Conservation Northwest Climate Audit

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Overview

We assessed the degree to which six Conservation Northwest programs address climate change. In general, all programs take a landscape-resilience approach to climate adaptation. They all focus on increasing the area and connectivity of protected lands. These are likely to be effective adaptation strategies and are particularly useful when considering a wide range of conservation targets and diffuse climate impacts. Some programs address specific climate-related threats by targeting drought refugia, decreasing fire risk, or increasing floodplain functionality. The Forest Field Program appears to be most effectively targeting multiple climate refugia. Most programs likely play a role in reducing atmospheric carbon concentrations through forest protection and management. The Cascades to Olympics Program is focused on deferring timber harvest, which is the most effective natural climate solution for Washington State. Several of the programs address climate-impact inequities. Most importantly, programs are working with tribes in ways that are likely to increase tribal resilience. For example, returning lands to the tribes both increases protection for species of concern and increases tribal resilience to climate change. Our general recommendations for the programs include making use of connectivity modeling that explicitly addresses climate change driven movements, explicitly targeting multiple types of climate refugia, and considering additional carbon mitigation pathways. We also provide several additional program-specific recommendations.

Overall Conclusions

- Conservation Northwest's work is grounded in basic climate adaptation theory.
- By connecting large, intact landscapes, and managing for their resilience in the face of fire and drought, Conservation Northwest is providing a path forward for the plants and animals of the Pacific Northwest in a time of rapid change.
- By working closely with many of the Tribes in the region, Conservation Northwest is building meaningful partnerships and taking steps to address inequities in climate vulnerabilities.
- Existing programs could be strengthened by specifically focusing on multiple types of climatic refugia, by incorporating connectivity modeling results that explicitly plan for climate-driven species movements, and by expanding efforts to sequester carbon through their work.

Objectives

The objective of this audit was to assess the degree to which six Conservation Northwest programs address climate change. We strove to determine whether and how the programs are addressing climate threats and vulnerabilities, what science is being used to address climate change, and how, if at all, projects are designed to reduce greenhouse-gas concentrations. It was our intent to provide summaries, for each program, of the actions that are being taken to address climate change as well as to provide some suggestions of how the programs could be modified to better address climate change.

Approach

We worked with Conservation Northwest staff to evaluate the degree to which the Central Cascades Watershed Restoration Program, Forest Field, Cascades to Rockies, Sagelands Heritage, Coast to Cascades Grizzly Bear Initiative, and the Cascades to Olympics Program address climate change. Our assessments had two phases. First, we asked program staff to answer 35 survey questions that included a mix of forced-choice, Likert-type, and open-ended response formats to optimally provide quantitative and qualitative information on each of the six programs. After reading the survey results, we developed a set of interview questions that we then presented to staff from each program in one-to-two-hour structured interviews. These interview questions asked the program staff to expand on, clarify, or revisit answers they had provided in the survey.

General Findings

Existing climate adaptation efforts

The six programs all focus on increasing the amount and connectivity of natural habitat. These are important adaptation measures that will likely help maintain wildlife populations in the face of climate change. This approach is also likely to increase the resilience of the landscape to climate-driven disturbance regimes. Larger, more heterogeneous, protected areas are more likely to be able to absorb increased fire, drought, insect outbreaks, and other climate-altered disturbances than are smaller, more homogenous areas. Most of the individual programs have also focused on specific climatic vulnerabilities of target species and systems. For example, the Forest Field and Sageland Heritage Programs are specifically focusing on retaining moisture and specific habitat elements on the landscape in the face of increasing temperatures and decreasing moisture. Some of these key adaptation strategies include the following.

- Protection of drought refugia (Forest Field Program, Sageland Heritage Program)
- Restoration to reduce the impacts of fire (Sageland Heritage Program, Central Cascades Watershed Restoration Program, Forest Field Program)
- Restoration to address potential future climate-driven variability (Forest Field Program)
- Restoring floodplain connectivity and function (Forest Field Program, Cascades to Olympics Program)

Existing carbon mitigation efforts

Most of the programs are likely helping to reduce atmospheric carbon dioxide concentrations in some way as they all protect or restore natural systems. However, given their locations and activities, the Coast to Cascades Grizzly Bear Initiative, Central Cascades Watershed Restoration Program, and the Cascades to Olympics programs have the greatest potential to sequester carbon and reduce atmospheric carbon levels. The most effective tools

these programs have at their disposal are likely increasing rotation lengths in managed forests and protecting old-growth forests.

Climate equity considerations

Most of the programs have engaged with tribes or first nations. These are likely to be some of the most vulnerable populations in the region. The efforts of some of the programs to return land to the tribes potentially represent one of the most powerful and effective means of increasing climate resilience and addressing climate inequities and injustices. Other efforts to reduce impacts on communities relying on timber harvest (Cascades to Olympics Program) are important steps toward addressing climate change related inequities.

Suggestions for increasing climate effectiveness

We have three main suggestions for increasing the ability of the six programs to address climate change. These include making use of connectivity modeling that explicitly addresses climate change driven movements, explicitly targeting multiple types of climate refugia, and considering additional carbon mitigation pathways.

