one- quarter mile downstream from the treated area. The potential for a very small change in water temperature in the fuels treatment area is unlikely to be transmitted downstream to George Creek. Water temperature monitoring on George Creek will begin during the summer of 2011, prior to the proposed fuels treatment and will be continued past the implementation of the treatment.

These are just conclusory statements, not demonstration of no impacts

Identification of BMPs for the proposed projects has occurred (Appendix D) and any project which might occur in this planning area would be considered for monitoring in the Umatilla National Forest annual BMP monitoring plan. These activities would not detrimentally affect beneficial uses. Riparian and channel components that protect water quality would be maintained. Other design features (Chapter 2, Table 2-5) and BMPs would control disturbance that could lead to erosion and sedimentation. Effects of proposed actions would not adversely or measurably affect water temperature or dissolved oxygen (DO). Short-term measurable turbidity effects could occur during replacement of a culvert. Best management practices have been incorporated into project design criteria for the culvert replacement and will be monitored. This proposed project is in compliance with the Clean Water Act.

Forest Plan Compliance

Implementation of design features (Chapter 2, Table 2-5) and BMPs (Appendix D) as described above, Umatilla National Forest Road Use Rules, as well as standard timber sale contract specifications or the corresponding stewardship contract specifications would constitute compliance with the Forest Plan for hydrologic and water quality components.

How can the Forest Service "incorporate by reference" only the BE? This prevents the public from seeing & reading it as part of the EIS, so in that way, it is not meaningfully "incorporated" in the EIS. We can't see the crucial methodologies, assumptions, limitations & other details until later through a FOIA request.

THREATENED, ENDANGERED, SENSITIVE (TES) and MANAGEMENT INDICATOR (MIS) AQUATIC SPECIES

This section incorporates by reference the South George Biological Evaluation for TES Aquatic Species contained in the project analysis file at Pomeroy Ranger District. Specific information on the methodologies, assumptions, and limitations of analysis and other details are contained in the report. A summary of the current conditions of the affected environment and the predicted effects of the Proposed Action and its alternatives are discussed in this section.

SCALE OF ANALYSIS

Sub-watersheds affected by the project are the South Fork Asotin Creek (HUC 6-170601030203) and Upper George Creek (HUC 6-170601030206) of the Asotin Creek Watershed (HUC 5-1706010302). These two subwatersheds cover about 47,450 acres of which an estimated 20,650 acres are within the National Forest boundary (see Table 3-5 in the Hydrology section and map in Appendix A). All direct, indirect, and cumulative effects would occur in this area.

Analysis for environmental effects include all proposed activities listed for each alternative (timber harvest, activity and natural fuels treatments (including mechanical thinning in about 25 acres of RHCAs), danger tree removal, road management, landscape prescribed fire, and past, present, and future foreseeable actions that could affect TES aquatic species (pages 3-2 to 3-4).

Indicators used to analyze effects of proposed actions are as follows:

- Effects to TES (biological determinations) and MIS Aquatic Species

Did South Fork Asotin & Upper George Creek historically have anadramous fish? So what happened to the anadramous native fish & their habitat in the planning area? This info. is key to judging the potential effects of the proposed project.

The entire South George project planning area contains about 21,000 acres with three fish bearing subwatersheds. South Fork Asotin and Upper George Creeks are classified as a Class I (anadromous), third order streams, which presently do not have anadromous habitat within National Forest boundaries.

* Were there specific surveys for any of these TES aquatic species in the project area? If so, for which ones?

* Since it has habitat in the watershed, which reason applies to the Northern leopard frog for not analyzing potential impacts further?

The species listed below will not be analyzed further in this section because they have no habitat present in the watershed or subwatershed, are not present or noted in any survey in the project area, or are only listed in Oregon (see Table 3-13). The species are as follows: Western Ridged Mussel, Shortface Lanx, Pristine Springsnail, Mid-Columbia River Steelhead, West-slope Cutthroat Trout, Pacific Lamprey, Northern Leopard Frog, Columbia spotted Frog, and Painted Turtle.

Effects to terrestrial invertebrates that have habitat present in the watershed and or subwatershed but are not present or unknown (Fir Pinwheel, Hells's Canyon Land Snail, Barry's Hairstreak, Meadow Fritillary, and Great Basin Fritillary) have a "*No impact*" biological determination except for Humped Coin which has a "*May Impact individuals or habitat …*" biological determination because if there were species present, it may be affected by ground disturbing activity.

* What is the rationale for "No impact" for these species and why is this not disclosed?

The following table summarizes data collected using Hankin and Reeves stream survey techniques for proposed endangered, threatened aquatic species. This table highlights stream attributes relevant to these species. This data corresponds to Forest Service field surveys conducted typically in July and or August.

Table 3-14 Stream Survey Data in S. Fork Asotin Creek and George Creek Subwatersheds

Attribute	S. Fork Asotin Reach 1 8/9/93	S. Fork Asotin Rep Reach 10/10/08	George Creek Reach 1 7/22/93	George Creek Reach 1 8/01	PACFISH RMOs
Pools per Mile	10	30	16	45	**Varies by width**
Large Woody Debris per Mile (>12"dbh)	84	138	40	42	**> 20' x >12"**
Water Temperature (Maximum Surveyed)	48°F	58°F	58°F	63°F	**< 61° F**
Width to Depth Ratio (in feet)	8:1	8:1	9:1	10:1	**10:1or less**
Substrate Embeddedness	31%	18%	38%	<25%	**25% or less**
% Fines Wolmans* Average	None Taken	16%	None Taken	31%	**N/A**

Notes - * Wolman's survey attributes collected after 1996 survey years…

← Are there LWD greater than 20' long, or not? What are the standards for #s of pools per mile & # of LWD per reach & % fines?

* So there's sediment problems in S. Fork Asotin & George Creeks & temp. problem in George Creek.

