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Dear Mr. Saxton::

The Washington Native Plant Society (WNPS) appreciates the opportunity to comment on the Final Environmental Impact Statement (FEIS) for the Cross-Base Highway (XBH) in Pierce County, Washington. The Society finds that the FEIS depicts a scenario, with the “build” alternative, of fragmentation and isolation of rare, botanically diverse ecosystems and the probable extirpation of a distinct genetic race of western gray squirrels. The western gray squirrel is of interest because it probably functions as a keystone species, influencing the distribution of Garry oak (Oregon white oak, *Quercus garryana*) by burying acorns. Constraints imposed by the requirements of military operations at Fort Lewis and McChord Air Force Base have prevented the drawing of environmentally acceptable alternative routes to the proposed “build” alternative. Thus WNPS recommends that the “no build “ alternative be adopted.

The Society was organized in 1975 “to promote the appreciation and conservation of Washington’s native plants through study, education and advocacy”. While plants are our main interest, native plant and animal communities are intertwined in their needs and in their services to each other, and we cannot fulfill our mission statement without considering the fates of animals living in native plant communities.

In October, 2003, WNPS selected Garry oak woodlands and the closely allied Puget Trough prairies as a focal subject for our conservation efforts. The decision was taken because these habitats are quite rare in the state today, compared to their distribution at the time the first Euro-American settlers arrived. Native American tribes in the Puget Trough managed The prairie and oak woodland ecosystems with fire to prevent the intrusion of conifers. Periodic fires increased the productivity of important plant food resources such as acorns, numerous berry species, and camas (*Camassia quamash*) bulbs, and promoted fresh forage and browse plants for deer and elk.

The tribes retain a cultural link with these lands today, and this linkage has not been adequately addressed in the EIS. WNPS is concerned about the rapid rate of destruction and fragmentation of these ecosystems by development of various kinds (1).

The Nature Conservancy (TNC) notes that the proposed preferred alignment of the XBH would directly bisect and fragment the habitats described here and threaten associated wetlands and a federally listed threatened species, water howellia (*Howellia aquatilis*) (2).

WNPS shares this concern and urges that it be addressed seriously. The presence of water howellia (*Howellia aquatilis*, HOAQ) at these locations has been documented by studies, including those by Ft. Lewis biologists (3), and failure of Parametrix to survey at appropriate times and with sufficient intensity (they were unable to find the plant) has been noted by a number of interested parties commenting on the DEIS. The inadequate surveys may affect other state listed species such as Hall's aster (*Aster hallii*) and small-flowered trillium (*Trillium parviflorum*) known from the region. Mitigation for white-top aster (*Aster curtus*), a state listed species, is inadequate (see below).

The Tahoma Audubon Society has commented extensively on the DEIS. Their letter of June 19, 1998: notes that mitigation is inadequately addressed in that the DEIS authors fail to consider the impact on wetland functioning when wetland areas are bridged with roadway on piling.

Federal agencies reviewing the draft EIS were almost universally opposed to the project, and have accused the project's proponents of failing repeatedly to address agency concerns (4).

The Society commented on the XBH Draft Environmental Impact Statement (DEIS) in June, 1998, noting the inadequacy of the section on potential environmental impacts to rare native Garry oak woodland and Puget Trough prairie. In August, 1999 we commented further through our South Sound Chapter (Letter from Mary Fries 8/30/99) on the Final Oak Habitat study, noting that it does not address the characteristics and limitations of proposed mitigation sites, and that earlier studies of the western gray squirrel locally were not discussed or referenced.

Detailed comments by WNPS follow.

Sincerely yours,

Fred Weinmann, President
Washington Native Plant Society

Michael Marsh, Chair
Conservation Committee
Washington Native Plant Society

Accuracy of Measurement of Existing Conditions

1. Prairie Soil Description and Historical Relevance of Prairies

The authors of the FEIS largely ignore the historical prevalence of prairies in the region. In a description of the Spanaway soil series, they write “The Spanaway series formed under conifers and grass that added large amounts of organic material to the soil, which led to a dark surface horizon.” (Appendix J, 3.1.1.2.; emphasis added). It is unlikely that conifers actually contributed greatly to the building of these soils. The Spanaway series have been described as prairie soils, which formed during the Holocene (11000 years ago to the present). Further, these soils are somewhat unique in the Puget Lowlands. These soils formed from accumulation of prairie plant (graminoids and forbs) biomass and anthropogenic burning practices. Ugolini and Schlichte (1979) state:

"Climate changes during the early part of the Holocene were responsible for the establishment of the prairie within a coniferous biome. The Spanaway soils (prairie) were further affected by infusion of charcoal from burnings induced by Indians. Spanaway should be considered, to an extent, anthropogenic soil."