- *Connectivity to address climate-driven movements*. Although increasing connectivity of current habitat patches is likely to increase resilience to climate change, such connectivity planning may not address climate driven species movements. That is, traditional connectivity planning may not allow species to move in ways that allow them to track shifting habitats and climate-driven changes in resource availability. Some such modeling does exist (Littlefield et al. 2017, 2019). However, modeling for the specific regions and species at the appropriate scales may not yet be available and may need to be produced.

- *Climate change refugia*. Larger, intact areas have the potential to serve as refuges from many threats—including climate change. However, recent work on defining and predicting different types of climatic refugia could help several of the programs focus conservation efforts in areas that will allow species to persist into the future (recent special issue in Frontiers in Ecology and the Environment, Volume 18, Issue 5; Cartwright et al. 2020a, 2020b, Michalak et al. 2020). In particular, programs could consider projections of fire refugia, drought refugia, species-based refugia, and vegetation-based refugia. Projections of climate-driven vegetation change could also be considered (e.g., Sheehan et al. 2015, Parks et al. 2018, 2019). Spatially explicit population modeling that incorporates climate impacts, particularly for lynx, wolverine, greater sage-grouse, sharp-tailed grouse, and the pygmy rabbit would also be useful for locating potential refugia.

- *Additional carbon mitigation pathways.* If Conservation Northwest is interested in further increasing carbon sequestration and reducing emissions, the programs could consider further reducing emissions of program operations (e.g., types of vehicles and energy used) and specifically targeting programs and projects for carbon sequestration. Such targeting could involve some basic modeling of both above and below ground carbon storage potential.

Conservation Northwest Programs

Central Cascades Watersheds Restoration Program

Existing climate adaptation efforts

The main objective of the Central Cascades Watersheds Restoration Program is to enhance landscape connectivity. Actions aimed at increasing connectivity include removing barriers such as highways, roads, and plantations. The program also enhances aquatic connectivity by removing and improving road crossings. Increasing connectivity is a key strategy for addressing climate change. It has the potential to increase the adaptive capacity of the species in the landscape by allowing them to move in ways that facilitate the tracking of shifting climatic conditions. In addition to increasing landscape connectivity, the program works to increase forest health and the resilience of the forest ecosystems to climate-driven changes in disturbances such as fire. The program does this by restoring industrial clear cuts, implementing forest practices that promote larger trees, thinning forests to decrease density, and increasing patch sizes of older forests. The species mixes selected for restoration efforts have been carefully selected with climate change in mind- increasing the probability that those efforts will be successful into the future. The program also aims to increase the resilience of streams and rivers by promoting infrastructure that can withstand climate impacts such as flooding.

Existing carbon mitigation efforts

The program works to protect forests, particularly large trees, and works to protect and restore wetland meadows which will further promote carbon sequestration.

Climate equity considerations

The program works with and elevates the interests of Tribes. Particularly, they help protect their fisheries-related values and the role that headwater areas play in the quality of life downstream. By improving landscape permeability, the program is also protecting the ability for Tribes to practice traditional harvest of culturally important species. The program also ensures that rural communities impacted by timber harvesting have a seat at the table and are involved in such discussions in a collaborative manner. Although the Green River and the White River flow through South Seattle and Tacoma, the impact of Conservation Northwest's work on these communities is yet to be seen. The program aspires to engaging these communities and focusing more on environmental justice issues. These actions are an important step toward helping those most impacted by climate change and the actions to address it.

Suggestions for increasing climate effectiveness

There are a few areas in which the program could more effectively address climate change. First, and this is a theme that will be repeated in the assessments of several other programs, the program could more effectively target climatic refugia. The program is attempting to help create refugia in general—places where species will be safer from threats imposed by human activities—and the program aims to create a landscape that is more resilient to climate change and thus may remain a refuge for species as the climate changes. However, the science surrounding climatic refugia is rapidly evolving and addresses several different types of refugia relevant to this program. These include fire refugia, cold water refugia, drought refugia, and more species focused refugia. The program could work—and is working—toward restoration efforts to help create some of these types of refugia. However, it could explicitly use the outputs of recent modeling efforts to identify specific places in which to protect or restore

refugia. For example, maps of cold water refugia could be used to help determine where to focus road crossing removals.

Second, although the program focuses on increasing connectivity, it does not specifically address climate-driven species movements. Any increase in connectivity has the potential to both make species more resilient to climate change and to allow individuals to move to track suitable climates. However, increasing connectivity in general will not ensure that species can move to track suitable climates. Several different climate-informed connectivity modeling efforts have been done that cover the Pacific Northwest. One of these, completed by Nuñez et al. (2013), was part of the original Washington Wildlife Habitat Working Group outputs, which have been used by some of the Conservation Northwest programs.