AFFECTED ENVIRONMENT - Snake River Spring/Summer/Fall Chinook Salmon (*Oncorhynchus tshawytscha*)

North Fork of Asotin is the primary location of spawning habitat in Asotin watershed. This habitat is located approximately seven miles downstream from the Forest Boundary of the project activities. It is also the primary habitat of rearing fish because temperature and sediments values are ideal for production. However, past activities and downstream habitat destruction has caused the population to be considered extirpated by Washington Department of Fish and Wildlife (WDFW) fish biologists. A great deal of restoration activity has been completed since the listing of the species. More recent surveys indicate occasional straying from other watersheds. Few redds have been observed but some juveniles have been seen in downstream WDFW survey traps. Chinook salmon spawning habitat was historically present in the waters above the confluence of the South Fork Asotin creek. Little spawning activity was noted below this point because of instream temperatures.

Burning occurring generally outside riparian areas (except for about 25 acres proposed for treatment, (RHCA units 1 and 2) which occur only in George Creek subwatershed, not chinook bearing habitat) have indirect effects on riparian areas by increasing the potential transport of sediment, biomass, or water through the riparian zone. Low intensity burning within a riparian area often top-kills most shrubs and deciduous trees, but due to these species being able to resprout, soil stability is not impaired. Large ponderosa pine, Douglas-fir, or western larch easily survive these low intensity fires, but if Engelmann spruce or subalpine fir is present (higher elevations) they are almost always killed (a project objective) (Agee, 1994). Why is it a project objective to kill naturally occurring Engelmann spruce & subalpine fir at high elevations? There is no ecological justification for this.

Project design features (Chapter 2, Table 2-5) show that riparian buffers (PACFISH requirements for RHCAs) within the area will not be ignited. Black line or natural fuel breaks would be utilized to keep fire out of the buffers. Due to riparian buffers being used, and because burning would occur during early spring-like conditions (low-intensity burning) this project is expected to have no effect on riparian areas.

Cumulative Effects – Alternatives B, C, and D

Salmon have the potential to occupy habitat seven miles downstream. Even in the short-term, there is really no potential for the introduction of sediment and or other materials to the creek except during seasonal high flows, especially from fire projects or grazing impacts. The downstream reaches should, in the long-term (i.e. post-project ground disturbances that have erosion control measures implemented), see a reduction of the overall sediment produced and contributed to intermittent stream channels and the potential downstream migration. This is based upon the completion of Asotin Watershed restoration activities (i.e. meander reconstruction, road obliteration, trail relocations, shrub and tree plantings and bank stabilization, reconstruction of the road surfaces) occurring in the watershed.

For all action alternatives (B, C, and D) there would be no irreversible or irretrievable commitment of resources with implementation of proposed activities.

AFFECTED ENVIRONMENT -Snake River Summer Steelhead (*Oncorhynchus mykiss*) How can Steelhead be Oncorhynchus mykiss if Redband trout are?

Steelhead trout and rainbow trout[2] are designated aquatic management indicator species (MIS) for Umatilla National Forest. Stream surveys conducted in 1993, 2001 and 2008 concluded that O. mykiss that could be identified as steelhead were occupying South Fork and George Creeks. Steelhead are present at least to the Washington State and or Forest boundaries. However, non-anadromous O. mykiss were also observed during these surveys. WDFW surveys conclude South Fork Asotin Creek is one of the most prolific spawn areas for its stream size in the Washington State.

WDFW redd counts on South Fork of Asotin and Upper George Creek has revealed that steelhead reach nearly to the Forest boundary in each subwatershed. No redds were observed on Forest Service lands. However, rearing juveniles may migrate to upstream habitat. No distinction has been made to identify redband or steelhead.

[2] Steelhead trout (anadromous) and rainbow trout (resident redband) are designated aquatic Management Indicators Species (MIS) for Umatilla National Forest. Umatilla Forest Plan, prior to PACFISH/INFISH, mandated that MIS species was to be managed at 90 percent of the Smolt Habitat Capability Index. This is considered outdated science and PACFISH/INFISH which amended Umatilla Forest Plan established goals that are in place to restore near natural conditions which will ensure recovery. Streams surveys and broadscale efforts are in place to collect data and indicate very healthy populations. These watersheds have restricted access and no fishing allowed, protecting the species.

The North Fork of Asotin Creek is also known as occupied steelhead habitat. The spawning habitat range extends from the confluence of South Fork of Asotin Creek south as far as Middle Branch. The rearing habitat may extend further upstream.

ENVIRONMENTAL CONSEQUENCES - Snake River Summer Steelhead

Alternative A – No Action

Direct/Indirect and Cumulative Effects – Alternative A

Same as for Snake River spring/summer Chinook Salmon.

Effects Common to all Action Alternatives (B, C, and D)

Direct/Indirect Effects – Alternatives B, C, and D

No direct effects to species and or habitat would occur. This determination is based on the premise that no steelhead or habitat exists within the project planning area and that available downstream habitat and species (approximately one-half mile downstream at nearest point) would not be adversely affected. South Fork Asotin and Upper George Creeks have extensive spawning in the first two miles from the mouth and have been known to spawn within one-half mile of the National Forest boundary and juveniles occupy habitat up through the Washington State land and may range onto National Forest lands.

(*) What about the 2 Riparian fuel reduction units removing trees? Drop RHCA units 1+2.

Temperature would be unaffected because harvest units would not influence any stream shade. Equivalent Treatment Acres (ETAs) meet the desired future condition (DFC) of less than 20 percent for all alternatives in the drainage (see Table 3-11). Increased flow or timing of the runoff should remain unchanged. Instream temperatures would remain near the DFC for salmonids.

Burning occurring generally outside riparian areas (except for about 25 acres proposed for treatment – RHCA units 1 and 2) have indirect effects on riparian areas by increasing the potential transport of sediment, biomass, or water through the riparian zone. Low intensity burning within a riparian area often top-kills most shrubs and deciduous trees, but due to these species being able to resprout, soil stability is not impaired. Large ponderosa pine, Douglas-fir, or western larch easily survive these low intensity fires, but if Engelmann spruce or subalpine fir is present (higher elevations) they are almost always killed (a project objective) (Agee, 1994). (*) We don't want any Engelmann spruce or subalpine fir killed! What is the ecological basis for planning to kill ES + SA fir??

