only 149 acres will be helicopter logged in Alternative 2, the alternative with the largest proposed impacts to the forest. All of the shovel and cable harvested units will be clear-cut. Apparently if one carefully excludes all the non-carbonate portions of karsty units, only just over 200 acres of karst are slated for harvest. This is far too much impact on the karstlands, especially since 88% of them are already clear-cut. None of the surveyed karstlands within the proposed sale is low vulnerability. In Table 60, 96 acres of karst are classified as not assessed. We are not sure how this could be since karst standards and guidelines require all karst in proposed harvest to be

assessed. Perhaps the table is just not up to date and assessing has continued.

If so, that should be clearly shown in any future analysis published by the Forest Service. 96 acres of moderate vulnerability karst would be harvested as would 8 acres of high vulnerability karst.

Again, we can't figure out why there would be any high vulnerability areas harvested since that is clearly not allowed under the standards and guidelines.

Looking at the actual unit cards we found that of 85 proposed units, 21 contain karst. The karst units comprise 431 acres of which 223 will be shovel-yarded, 71 will be cable-yarded and just 148 will be helicopter-yarded.

Many of the units still need to have karst buffers laid out. Forest geology crews were doing that last week. It remains to be seen how well these buffers are laid out and whether they comprise more than the minimum required 100 feet from the edges of high vulnerability features and streams, seasonal or year-round, that drain into any insurges. While 100 feet is perhaps minimally adequate where wind is not an issue, many of the unit cards discuss wind-throw problems. In these cases, buffers really need to be two tree heights to avoid wind-throw causing even more damage than the timber harvest does.

This is especially true when buffering high vulnerability features in clear-cut units. Without nearby trees to protect them, trees in the buffer are very subject to wind-throw. This is especially true where past harvest has already opened up the canopy to wind.

We learned this to our horror years ago when buffered cave entrances ended up with worse damage than if they hadn't been buffered. The soil disturbance created by root-wads lifting up as trees blow over is immense and we found cave entrances ending up crisscrossed with fallen trees and insurges taking in muddy streams when it rained.

It is not clear whether any cave entrances have been located during the karst surveys. If they have, it would be prudent to map the caves before harvest and assure that standards and guidelines that require buffers above known cave passage are met.

We note that at least in Unit 325, the unit card doesn't even call for partial suspension but just says there are no concerns related to karst. This would seem to imply that this unit is low vulnerability, but there is not supposed to be any low vulnerability karst in the proposed timber sale. While we don't have a problem with upgrading vulnerability to protect karst since the line between vulnerability classes is often fuzzy, we should be clear about what the standards call for and follow them.

The effects of road building on karst can be very severe. While the standards and guidelines aim to minimize these effects, the new sale includes construction of at least a mile of new road, of which some is over high vulnerability karst. This should not happen. If that timber is valuable enough to build a road, then helicopter it out and avoid damage to high vulnerability karst.

The construction of 12.4 miles of [temporary roads] and reopening of 33.3 miles of closed roads seems absurd in an area that is already heavily roaded. These will almost certainly have deleterious impacts on karst and streams. If this timber is so valuable, then the timber companies buying it should be willing to pay for the helicopters to retrieve it.

It is interesting to note that, according to Taxpayers for Common Sense, the Forest Service spent \$139.1 million on laying out timber sales and building roads between 2008 and 2013 in the Tongass. Net receipts back to the taxpayers were \$8.9 million. That is way too much of a subsidy to the timber industry.

When we worked to locate karst features on the Central Prince of Wales Sale years ago, we had 3 or 4 people walking parallel bearings about 50 or 75 feet apart. We maintained contact and waited if someone needed to go offline to examine a feature. We also walked at least 100 feet outside proposed units to be sure that there were not features that would be affected by harvest outside the unit but within prescribed buffers. Efficiency is always good, but effective coverage is essential and can be even harder to accomplish when there is pressure to [ldquo]get the job done[rdquo] and time constraints.

It appears that current searches use less people and a less systematic approach. While better GPS and LIDAR should help in locating features, I[rsquo]m not sure that several people doing random paths throughout proposed units is sufficient to find a high percentage of features no matter how hard they try. The tracking features on GPS units are good, but not great under canopy, especially wet canopy.

Our preference would be to eliminate all units with karst from any proposed timber sale. If that doesn[rsquo]t happen, the Forest Service should definitely require that all buffers are more than adequate to prevent damage to the karst. They must take into account potential for wind-throw and the very serious damage that can do to the underlying karst. Multiple tree height buffers are a minimum in such situations.

To summarize:

This timber sale is far too big and too damaging to wildlife, karst, and other resources especially because of past heavy harvest, especially on the karst. Therefore, we request that the Forest Service select the NO ACTION alternative.

Because the karstlands have already been severely impacted with 88% of them already harvested, if the NO ACTION alternative is not selected, then all units containing karst should be removed from the proposed timber sale.

At a minimum, if any units containing karst remain then great care should be taken to ensure that all standards and guidelines for karst are implemented including creating buffers well-beyond the minimum required 100 feet for karst features, especially where wind is a problem. A two-tree height minimum is appropriate in these situations.

Thank you for the opportunity to comment on this sale.

Sincerely,

Hannah Keith, Glacier Grotto President

Steve Lewis, Glacier Grotto Conservation Chair