Forest Field Program

Existing climate adaptation efforts

There are many ways in which this program is working to address climate change, including through the selection of target species, by fostering adaptation to climate-altered disturbance regimes, and by setting climate change informed restoration and management targets. The program focuses on several species of concern that are highly vulnerable to climate change including whitebark pine, lynx, and wolverine. Actions to protect whitebark pine include looking for locations in which to replant trees where the species will be most resilient to climate change. Those areas tend to be where fires have removed the seed source and conditions for long term survival are most likely to persist. The program is focused on increasing connectivity for lynx and wolverine. Increasing connectivity will likely increase climate change resilience for these two species.

The program aims to address climate change through multiple forest management activities. The program promotes forest practices that consider how topography, soil, and the spatial arrangement of conditions on ground influence the longevity of management activities. One specific goal of the forest management in the program is to restore forest structure to reduce fire risk that has grown in response to historical forest management practices and increasingly hot and dry summers. Specific management activities include promoting large, old trees and strategic thinning and prescribed burns in areas with smaller trees. Importantly, the program's goals for forest structure are based on estimates of historical range of variability *and* estimates of future ranges of variability. Future variability estimates have been estimated by observing forests in locations with current climate conditions that are somewhat warmer and drier than the conditions in management target locations.

With the understanding that conditions will become hotter and drier in summer months, the program is focusing in part on retaining moisture in the landscape. Specifically, they are focused on protecting riparian forests, which are likely to be even more important sources of moisture in the future. They are also using model projections to anticipate changes in snowpack, soil moisture, and drought and using these outputs to target parts of the landscape that will be more likely to retain moisture in the future. These areas may act as drought refugia and serve as an essential form of climate refugia in the drier landscape east of the cascades. The program is also working on identifying areas where it will be feasible to reduce the impacts of fire, thus potentially protecting fire refugia to some degree.

The program is also addressing climate impacts on aquatic systems by increasing connectivity, protecting cold water refugia, and restoring floodplain functionality. To improve connectivity, the program is decommissioning roads, fixing culverts, and improving road crossings. All of these actions have the potential to increase aquatic connectivity allowing fish to move to cooler waters as stream temperatures warm. The program team is working with Tribes

to identify and protect cold-water refugia for fish. Finally, the program is reintroducing beaver to help restore functioning floodplains, which can help reduce the negative impacts of flooding resulting from projected heavy rain and rain-on-snow events and help increase water storage capacity.

Like other Conservation Northwest programs, the Forest Field program aims to increase connectivity of the landscape, which will likely make the area more resilient to climate change by general reducing interactions with people, reducing the negative population-level effects of fragmentation, and increasing population resilience in general. Increasing connectivity in this way may also allow some individuals to move in ways that allow them to track changes in climate (e.g., to get to areas with more snowpack).

Existing carbon mitigation efforts

The program will contribute to atmospheric carbon reduction in several ways. First, the program is aiming to reduce carbon emissions from prescribed burns. Second, the program is focused on protecting old trees and applying restoration techniques to facilitate tree growth. Third, the program aims to protect and restore wet meadows, which also sequester carbon.

Climate equity considerations

The program considers the equitable distribution of climate impacts in some ways but acknowledges that more work is needed. For example, there is an effort to work closely with Tribes to ensure their voices are heard and that they help drive decision-making. Some considerations are also being made for foresters, with the recognition that if fewer trees are cut, fewer jobs will be available, and that work is needed to address that transition. In addition, the program's efforts to reduce fire and flood risk benefit the communities at large.

Suggestions for increasing climate effectiveness

As for the other programs, we suggest more directly addressing climate change in connectivity efforts. For lynx and wolverine in particular, providing passage to areas with more persistent snowpack may be needed. The general findings section provides some specific suggestions for the kinds of models and data that might be useful. The interviews also revealed that the connectivity maps from the Washington Wildlife Habitat Working Group do not provide great guidance in the area in which this program works. Thus, finding or investing in connectivity modeling specifically for these species in this landscape, that specifically addresses climate-driven movements would be useful. Unlike other program, the Forest Field Program is explicitly focusing on several different types of climate refugia. This is likely to be quite valuable in efforts to protect these species and this landscape into the future. If possible, the program should consult multiple projections from different climate models, different emissions scenarios, and different scientists, if possible, to identify these refugia.

Cascades to Rockies

Existing climate adaptation efforts

The Cascades to Rockies Program focuses on improving habitat connectivity for lynx via highway crossings, land easements and acquisitions, restoration of habitat, and population augmentations, with the goal of making metapopulations more resilient to climate change and enhancing their structure. Forest management is being used as a tool to create more heterogeneous forests that will likely be more resilient to climate-driven changes in fire regimes. Increasing connectivity, protecting more habitat, and increasing habitat resilience are all actions that will help lynx in a changing climate.

Existing carbon mitigation efforts

The forest management and forest protection aspects of this program are likely to contribute to carbon reduction to some, limited, degree.

Climate equity considerations

This program is in the process of returning 9,243 acres to the Colville Tribe. This is an incredibly powerful action and, to our limited knowledge, perhaps one of the most effective ways to address inequities and injustices in this landscape. Returning the land of Tribes increases their resilience to climate change and other stressors.