Controlled burning on about 25 acres (RHCA units 1 and 2) in the RHCA, and road decommissioning activities within the project planning area are designed to comply with the Endangered Species Act-Section 7 Programmatic Consultation Biological and Conference Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation: Fish Habitat Restoration Activities in Oregon and Washington, CY2007-CY2012, by National Marine Fisheries Service, Northwest Region, re-issued June 27, 2008 (FS 2008/03505). Controlled burning is consistent with design criteria for Category 13 of the July 27, 2008 document, and road decommissioning is consistent with design criteria for Category 18 (see Appendix F).

Project design features (Chapter 2, Table 2-5) show that riparian buffers (PACFISH requirements for RHCAs) within the area will not be ignited. Black line or natural fuel breaks will be utilized to keep fire out of the buffers. Due to riparian buffers being used, and because burning would occur during early spring-like conditions (low-intensity burning) this project is expected to have no effect on riparian areas.

(*) Why is there no quantification of potential sediment increase?

There is potential for the introduction of sediment and or other materials during the seasonal high flows in the short-term (season of disturbance before green-up). However, this is not expected to be measureable

(*) Reasons for our concerns re: sedimentation of streams, impacts to fish, and inadequate analysis.

(*) Conclusory statements are not enough. Where is the detailed, quantified analysis to back up these conclusions?

above background levels. Projects proposed in all action alternatives would have no measurable offsite effects to hydrologic function or water quality; water temperature or sediment load. Road work that would occur with proposed timber sales would reduce erosion and sedimentation from stream crossings that are currently causing localized impacts leading to a localized improvement in water quality (S. Peterson, North Zone Hydrologist, 2009).

Indirect effects to aquatic species are minimal because of the distance to potential spawning fish and steelhead spawn in higher more turbulent flows in early spring when waters are naturally more turbid. Temperature would not be affected because proposed activities would not influence any perennial stream shade. Increases in the flow or timing of the runoff should remain unchanged.

Soils on slopes are shallow, coarse-textured residual soils and are well drained. Erosion hazard is moderate to high in these riparian zones. Dry channel and benching mitigates unfavorable degradation of occupied habitat downstream of the project planning area and from upslope and ridgetop activities.

(*) Concern re: sedimentation from erosion from logging & burning carried downstream through intermittent channels

Best Management Practices (BMPs) and timber sale contract clauses would be included to insure minimal ground disturbance and to provide adequate mitigation (Appendix D). Effectiveness and implementation monitoring would be performed by timber resource personnel (the presale technician will assure BMPs are met during sale preparation and the timber sale administrator will assure BMPs are met during timber sale operations.

The proposed 25 acres of RHCA treatments (RHCA units 1 and 2) have been designed to fall within the intent and project design criteria of Category 13, Riparian Vegetation Treatment (controlled burning) in ARBO (see Appendix F). These are specific and separate criteria from the BMP's for the rest of the project area. (*) Yet there are DEIS references to tree and shade removal in these 25 acres of RHCA units 1+2 elsewhere in the DEIS

Cumulative Effects – Alternatives B, C, and D

There are other ongoing and reasonably foreseeable activities (pages 3-2 to 3-4) in the area that have been determined to have an effect on critical habitats (i.e. timber harvest, burning, and grazing). This project may exacerbate these effects by increasing the accessibility of cattle to perennial waters. At this site specific level there may be cumulative adverse effects that could be added to effects to downstream critical habitats. Initially these may be negative in nature. If RMO values continue to improve positively, these effects may be negated. This rationale is based upon the completion of restoration activities (i.e. road obliteration, cutslope planting and stabilization, in-channel habitat restoration, reconstruction of the road surface and the culvert replacements).

(*) This is inadequate analysis of actual foreseeable effects to Snake River Steelhead trout.

For all action alternatives (B, C, and D) there would be no irreversible or irretrievable commitment of resources with implementation of proposed activities.

(*) Is there guaranteed funding for restoration activities? No. (mitigation)

How would action alts negatively affect Steelhead, and to what degree?

AFFECTED ENVIRONMENT - Redband Trout *(Oncorhynchus mykiss)*

Redband trout are an unclassified form of rainbow trout found east of the Cascade Mountains in Oregon and Washington, in northern California, and in eastern British Columbia. Steelhead trout (anadromous) and rainbow trout (resident redband) are the designated aquatic Management Indicators Species (MIS) for the Umatilla National Forest. Rainbow trout were found in the project area, although stream surveys conducted in 1993, 2001 and 2008 found no Redband trout (*Oncorhynchus mykiss*) in George and South Fork Creeks, (i.e. by definition - species could not be confirmed as not having hatchery origins). This small population seems to be spawning and rearing in the habitat present. This population is not isolated from hatchery populations from the North Fork and main Asotin creeks. Therefore, by definition, no Redband trout were found in, below, or directly above the project area. However, these are well defined prolific populations that have not had hatchery introduction for many years and should be considered redband.

ENVIRONMENTAL CONSEQUENCES – Redband Trout

Alternative A – No Action

Direct/Indirect and Cumulative Effects – Alternative A
Same as for Snake River spring/summer Chinook Salmon.

Effects Common to all Action Alternatives (B, C, and D)

Direct/Indirect Effects – Alternatives B, C, and D
Riparian areas would be buffered using PACFISH standards and guidelines (Chapter 2, Table 2-5) for implementation of proposed project activities in all action alternatives. Most of the existing habitat has geographic and or physical barriers (i.e. slope, downed wood, timber etc.) that curbs access to riparian areas and would not be affected by harvest activities. However, some interaction with these high elevation fish may be possible and quite likely in some areas. Seasonal use by cattle is outside the spawning period for these species. So why are these predicted logging interaction impacts not analyzed?