2. Wetland surveys

Observation by Parametrix personnel in 1992 of a bed of *Nuphar polysepalum*, an indicator of HOAQ in the Lake Mondress wetlands, is cited in Appendix J (3.1.5.3). Lake Mondress is a water howellia (HOAQ) (federally listed as Threatened) wetland, even though the species may not be seen year around due to their natural growth cycles. The FEIS does not indicate whether it was surveyed, or how many times searches were made - a serious omission. Surveys for the presence of wetland indicators, and especially for endangered species, must be thorough, must be made by experienced field botanists, and must be timed carefully to have the greatest opportunity to find each species when it is most conspicuous. The same section states that the only other herbaceous plant found was *slough sedge*, *Carex obnupta*, but a contract biologist (Rod Gilbert) reports finding water parsley, *Sium suave* while showing visitors the site in November, 2003, again bringing the accuracy and thoroughness of the surveys into question. He notes that HOAQ can be very difficult to find in these wetlands. The Bentsen series of wetlands (just east of the ammo supply point) are HOAQ wetlands. Bentsen is one of the highest quality wetlands on Fort Lewis and has a large HOAQ population. The road goes through just north of it.”

Action required:

Thorough surveys, timed appropriately for times when HOAQ will be most prominent, and staffed by competent field botanists, must be taken to fill the gaps in knowledge and guide appropriate protective actions. A complete plant list should be reported for each wetland.

Evaluation of Habitat Quality or Value

Functional Assessment and Future Use Values

The functional assessment of Lake Mondress, is incorrect in saying that these wetlands provide only low scientific and educational value because they is not accessible. These lands have been accessible to scientists and to groups when led by authorized personnel. Further, their future value for research, education and open space should be considered, in addition to the potential future use (if desired) by local tribes for traditional uses, plant harvest and hunting.

Grassland Classification

The classification of all habitat with less than 10% cover of *Festuca roemerii* (or *Festuca idahoensis roemerii*, called both Idaho fescue and Roemer's fescue) as non-native grassland impacts the proposed mitigation plans heavily, as in the following statement from the FEIS: "The lowest quality habitats in terms of native plant and wildlife species are the non-native grasslands" (Appendix K, p. 98).

By their classification, only 1 acre of native prairie would be impacted by the preferred alignment of XBH, while 30 acres of their "non-native" grassland would be affected. However, that 30 acres includes an unknown acreage of moderately impacted native grassland with important native components, as well as established turf and mowed fields.

Many of the herbaceous plants that are part of a prairie community are still found in Puget Trough grasslands when FERO has been almost completely crowded out by invasive grasses and by Scotch broom. The well-known prairie ecologist, Rexford Daubenmire, in his classification of the Columbia Basin shrub-steppe vegetation, would call a grassland *Festuca idahoensis* if it was present in any quantity.

On a visit to the prairie near 176th St. S. in spring, 2002, participants in a Washington Native Plant Society field trip found numerous plant species indicative of high quality native grassland habitat, including common camas, spring-gold, western buttercup, long-stolon sedge, and two of the prairie violets, although they could hardly find specimens of Roemer's fescue. The violet species, among other prairie plants that could occur within these labeled "non-native" grasslands, are on the decline according to Fort Lewis botanists, and they are important food plants for butterfly larvae, including those of federally listed species..

Action required

A re-survey of the affected grasslands using another classification which includes presence and percent cover of other native species associated with Puget Trough prairie is essential to (a) accurately evaluate impacts of the preferred alternative to these plant communities, and (b) as a baseline for mitigation.