Suggestions for increasing climate effectiveness

The project does not directly address the loss of snowpack, and snowpack refugia could be further considered and modeled. Population modeling that takes climate-driven changes in snowpack into account could be used to identify potential population refugia for lynx. Additionally, the connectivity modeling used appears to only focus on connecting current habitats; it does not consider the needs of lynx in a changing climate. The program could consider identifying other connections that might be of higher priority for lynx retreating to higher elevations with more snowpack or other areas with more snowpack.

Sageland Heritage Program

Existing climate adaptation efforts

The primary goal of this program is to protect sagebrush steppe to support threatened species, including the greater sage-grouse, sharp-tailed grouse, and the pygmy rabbit. The program addresses two anticipated climate vulnerabilities—increased fire frequency and severity and climate-driven changes in habitat (particularly water birch). In addition, the program also focuses on increasing habitat connectivity an increasing the amount of sagebrush steppe habitat. All of these goals will likely make the three species—and other species in the area—more resilient to climate change.

Reducing fire risk is an important goal of the program. Fire protection efforts are aimed at critical wildlife areas such as grouse leks. Actions to reduce fire risk include green fire breaks and dropping fire retardants. To address climate-driven habitat impacts on sharp-tailed grouse, efforts are being taken to encourage water birch. For example, the program is training people to put in beaver-dam analogs, watering and planting water birch and installing Zeedyk structures to increased availability for water birch. Efforts are also being made to protect wetland areas from drought and fire. All these actions have the potential to help protect or create drought and fire refugia for grouse and other species in the landscape.

The program is also working to restore and reconnect sagebrush steppe. The program advocates for the Conservation Reserve Program (CRP), which has been critical to sagebrush restoration and conservation. The Sageland Heritage program works to protect and enhance connectivity by adjusting fencing. Although the goal is overall landscape permeability, the project also draws on the arid lands assessment data and makes the assumption that species will need to move upward in elevation and northward in latitude. The program also recognizes that solar and wind development could negatively impact habitat depending on siting, and thus are working to ensure that such projects are sited in ways that minimize habitat impacts.

Existing carbon mitigation efforts

Carbon mitigation and sequestration is not a major goal of the program.

Climate equity considerations

The program engages three groups that are likely to be vulnerable to climate change. Tribes are a major partner and are invested in enhancing connectivity, protecting and enhancing habitat for deer, pronghorn, antelope, and sage grouse. The program also engages with tribes on wild horse management and first foods management. The program is working with major employers in the region, particularly those that employ a large proportion of minority groups. If such collaborations protect jobs and/or improve working conditions, could help offset climate impacts for these workers. Finally, the program is involved with education and outreach efforts to engage children in the region in conservation and help them learn about climate change.

Suggestions for increasing climate effectiveness

If it has not already, the program could consider exploring climate-driven vegetation projections for the sagebrush steppe. Some of the projections are dire, whereas others project the persistence of sagebrush. Although the program is likely aware, projections exist for individual sagebrush species and for the biome. These projections could help focus efforts in areas where sagebrush is likely to persist and where conifer encroachment might be reduced. We also recommend exploring projections of drought refugia for the steppe. Again, if possible, it would be good to consider multiple scenarios and to incorporate flexibility into planning to address uncertainties in projections.

Coast to Cascades Grizzly Bear Initiative

Existing climate adaptation efforts

This program focuses on landscape-scale conservation efforts to build resilience for grizzly bears. It addresses the climate-related threats of potential increased fire frequency and severity and climate-driven increases in insect outbreaks. The program protects large, continuous, connected areas that can absorb such changes in disturbance regimes. Overall, increasing connectivity as well as the quality and availability of habitat are likely to help increased the resilience of the grizzly bear population to climate change in general. This type of approach (increasing habitat availability and connectivity) is particularly useful when climate threats are diffuse or poorly understood. This approach also will likely help with the threat of a potential climate-driven increase in human-bear interactions. As temperatures warm, more people may try to get into the mountains and the backcountry for relief from the heat and more people may move into grizzly bear habitat.

Existing carbon mitigation efforts

The program likely contributes to atmospheric carbon reduction by protecting some forest from development.

Climate equity considerations

Although the program does not directly address the equity of climate impacts, it does address the equity of the measures being taken. Specifically, the project has involved first nations from the beginning, and these five first nations are key partners in the co-development and execution of the project. In addition, some lands are being returned to these first nations partners.

Suggestions for increasing climate effectiveness

As for most of the other programs, the modeling used to select areas in which to improve connectivity does not take climate change into account. However, such modeling is not likely critical if the sole target species is grizzly bears because this species will not likely be moving in

response to climate change in this region—although grizzlies may move in more complex ways in response to climate-driven changes in food resources or fire.