Indirectly the loss of timber and wood that keep livestock from migrating to the riparian may be diminished. Cattle could then access riparian habitat, but terms and conditions in term grazing permits require permittees to move the animals upon their discovery in riparian areas. Indirectly in the short-term there is potential for the introduction of sediment and or other materials to the creek during the seasonal high flows, however, this is not expected to be measureable above background levels. Projects proposed in the action alternatives would have no measurable offsite effects to hydrologic function or water quality; water temperature or sediment load. Road work that would occur with proposed timber sales would reduce erosion and sedimentation from stream crossings that are currently causing localized impacts leading to a localized improvement in water quality (S. Peterson, North Zone Hydrologist, 2009).

Cumulative Effects – Alternatives B, C, and D
There are other ongoing activities in the area that have been determined to have an effect on critical habitats (i.e. timber harvest, burning, and grazing). This project may exacerbate these effects by increasing the accessibility of cattle to perennial waters. At these site specific levels there may be cumulative adverse effects that could add to effects to downstream critical habitats. With continued completion of restoration activities (i.e. road obliteration, cutslope planting and stabilization, in-channel habitat restoration, reconstruction of the road surface and the culvert replacements) and RMO values continue to improve positively these effects may be negated.

AFFECTED ENVIRONMENT - Bull Trout (*Salvelinus confluentus*)

Stream surveys conducted in 1993, 2001 and 2008 concluded that no Bull Trout were occupying South Fork Asotin and Upper George Creeks. No suitable spawning and rearing habitat were observed during the surveys. No Bull Trout occupy either stream on Forest Service lands. In the 1993 survey Bull Trout were initially thought to be present however, a subsequent survey to confirm was unsuccessful in finding Bull Trout, several other attempts were made to confirm presence and or absence. These additional attempts found no Bull Trout present. In 2008 a survey was conducted on Washington State lands of the South Fork, and an individual was recovered (Eco-Logical Research, Bennett 2008). Glen Mendle, Washington Department of Fish and Wildlife (WDFW) biologist confirmed that rarely do they find Bull Trout in either system (2009). The only known habitat within this watershed recedes in the North Fork Asotin above the confluences of South Fork Asotin. Spawning and rearing, along with over wintering habitat occur in these reaches. Some adfluvial migratory habitat is also present. The conclusion is for

Yet isn't this within the project area & adjacent to units 4? This would then be Bull trout presence within the project area, rare or not. Drop unit 4 & any other units that could affect Bull trout.

* Reasons for our concerns re: potential project impacts to Bull trout

* Therefore Bull trout must be protected from logging, grazing, + road impacts, not just

* these project subwatersheds of South Fork Asotin and Upper George Creek, is that individuals may be present, but no spawning and rearing habitat is currently occupied.

spawning & rearing habitat – but also individuals of a listed species –

On January 14, 2010 the United States Fish and Wildlife Service proposed to revise the designation of critical habitat for Bull Trout in the coterminous United States (Federal Register, Vol. 75, No. 9; 50 CFR Part 17, p. 2270). This proposed designation includes habitat on Umatilla National Forest and within * South George project planning area on Pomeroy Ranger District.

and designated critical habitat within the South George project area.

ENVIRONMENTAL CONSEQUENCES – Bull Trout

Alternative A – No Action

Direct/Indirect and Cumulative Effects – Alternative A

There would be no direct or indirect effects. There would be no ground disturbance to affect either temperature or sediment. However, no beneficial effects would be achieved by the reduction of sediment from improved road conditions projects derived from the sale.

For the No Action alternative, South George project would not be authorizing any actions; therefore it would not be adding anything to the effects of past, present, and reasonably foreseeable future actions. Based on the definition provided in the CEQ regulations (page 3-1), there would be no cumulative effects for the No Action Alternative.

Effects Common to all Action Alternatives (B, C, and D)

Direct/Indirect Effects – Alternatives B, C, and D

* What about indirect effects to Bull trout?

There would be no direct effects to species and or habitat with implementation of any action alternative. This is based on the premise that no Bull Trout and or habitat exist within project activity units, and available downstream habitat and species (approximately one-half mile downstream at nearest point) would not be adversely affected. South Fork Asotin and George Creeks contain no known spawning occurrences in either stream. * Juveniles are known to occasionally occupy habitat up through Washington State land and may range onto FS lands. Most Bull Trout spawning occurs above Lick Creek confluence, about one mile upstream from the confluence of South Fork Asotin, located high in the watershed above Middle Branch on the North Fork which is outside the influence of this project. RMO's are at or near the natural or desired future condition (see Table 3-14). Proper Functioning Channels exist in fish bearing habitats for Rosgen B channel types.

* Even though the So. George project area has been designated as critical Bull trout habitat?! And on p. 3-40 of the DEIS it is admitted that logging could affect Redband trout – so why not also Bull trout?

Indirect effects from proposed project activities are minimal because of the distance and location to potential spawning fish. Water temperature would be unaffected because proposed activities would not influence any stream shade. Increased flow or timing of runoff should remain unchanged. The proposed fuels treatment on approximately 25 acres in the RHCA is not on a fishbearing stream and has benching occurring between the project and downstream designated critical habitat about one-half mile away. Bull trout have not been seen in George Creek subwatershed for approximately thirty years.

* Is there no connection between the WDFW lands of So. Fork Asotin Cr. + the project area?

* Indirectly the loss of timber and wood that keep livestock from migrating to the riparian may be diminished. Cattle then could access the habitat, but permittees are required, by their permit, to move the animals out of the riparian area if they are found to be located there. Most of the habitat has geographic and or physical barriers (i.e. slope, downed wood, timber etc.) that limit and or restrict the animal's access to riparian areas.