Historical Information and Assessment

The FEIS has significant gaps in provision of appropriate historical information, which impacts reporting of both ecological and of social (tribal) consequences of the proposed action. The discussion summarizing the history of vegetation and wildlife on Ft. Lewis by Parametrix fails to mention the role of native Americans in maintaining and in many cases, perhaps, creating the Puget prairies and oak woodlands, on which they depended for much of their dietary needs. The role of humans is only described as "a variety of human disturbances over the past 150-200 years". (Appendix K, p.250)

A discussion of the historical extent of prairies provides quantitative information, stating that the prairie system which formerly covered nearly all of Ft Lewis and McChord Air Force Base was part of a 150,000 acre prairie extending through Pierce and Thurston Counties. Fire suppression, the spread of invasive plants, and conversion to agriculture and to development are given as reasons for the loss of prairie habitat, but no estimate is made of the historical extent of loss of

this habitat type. (Appendix K, 3.1.2.1.) (A June 5, 1998 Nature Conservancy comment on the DEIS supplies an estimate of loss which is cited above in this letter.). The discussion of native grassland includes references to the role of Native Americans in setting fires “to improve habitat for animals and to enhance populations of food plants (Boyd, 1999)” but no citation for Boyd was found in the literature cited.

Action required

The importance of prairie habitat types to Native Americans in pre-colonial days should be recognized, and the tribes should be involved in planning at this stage (they should have been earlier) so that their traditional resource and ceremonial rights are recognized. A whole chapter in the EIS is devoted to mitigation of threats to the activities of the Woodbrook Hunt Club and related industries, but none to the far more significant historical position of Native American tribes! Because this project is federally funded, we understand that the Federal Highways Administration (and possibly Fort Lewis and McChord Air Force Base where the project is to be constructed) have responsibilities to the Tribes to consult with them on potential impacts to their traditional and cultural resources.

Fair Analysis of Costs versus Benefits under Alternative Actions

Chapter 2, on alternatives to the “build” alternative proposes suggests incentives such as cash back in place of subsidized parking and TDM/TSM strategies, finds that they will not meet the “purpose and need” The EIS then includes these alternative with the build as well as the no-build alternative, so that they are **not** alternatives, but supplements to the preferred alternative.

The reality is that it costs money to carry out any of these projects. If a strategy must combine several of the alternatives, including other road construction, to meet the proposed purpose and need, then the costs of all of these strategies should be presented and funding sources accounted for. Is money available to carry out all of the TDM/TSM strategies simultaneously with the construction of the XBH? Where will this money come from? Is there enough to do all that is proposed, and if not, which actions will be most cost-effective?

The modeling should include spending as much as necessary of the money proposed for building the XBH on the alternative strategies when they are compared, and it should value the land to be occupied for XBH in Ft. Lewis and McChord AFB at its fair commercial value and, if some of this land is to be given to the highway development by, for example, the military, then the model should **add** the fair market value of the land to the stated cost of the project, to express in some way the ecological cost of the project.

Labor is required to carry out this project. Labor means population growth, houses, schools, and roads to be built. It means trips to work and increased traffic congestion. There is no consideration in this proposal of the increased work trips nor of the in-migration of prospective employees that will result from building the XBH, and the resulting increased demands on housing, schooling and transportation needs as compared to what would result from not building the highway.

Action required:

Fairer formulation and comparison of realistic alternatives.

Measurement of Loss of Habitat under Alternatives

Habitat fragmentation and its consequences

Lake Mondress is the second largest discrete wetland, and the one with the highest functional rating because of its relatively high quality vegetation which includes forested wetland. Further, at least half of this wetland is adjacent to a Garry oak community. The fact that this wetland will be nearly totally isolated from the wetlands and prairie to the south of the proposed highway is barely even mentioned. The consequences, such as population fragmentation and isolation with loss of genetic continuity, are not discussed, and no mitigation is proposed for this consequence of the build alternative. The same failure is true for loss of prairie and woodland habitat.

A July 16, 2002 memorandum from the Regional Director, Region 1, U.S. Fish and Wildlife Service raises several concerns, including a request that additional surveys be conducted to determine the presence or absence of listed species of butterflies, and a more general concern about the effects of XBH on “ecosystem values and the fragmentation that will occur to the prairie and oak woodland, and associated wetland ecosystem.”

The memorandum also raises the question of stimulation of regional growth by XBH and how this will affect listed species, and requests that modelling be done to address this question. I find no evidence that such modeling was done.