Similarly, although the project is working to protect refugia, these cannot necessarily be classified as climate refugia. In addition to protecting large, heterogeneous areas that can absorb the impacts of changing disturbance regimes—which could be argued is a type of refugium, one could think more strategically about what climate refugia would be like for grizzly bears in this landscape. With that in mind, one relevant question to consider is if these are areas where huckleberry will persist as climate changes? To answer this, it is possible that some huckleberry modeling that accounts for climate change could be useful.

Although fire is not necessarily bad for bears, and in fact good to some degree, nonetheless, it might be useful to determine how much fire is helpful and where it should be to support a population in the face of a changing fire regime. In addition, the project has not been designed to address the impacts of fire or drought on reintroductions—fire is currently impacting the ability to do reintroductions. For a project such as this, one could imagine developing multiple alternative sites (not just the linkage area currently considered) that are far enough apart so that one could be used as an alternative if fire prevents reintroduction in one area. However, this would entail planning for a project at a larger scale, and thus may not be feasible.

Although the project does make use of several studies and draws on relatively recent science, it does not draw on much climate-related research. The one exception is a recent or current snow-pack projection that could inform the potential for drought. We suggest also considering projected changes in the fire regime in the region.

Cascades to Olympics

Existing climate adaptation efforts

The Cascades to Olympics program is addressing climate change in three basic ways. The program is increasing the availability of habitat, increasing landscape connectivity, and reducing the potential for climate-induced flood impacts. As discussed in reference to the other programs, protecting natural areas and increasing connectivity in general are both recognized adaptation strategies that will likely benefit wildlife populations in the face of climate change. By protecting riparian corridors, the program may also be specifically facilitating climate-driven species movements to higher elevations as well as increasing access to cool water. Reducing potential flooding impacts and to some degree fire impacts are likely useful strategies in this landscape.

Existing carbon mitigation efforts

The Cascades to Olympics program is sequestering carbon by protecting existing old growth forests and increasing rotation lengths. Increasing rotation lengths in managed forests can help retain moisture while improving carbon storage potential and old growth structure for wildlife. Modeling is being done to assess how to increase such rotation lengths without disrupting the timber industry. The program is collaborating with EcoTrust, The Nature Conservancy (TNC), and the Washington Environmental Council on policy and landowner relations. Increasing rotation lengths in western Washington is one of the most effective natural climate solutions we have in Washington and thus is an excellent choice for this program. The project also addresses other sequestration pathways through floodplain and wetland restoration, as well as replanting riparian areas in agricultural landscapes. The program has also been conscious of how commuting has an impact on carbon emissions.

Climate equity considerations

The program partners with the Chehalis, Quinault, and Nisqually Tribes. The program has worked with the Nisqually Tribe to help purchase land in their traditional territory, build-up their land base, and facilitate chinook and steelhead recovery. These actions increase the resilience of the tribes, the species, and the ecosystems to climate change. The program also ensures that smaller forest landowners' interests are still being served, especially when larger corporations have a vested interest in the land. They also emphasize the importance of building relationships with non-traditional allies and working-class communities who depend on natural resources. The program recognizes that policy success depends on ensuring livelihoods of landowners and making sure that conservation projects don't increase inequities. However, the broad, landscape-scale nature of the program's projects was cited as a limiting factor, and they acknowledged that the impacts of climate change on systemic poverty needs to be better addressed moving forward.

Suggestions for increasing climate effectiveness

The program relies heavily on the Washington Wildlife Habitat Connectivity Working Group, which has not apparently explicitly addressed climate change in its recent mapping efforts. Our key recommendation for this program is that it should draw on connectivity modeling efforts that have explicitly incorporated climate change science into the models. Please see the general assessment for some connectivity modeling suggestions.

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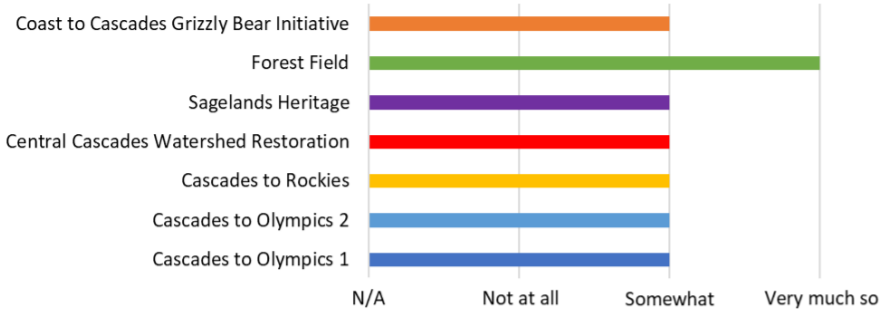
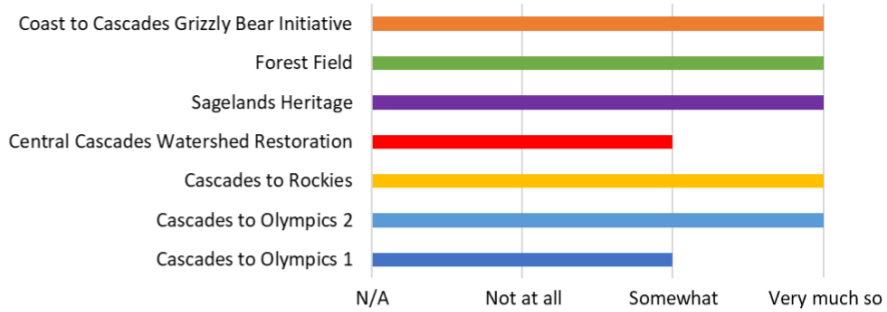
Appendix: *Answers to survey questions with categorical responses for all six Conservation Northwest programs*

Note: Two sets of scores are provided for the Cascades to Olympics program because the respondents for that program provided their input independently.