(*) = Reasons for our concerns re: impacts to Bull trout

In the project planning area soils on the slopes are shallow, coarse-textured residual soils. The parent basalt is evident in numerous talus and outcrops. Draw bottoms and the mouths of canyons contain a deeper mixed soil from colluvial basalt, volcanic ash, and Palouse loess. Soils are well drained. Erosion hazard is moderate to high in those riparian zones. However, the species is not present in the project area. Dry channel and benching mitigate unfavorable degradation of possible downstream occupied or migration habitat.

(*) direct contradiction

(*) Why is introduction of sediment not expected to be measurable above background levels? Based on what evidence?

Cumulative Effects – Alternative B, C, and D

In the short-term there is potential for the introduction of sediment and or other materials to the creek during the seasonal high flows, however, this is not expected to be measureable above background levels. Project activities proposed in the action alternatives would have no measurable offsite effects to hydrologic function or water quality; water temperature or sediment load. Road work that would occur with proposed timber sales would reduce erosion and sedimentation from stream crossings that are currently causing localized impacts leading to a localized improvement in water quality (S. Peterson, Hydrologist, 2009). So if there are individual Bull trout in Upper George & So. Fork Asotin Creeks, the Bull trout species is present in the project area. There are other activities in the area that have been determined to have an effect on critical habitats (i.e. timber harvest, burning, and private land grazing). It is assumed that Upper George and South Fork Asotin Creeks both have a few isolated individuals of Bull Trout due to migratory life history. At the site-specific level the proposed project's effects are negligible. Cumulatively there would be no added effects on downstream designated critical habitats. In the long-term these affected reaches should see an increase in the reduction of the overall sediment produced and contributed to intermittent stream channels and the potential of downstream migration. RMO values continue to improve positively outside the forest. This is based upon the continued completion of the restoration activities (i.e. road obliteration, cutslope planting and stabilization, in-channel habitat restoration, reconstruction of the road surface and the culvert replacements). Seasonal cattle use is outside the spawning period for these species on remaining public lands. Critical habitat would not be negatively affected by implementation of any action alternative. Short term impacts can't be mitigated by long term improvements as TES species might be vulnerable enough not to survive the "short" term impacts.

(*)

For all action alternatives (B, C, and D) there would be no irreversible or irretrievable commitment of resources with implementation of proposed activities.

Without population studies for TES + MISpecies, their viability can not be assumed w/ additional impacts.

AFFECTED ENVIRONMENT - Margined Sculpin (*Cottus marginatus*)

In 1999 and 2000, WDFW confirmed the presence of margined sculpin in Asotin Watershed while conducting steelhead juvenile electro-fishing. Indications are that the species is prevalent along with Paiute sculpin (*cottus belldigi*). The species was not specifically found in South Fork, Coombs, or George Creek during WDFW's survey. Species were found during surveys taken by the Forest Service.

ENVIRONMENTAL CONSEQUENCES – Margined Sculpin

Alternative A – No Action

Direct/Indirect and Cumulative Effects – Alternative A

Since there would be no activities implemented, there would be no direct or indirect effects.

For the No Action alternative, South George project would not be authorizing any actions; therefore it would not be adding anything to the effects of past, present, and reasonably foreseeable future actions. Based on the definition provided in the CEQ regulations (page 3-1), there would be no cumulative effects for the No Action Alternative.

(*) = Reasons for our concern re: potential impacts to Margined sculpin and Tailed frog

Effects Common to all Action Alternatives

Direct/Indirect Effects – Alternatives B, C, and D

Effects on margined sculpin are nearly the same as all other aquatic species that depend on cold clean water. Upper George, Coombs, and South Fork Asotin Creeks each have small populations of margined sculpins. By their presence, this is an indicator of cold clean water. Project activities would be buffered with PACFISH standards and guidelines (Chapter 2, Table 2-5). Indirectly the loss of timber and wood that keep livestock from migrating to the riparian may be diminished. Cattle then could access the habitat, but permittees are required, by their permit, to move the animals out of the riparian area if they are found to be located there. Most of the habitat has geographic and or physical barriers (i.e. slope, downed wood, timber etc.) that limit and or restrict the animal's access to riparian areas. However, some interaction with these high elevation fish may be possible and quite likely in some areas. This impact can be direct or indirect. Seasonal use by cattle is outside the spawning period for these species.

Cumulative Effects – Alternatives B, C, and D

In the short-term time frame during the seasonal high flows there is a potential for the introduction of sediment and or other materials to the creek. There are other ongoing activities in the area that have been determined to have an effect on critical habitats (i.e., timber harvest, burning, and grazing). This project may exacerbate these effects by increasing the accessibility of cattle to perennial waters. At these site specific levels there may be cumulative undesirable effects that could add to effects to downstream critical habitats. With continued completion of restoration activities (i.e. road obliteration, cutslope planting and stabilization, in-channel habitat restoration, reconstruction of the road surface and the culvert replacements) and RMO values continue to improve positively these effects may be negated.

(*) Yeah, but they have no guaranteed funding + may or may not be completed 10 years from now, as noted elsewhere in the DEIS

AFFECTED ENVIRONMENT -Tailed Frog (*Ascaphus trucei*)

A Level II, Hankin and Reeves stream survey did indicate the presence of tailed frogs in Upper George and South Fork Asotin Creeks. None were found in Coombs Creek, Reach 1. The species was also found higher in the watershed of North Fork Asotin in Reach 3.

ENVIRONMENTAL CONSEQUENCES – Tailed Frog

Alternative A – No Action

Direct/Indirect and Cumulative Effects – Alternative A

Since there would be no activities implemented, there would be no direct or indirect effects.

For the No Action alternative, South George project would not be authorizing any actions; therefore it would not be adding anything to the effects of past, present, and reasonably foreseeable future actions. Based on the definition provided in the CEQ regulations (page 3-1), there would be no cumulative effects for the No Action Alternative.