Action required

A realistic modeling and discussion of the potential effects of isolation of this habitat and its inhabitants should be made, and realistic proposals for mitigation (which may not exist, making this portion of the FEIS inadequate). Modeling of the regional growth effects of the project, and of the consequences of this growth in terms of loss of habitat and other impacts on rare habitats considered here, and on the species inhabiting them, is required.

Cumulative Impacts

Cumulative effects analysis

There is a correct definition of cumulative effects, but no analysis of past effects, including past highway building, appears in the FEIS (p. 116 ff., Appendix K). The cumulative effect of the preferred alternative, when added to other highway building which has already contributed dangerously to the extinction of the Western Gray Squirrel, is not considered.

The build alternative would result in serious and irreversible negative impacts to habitat that was once common in the Puget Trough, but which is now considered by experts (including USFWS) to be the rarest and most endangered habitat in the State of Washington and possibly in North America. Only 8% of the historic grassland habitat remains today, and only 3% is dominated by native species (Nature Conservancy comment letter, June 5, 1998). The remaining acreage that resembles original grasslands may be only 1%. Therefore, WNPS believes that there should be no net loss of such grassland environments and we should be doing everything possible to restore these ecosystems. However, the restoration of these systems is highly experimental and challenging.

In a comment dated July 30, 2002, the Ft. Lewis Director of Public Works writes, “Construction of the cross-base highway will open up large rural areas east of Ft. Lewis, This will accelerate growth and construction in that area. This development will substantially increase impervious surface in the Muck Creek watershed, which will impact Muck Creek and its salmon runs. The

region is already losing baseline flow in Muck Creek because of development upstream and an increase in the rate of development will have significant negative impacts on the creek.” This comment is an instance of the failure of the EIS to adequately characterized the cumulative effects of the proposed highway.

Action required

A realistic, quantitative assessment is required of the historical effects of road building on habitat fragmentation in the region, and the incremental effect of the proposed build alternative on habitat loss fragmentation, and watershed impacts, compared to its benefits in trip mile reduction and numbers of trips expected per day, in comparison to the past costs and benefits on a relative scale.

Mitigation

Wetlands

Section 5.2 does not present adequate information to determine whether appropriate mitigation will be performed. All of the proposals listed are presented in speculative terms, and as possibilities, often dependent on proposed agreements with military authorities which have not been consummated. E.g., “While specific mitigation plans have not been developed, suitable areas for wetland restoration and creation or enhancement, including areas for buffer mitigation, are discussed in Sections 5.2.1 and 5.2.2.” In fact, each wetland has unique qualities and levels of functioning and of habitat quality, and these must be addressed in detail when specifying mitigation methods and sites.

Action Required

Proven, applicable mitigation methods must be specified. Agreements with military authorities to permit the specific mitigations must be obtained in writing. Steps should be defined to salvage existing native wetland plants in wetlands or buffers that will otherwise be destroyed by road-building, and use them in enhancing or restoring degraded habitats and areas disturbed by road-building

Hydrology, and Mitigating for Listed Wetland Plants

The concern expressed by the Nature Conservancy (6/5/98, “6”) and by Norman Wildlife Consulting (6/30/98, “18”) over the possible effects on wetland hydrology and consequent impacts on water howellia, if present in some of these wetlands, is not addressed. The comments of Gilbert, under **Accuracy of Measurement of Existing Conditions** above, report the presence of water howellia in the Bentsen wetlands just south of the proposed XBH alignment. Gilbert (pers. comm., 2003) writes:

“HOAQ wetlands are extremely sensitive to hydrological fluctuations as they are not spring fed. Surface water runoff or / capture and release elsewhere would alter hydrology of area that will have some impact. HOAQ wetlands need to slowly dry out through the summer. Irregular summer precipitation could fill wetlands preventing HOAQ from germinating (it's an annual) Too much water in the spring might prevent HOAQ from establishing. It's a delicate balance. too little recharge will increase the spread of reed canary grass. Too much will kill other native plants growing closest to water's edge.

Action required

Experimental functional assessments should be made of trends and rates of subsurface water flow in this relatively flat, gravelly topography perhaps including dye studies to determine subsurface flows to wetland pockets. This information should be used to model effects of construction of the highway on surface and sub-surface flows to nearby wetlands, including those containing water howellia populations. This information should be reported in a revision of this EIS, which in its present form is inadequate.