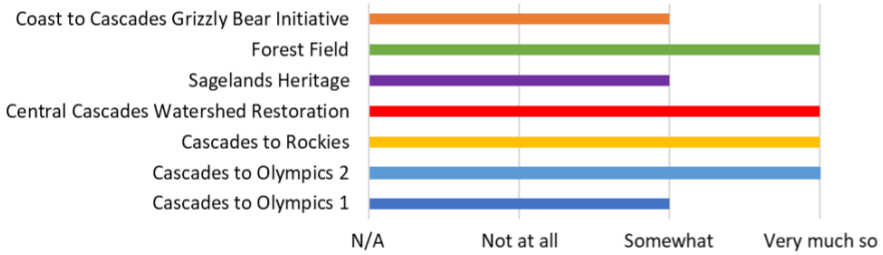
Q2. Is the vulnerability to climate change of the target system or species well understood?



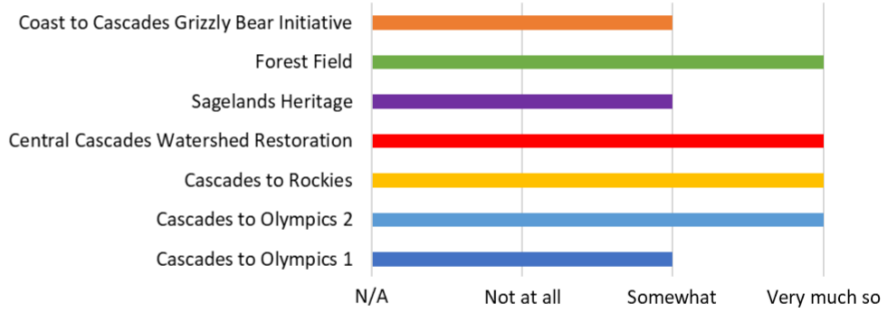
Q3. Does the project consider known vulnerabilities of the target species or system?



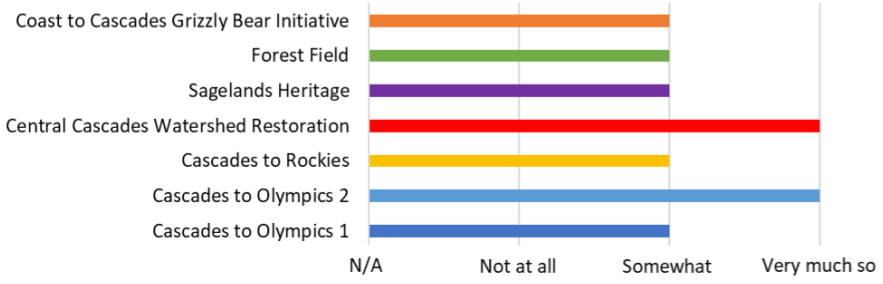
Q5. Does the location of the project consider the impacts of potential climate-driven changes in relevant disturbance regimes (e.g., flooding, fire, storms, insect outbreaks), ecosystem functions, or species?



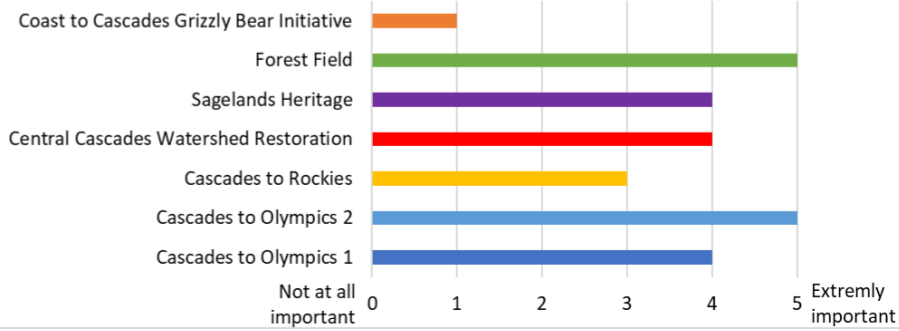
Q6. Have potential climatic changes that could impact project outcomes or effectiveness been considered?