Effects Common to all Action Alternatives (B, C, and D)

Direct/Indirect Effects – Alternatives B, C, and D

Effects on tailed frog are nearly the same as all other aquatic species that depend on cold clean water. Upper George and South Fork Asotin Creeks both have small populations of tailed frogs. By their presence, this is an indicator of cold clean water. Project activities will be buffered with PACFISH standards and guidelines (Chapter 2, Table 2-5). Indirectly the loss of timber and wood that keep

Inadequate cumulative effects analysis:

livestock from migrating to the riparian may be diminished. Cattle then could access the habitat, but permittees are required, by their permit, to move the animals out of the riparian area if they are found to be located there. Most of the habitat has geographic and or physical barriers (i.e. slope, downed wood, timber etc.) that limit and or restrict the animal's access to riparian areas. However, some interaction with tailed frogs may be possible and quite likely in some areas. This impact can be direct or indirect. Seasonal use by cattle is outside the spawning period for this species.

Cumulative Effects – Alternatives B, C, and D

As with all other aquatic species, in the short-term time frame there is potential for the introduction of sediment and or other materials to the creek during the seasonal high flows. There are other ongoing activities in the area that have been determined to have an effect on dependent habitats (i.e. timber harvest, burning, and grazing). This project may exacerbate these effects by increasing the accessibility of cattle to perennial waters. At these site specific levels there may be cumulative adverse effects that could add to effects to downstream critical habitats. With continued completion of restoration activities (i.e. road obliteration, cutslope planting and stabilization, in-channel habitat restoration, reconstruction of the road surface and the culvert replacements) and if RMO values continue to improve positively these effects may be negated. Yet there's no analysis re: what these cumulative impacts mean for the viability of the species affected.

BIOLOGICAL DETERMINATIONS

Because in the short-term (season of disturbance before green-up-usually one year) with implementation of proposed activities there is a potential for the introduction of sediment and or other materials to creeks during the seasonal high flows that could add to effects on downstream critical habitat, all action alternatives were given a "*May Affect, Not Likely to Adversely Affect*" biological determination for Snake River steelhead and Columbia River Bull Trout. For the same reason all action alternatives were given a "*May Impact Individuals or Habitat, But Will Not Likely Contribute to a Trend Towards Federal Listing or Cause a Loss of Viability to the Population or Species*" biological determination for Region 6 Sensitive Redband Trout, Margined Sculpin, and Tailed Frog. See Table 3-15 below for biological determinations by species.

Yet more detailed analysis might have determined potential for long term direct, indirect, and/or cumulative impacts to these species, requiring a determination of significant impact that the Forest Service seeks to avoid so their project can go through – a fox in the hen house situation.

Table 3-15 – Biological Determinations for TES and Proposed Species in South George Project Planning Area

SPECIES	*ESA STATUS	HABITAT PRESENT IN WATERSHED	HABITAT PRESENT IN SUBWATESHED	SPECIES PRESENT IN PROJECT AREA	**BIOLOGICAL DETERMINATION
INVERTEBRATES					
Western Ridged Mussel	S	No	No	No	(NI)
Shortface Lanx	S	No	No	No	(NI)
Pristine Springsnail	S	No	No	No	(NI)
Fir Pinwheel (Terrestrial)	S	Yes	Yes	Unknown	(NI)
Hell's Canyon Land Snail (Terrestrial)	S	Yes	No	No	(NI)
Humped Coin (Terrestrial)	S	Yes	Yes	Unknown	(MI)
Barry's Hairstreak (Terrestrial)	S	Yes	No	No	(NI)
* Meadow Fritillary (Terrestrial)	S	Yes	Yes	No	(NI)
* Great Basin Fritillary (Terrestrial)	S	Yes	Yes	No	(NI)
FISH (*) So how is it known that these 2 butterflies are not in the project area?					
Snake River fall Chinook Salmon	T	Yes/No	No	No	(NE)
Snake River spring Chinook Salmon	T	Yes	No	No	(NE)
Snake River summer Steelhead	T	Yes	Yes/Unoccupied	No	(ME-NLAA)
Mid. Columbia River Steelhead (Mid C Only) (MIS)	T	No	No	No	(NE)
Redband Trout (MIS)	S	Yes	Yes	Yes	(MI)
Columbia River Bull Trout	T	Yes	Yes	Actually found! Not Found	(ME-NLAA) ← See p. 3-42
Margined Sculpin	S	Yes	Yes	Yes	(MI)
West-slope Cutthroat Trout	S	Potential	No	No	(NI)
Pacific Lamprey	S	Re-introduced	Unknown	No	(NI)
(*) **AMPHIBIANS** So how is there no impact to N. Leopard frog if its status is unknown?					
Northern Leopard Frog	S	Yes	Unknown	Unknown	(NI)
Columbia Spotted Frog (Oregon Only)	S	Yes	Unknown	Unknown	(NI)
Tailed Frog	S	Yes	Yes	Yes	(MI)
Painted Turtle (Oregon Only)	S	No	No	No	(NI)

* T = Federally listed Threatened species, S = Regional Forester's Sensitive Species List,
Determination of effects are as follows: a) No Effect **(NE)**, **b)** No Impact **(NI)**, **c)** May Effect - Not Likely To Adversely Affect **(ME-NLAA)**, **d)** May Impact **(MI)** Individuals Or Habitat, But Will Not Likely To Contribute To A Trend Towards Federal Listing…

We request - our FOIA if necessary - the So. George Silviculture Specialist Report

(*) This is all conclusory with no disclosure of data, methods, or assumptions used to reach these conclusions.

FINDINGS OF CONSISTENCY

Implementation of any alternative would be consistent with Umatilla Forest Plan, as amended (PACFISH), and Endangered Species Act (ESA).

How is the project consistent w/ESA listed fish recovery plans?