Mitigating for Listed Prairie Plant Species

The proposed mitigation for loss of white-topped aster (*Aster curtus*) populations by adding plants to areas where they already occur is not mitigation (but should be performed to minimize actual loss of native vegetation). The plants would be in those other areas if the habitat was suitable for them and nearby seed sources existed. Steps should be defined to salvage existing native plants that will otherwise be destroyed by road-building, and use them in enhancing or restoring degraded habitats and areas disturbed by road-building

Loss of grassland and oak habitat

Whidbey Environmental Action Network is submitting comments regarding the EIS's (Appendix K Attachment F) proposal to compensate for loss of western gray squirrel habitat by acquiring and managing habitat near the town of Roy, on the southeast margin of Ft Lewis. We agree with those comments, which point out that:

1. the proposed area to be acquired represents less than one sixth of the area of western gray squirrel (WGS) habitat that will be cut off, with probable extinction (acknowledged in the FEIS) of the sub-population of squirrels in it.
2. This habitat is miles from the currently known range of the larger population of WGS, and in any case, may be isolated from the latter by barriers on Ft Lewis
3. A long period (20-50 years) of intensive management will be required to accomplish the goals of the restoration, and the proposal does not describe acquisition means, formal protected status, or proposed managers of the project.
4. Problems of dealing with invasives over such a large area and for such a protracted period of time have never been addressed, so the proposal is entirely speculative.

The proposed restoration would be interesting and could have value as a research project to evaluate means of restoring Puget Trough prairie and oak habitat, but it would not be mitigation for loss of the sub-population of squirrels in any significant way.

The Western Gray Squirrel study was criticized by USFWS: May 13, 2002, "I will withhold comments in response to the conceptual mitigation plan in favor of an actual mitigation plan addressing the concerns expressed here and by other reviewers (E Rodrick, WDFW, C. Chappell, WNHP). The commenters find that adequate knowledge is still lacking of the numbers of squirrels, their habitat use, and the food resources used, especially in the more numerous non-mast years, .

Action required

While more information is needed on the numbers and biology of the western gray squirrel, the current report suggests that it would be harmful to this declining species to recommend that a study be done by Parametrix.

The only action required is selection of the no-build alternative. The gravest defect in this proposal is that it fragments habitat. The commanders of the military bases will not permit any other alignment of the highway, so there is no acceptable “build” alternative.

Footnotes

1. With arrival of Europeans, physical and cultural linkages of the tribes to these lands were progressively lost. With fire suppression, forest trees invaded the prairies. Much of the prairie land, because of its rich soil, was plowed and sown in crops. The crop seed contained exotic weed seeds, and these, especially the exotic grasses, have progressively replaced the natives, perhaps aided by selective cropping and soil disturbance by grazing animals in early years. Much of this good level land was covered by roads and buildings

2. “We do not believe that this EIS can make the statement found on page 5-84 that no direct impacts to the federally listed water howellia or its habitat will occur. Our findings with respect to this plant indicate that it is extremely sensitive to water fluctuations and habitat disturbance and that the hydrological regime present in the wetland where this species is located is unique and poorly understood. The fact that this proposed major new roadway would come within 1,500 feet of water howellia locations should be cause for concern.” (Comment letter from The Nature Conservancy, June 5, 1998)

3. (Land Condition Trend Analysis, 1999, Ft. Lewis - <http://www.lewis.army.mil/ITAM/Reports/1999%20Field%20Abstracts.pdf>).

4. The Public Works officer at Ft. Lewis writes (June 16, 1998): “Generally, the EIS gives the impression the proposed action will save some commuters a few minutes of driving time each day at the expense of destroying rare and irreplaceable habitat.” The U. S. Fish and Wildlife Service (FWS) is concerned the ecosystem’s unique assemblage of plants and animals would be fragmented and that “The Cross-Base Highway project does not provide adequate mitigation to offset these impacts.”

The project’s proponents have been accused repeatedly of failure to seriously address the environmental concerns expressed in agency comments. A letter from Department of the Army’s Deputy Director of Public Works highlights the negligence of the project’s proponents: “A review of the final study (Cross-base Corridor EIS/MIS Western Gray Squirrel Genetic Study and Oak Habitat Study, May, 1999) indicates it to be virtually identical to the draft document. There is no indication that our concerns were considered. Therefore, they are re-submitted for appropriate consideration.”