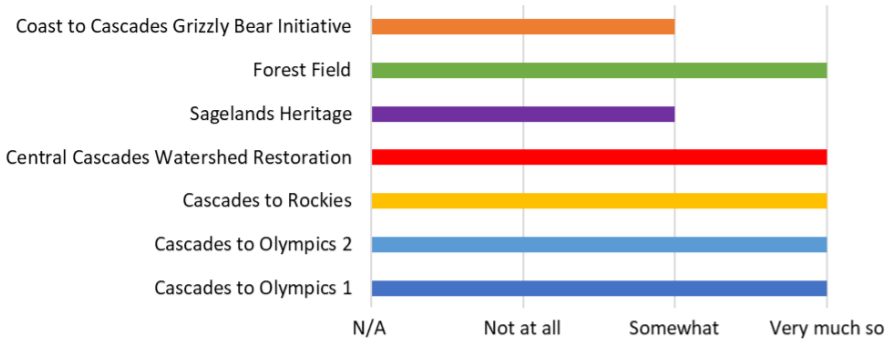
Q11. Has the equity (e.g., racial, social, economic etc.) of climate impacts (or the impacts of the way the project responds to climate change) been considered?



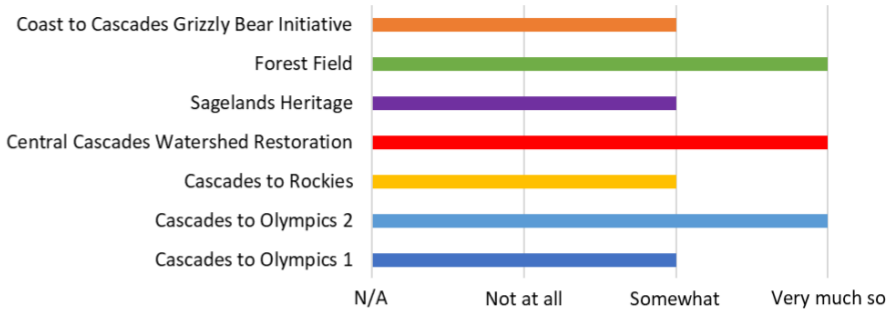
Q14. How important is climate mitigation for the goal of this project?



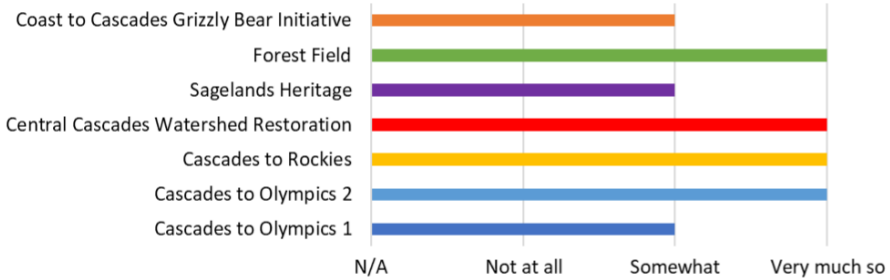
Q18. Is climate adaptation an explicit goal of the project?



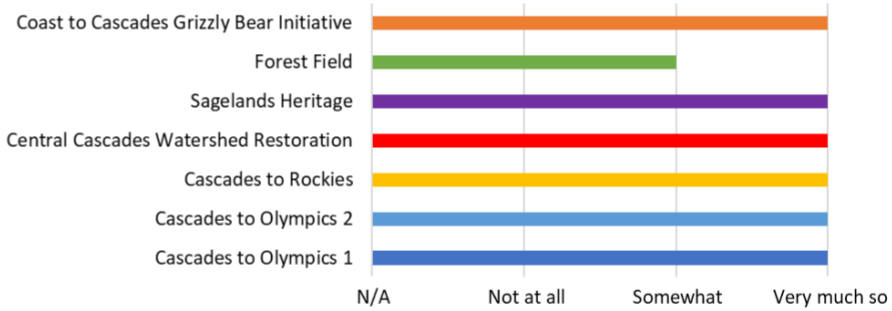
Q19. Does the project account for uncertainty in future climatic conditions?



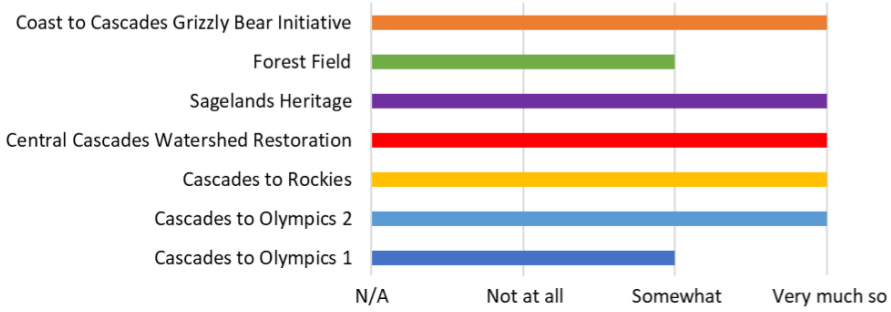
Q21. Does the climate science upon which the project relies draw on multiple lines of evidence? (e.g., multiple studies, models, empirical data, historical information etc.)