This project is consistent with ESA listed fish recovery plans. Actions proposed for riparian vegetation restoration project (about 25 acres – RHCA units 1 and 2) are consistent with habitat actions identified in the draft Snake River Salmon Recovery Plan for SE Washington (Snake River Salmon Recovery Board 2006) (referred to as the LSR Recovery Plan). Habitat actions are grouped and define the approach to be taken to implement restoration or protection strategies. Upper George Creek is identified as a major spawning aggregation (MSA) in the lower reaches (LSR Recovery Plan Summary p. 51). The LSR Recovery Plan identifies large woody debris goals for the Upper George Creek MSA of one piece per channel width. To improve large woody debris requires improving channel and floodplains, improving riparian areas and improving instream habitat (LSR Recovery Plan Summary p. 48). Implementation of actions in units (about 25 acres) in the RHCAs should result in long-term restoration and improvement of riparian function. (*) How would the 2 RHCA mgmt approaches improve channel & floodplains, improve riparian areas or instream habitat? This is far from clear.

This project adequately avoids, minimizes, or otherwise offsets any potential effect to designated Essential Fish Habitat and therefore fulfills our requirement under the Mangnuson Stevens Act (305 (b) (4) (A)). (*) How is it determined that the project adequately avoids, minimizes, or otherwise offsets any potential effect to designated Essential Fish habitat?

See Appendix F for additional aquatic information.

VEGETATION

This section incorporates by reference the South George Silviculture Specialist Report contained in the project analysis file at Pomeroy Ranger District. Specific information on the methodologies, assumptions, and limitations of analysis and other details are contained in the report. A summary of the current conditions of the affected environment and the predicted effects of the Proposed Action and its alternatives are discussed in this section.

SCALE OF ANALYSIS

Existing and historical vegetation conditions for National Forest Service (NFS) lands located within South George project planning area (approximately 21,000 acres).

Indicators used for comparison purposes between alternatives are:

- Species composition
- Forest structural stages
- Tree density

AFFECTED ENVIRONMENT

Forested acreage designated as suitable for timber production by the Forest Plan is used as the affected environment for the forest vegetation analyses described in this chapter (see Appendix J –NMFA Analysis - Existing and Historical Vegetation). The table below identifies forest vegetation affected environment in the project planning area by alternative. It shows that about 75 percent of National Forest System (NFS) lands in the project planning area are forested (15,430 acres) and about 91 percent of the forested acreage (14,060 acres) is included in Forest Plan management areas where forestland is suitable for timber production.

Potential Vegetation

The potential vegetation of the forest vegetation affected environment is characterized using potential vegetation groups (PVG), a higher-level taxonomic unit in a hierarchy of potential vegetation types (Powell et al. 2007). PVGs are named for a predominant or controlling temperature or moisture relationship.

Figure 3-2 presents a map showing the spatial distribution and configuration of upland forest PVGs for South George project planning area.

(*) The majority of the project area is identified as moist forest, with the dry forest more isolated in drainages & by non-forest, as shown in Figure 3-2 - so why is fire risk reduction part of the purpose & need for this project?

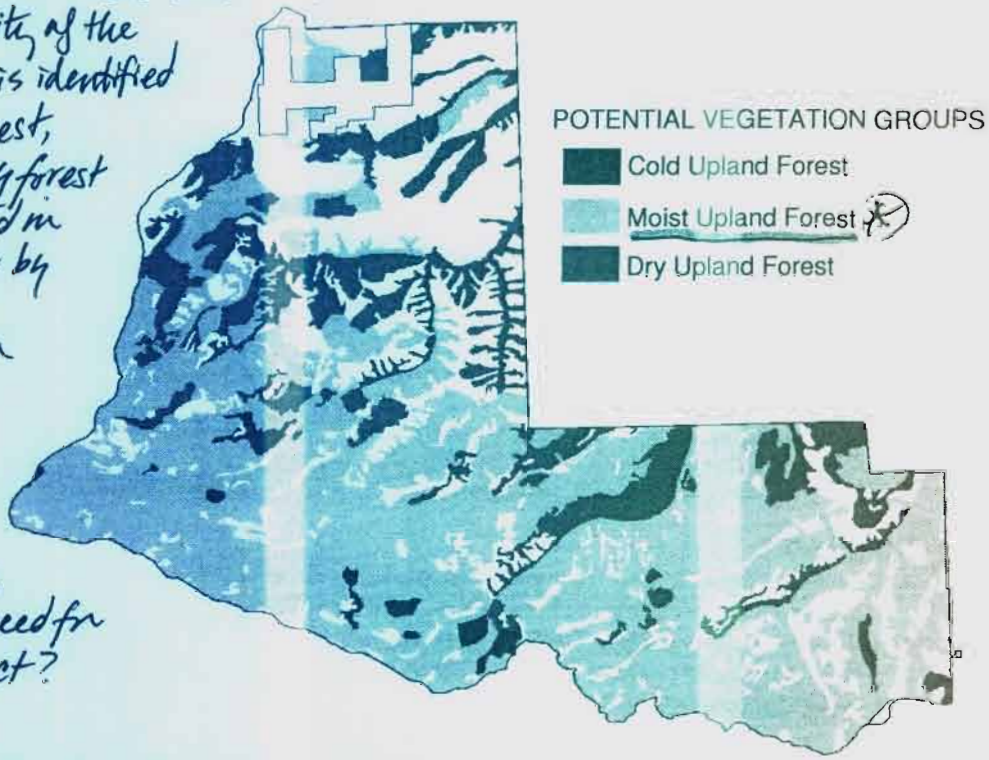

Figure 3-2 – Upland forest potential vegetation groups for the South George planning area. The historical range of variability (HRV) analyses presented later in this chapter stratify the results using dry and moist upland forest PVGs (cold is not used because it has too few acres in the planning area for a credible HRV analysis). White areas within the exterior planning area boundary include either private (non-NFS) lands, or nonforest vegetation types.

Table 3-17 summarizes the PVG composition of the forest vegetation affected environment (comprising 14,060 acres in total). It shows that the predominant PVG is moist upland forest (UF) is 78 percent, (*) followed by dry upland forest at 21 percent. Very little of the forest vegetation affected environment consists of cold upland forest PVG (1 percent).