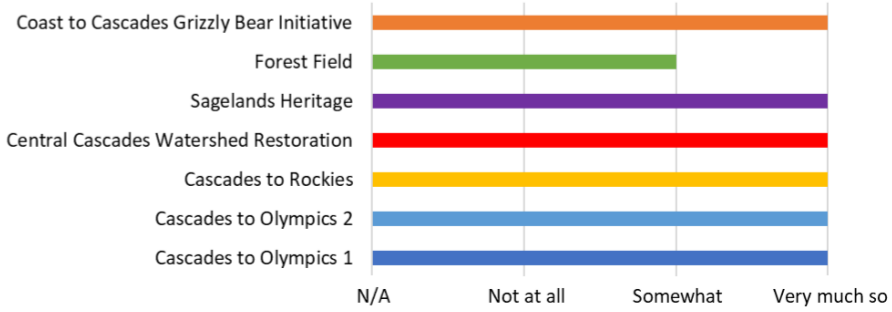
Q22. Does the project include enhancement or protection of habitat connectivity?



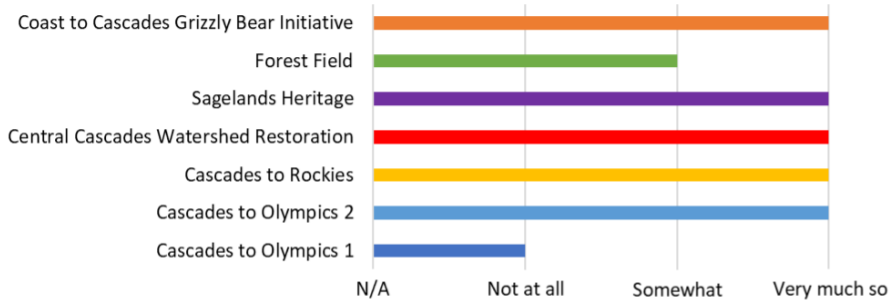
Q24. Does the project include enhancement or protection of climate refugia?



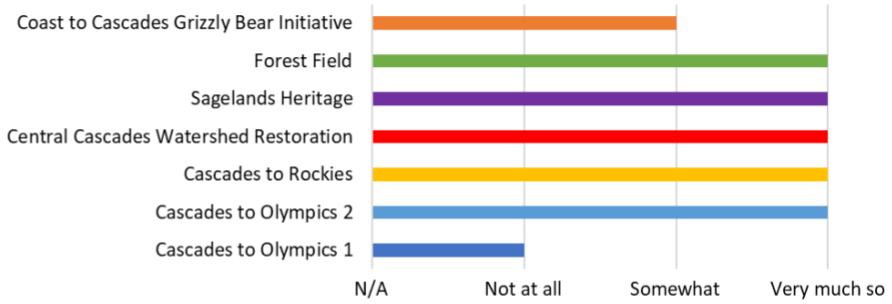
Q25. Does the project aim to increase the amount of available habitat for species?



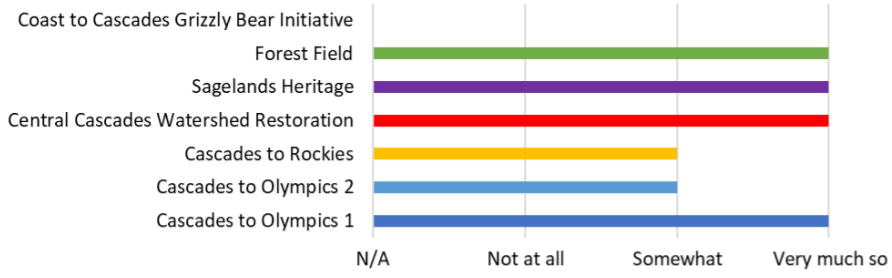
Q26. Does the project involve population or ecosystem management actions designed to help the species adapt to climate change?



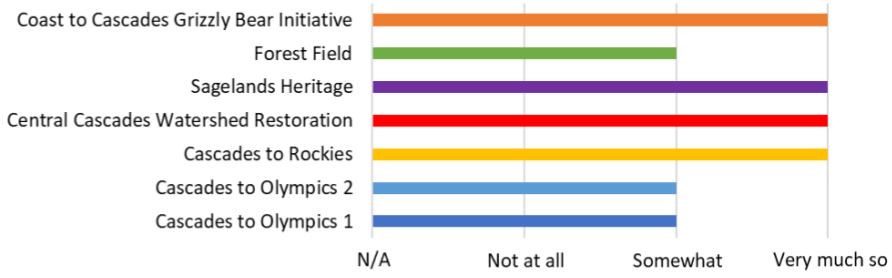
Q27. Does the project reduce potential impacts of climate induced fire, flood, drought, or other altered disturbance regimes?



Q28. If the project involves restoration or planting, to what degree was the suitability of the plants and plantings for future climatic conditions considered?



Q29. Does the project attenuate other threats (e.g. invasive species, pollution, human disturbance) that could exacerbate climate stressors?



Q30. Does the project take other actions to reduce the impact of climate change?