Table 3-17 Potential Vegetation Groups (PVG) for Forest Vegetation Affected Environment

Potential Vegetation Group (PVG) Code	Potential Vegetation Group (PVG) Description	Acres	Percent of Total
Cold Upland Forest (UF)	Cold UF	180	1
Dry Upland Forest (UF)	Dry UF	2,950	21
Moist Upland Forest (UF)	Moist UF	10,930	78

Sources/Notes: Summarized from the South George vegetation database (forested, suitable, NFS lands only).

When the predominant forest covertype is Grand fir, followed by spruce-fir, it is a moist forest, not prone to frequent, low intensity fire, but to infrequent stand replacement and mixed severity fire. Ponderosa pine is only 14% of the forest covertype - very low.

Species Composition

(*) The predominant forest cover type is grand fir (49 percent of the affected environment has grand fir as the majority or plurality tree species), followed by spruce-fir (17 percent), Douglas-fir (15 percent), and ponderosa pine (14 percent).

An HRV analysis was completed for species composition of the forest vegetation affected environment. Because species composition varies by biophysical environment, the HRV analysis was stratified by potential vegetation group: dry upland forest and moist upland forest. Note that the cold upland forest PVG is not included because it has too few acres (180 acres) for a credible HRV analysis. Species composition HRV results are presented in Table 3-18.

The information presented in the table below suggests that dry forestland currently supports too much of the grand fir and Douglas-fir forest cover types, and too little of the ponderosa pine forest cover type. Moist forestland supports too much of the grand fir and spruce-fir forest cover types, and too little of the Douglas-fir, western larch, broadleaved trees, and lodgepole pine forest cover types.

(*) How is it known that this is all naturally dry forest type?

(*) How can moist forest support too much Grand fir & spruce fir forest cover? Where is the science to support this claim?

How are current amounts of DF, WL, broadleaved trees & LP determined to be "too little"?

Table 3-18 HRV Analysis of Species Composition for Forest Vegetation Affected Environment

Cover Type	DRY UPLAND FOREST PVG				MOIST UPLAND FOREST PVG			
	Historical Range		Current Amount		Historical Range		Current Amount	
	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres
Herb-shrub	0-5	0-150	0	0	0-5	0-550	2	210
Shrub	0-5	0-150	0	0	0-5	0-550	0	0
Western juniper	0-5	0-150	0	0	—		—	
Ponderosa pine	50-90	1470-2650	32	940	5-15	550-1640	8	860
Douglas-fir	5-20	150-590	46	1,350	15-30	1640-3280	7	750
Western larch	0-10	0-300	0	0	10-30	1090-3280	3	310
Broadleaved trees	0-5	0-150	0	0	1-10	110-1090	0	0
Lodgepole pine	0-5	0-150	0	0	10-25	1090-2730	3	300
Western white pine	—		—		0-5	0-550	0	0
Grand fir	1-10	30-300	22	660	15-30	1640-3280	57	6,180
Spruce-fir	—		—		1-15	110-1640	21	2,320

Sources/Notes: Current amounts are summarized from the South George vegetation database (forested, suitable, NFS lands only). Gray shading indicates cover types that are either above or below the historical range of variability. Historical ranges are approximate and were adapted from Morgan and Parsons (2001); they are based on multiple 1200-year simulations representing landscapes in a "dynamic equilibrium" with their disturbance regimes.

(*) This is ridiculous – How can you model 1,200 year simulations of landscapes' forest cover with no reference to site-specific conditions or historical evidence from the area?

Forest Structural Stages

Table 3-19 below summarizes existing forest structural stages for the forest vegetation affected environment. It shows that the predominant forest structural stage is understory reinitiation (30 percent of the affected environment), stem exclusion closed-canopy (21 percent) followed by stem exclusion open canopy (19 percent), and old forest single stratum (15 percent).

(*) This is not credible or accurate use of science to determine HRV, which is supposed to be based on pre-European settlement/logging conditions, not on "dynamic equilibrium" models.

Table 3-19 Forest Structural Stages - Forest Vegetation Affected Environment

Code	Forest Structural Stage Name	Acres	Percent of Total
SI	Stand Initiation	570	4
SEOC	Stem Exclusion Open Canopy	2,710	19
SECC	Stem Exclusion Closed Canopy	3,000	21
UR	Understory Reinitiation	4,200	30
YFMS	Young Forest Multi Strata	310	2
OFMS	Old Forest Multi Strata	1,120	8
OFSS	Old Forest Single Stratum	2,140	15

Sources/Notes: Summarized from the South George vegetation database (forested, suitable, NFS lands only). Forest structural stages are described in O'Hara et al. (1996). Structural stage, a derived field in the database, was calculated using queries from Hessburg et al. (1999a).

An HRV analysis was completed for forest structural stages of the forest vegetation affected environment. Because forest structure varies by biophysical environment, the HRV analysis was stratified by potential vegetation group: dry upland forest and moist upland forest. Note that the cold upland forest PVG is not included because it has too few acres (180 acres) for a credible HRV analysis. Forest structural stage HRV results are presented in Table 3-20.

Table 3-20 HRV Analysis of Forest Structural Stages - Forest Vegetation Affected Environment

Structural Stage	DRY UPLAND FOREST PVG				MOIST UPLAND FOREST PVG			
	Historical Range		Current Amount		Historical Range		Current Amount	
	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres
SI	5-15	150-440	4	130	1-10	110-1090	4	400
SEOC	5-20	150-590	10	290	0-5	0-550	22	2,430
SECC	1-10	30-300	16	490	5-25	550-2730	23	2,510
UR	1-10	30-300	24	710	5-25	550-2730	31	3,350
YFMS	5-25	150-740	1	20	40-60	4370-6560	3	290
OFMS	5-20	150-590	18	520	10-30	1090-3280	5	600
OFSS	15-55	440-1620	27	790	0-5	0-550	12	1,350

Both within HRV

OFMS below HRV

Sources/Notes: Summarized from the South George vegetation database (forested, suitable, NFS lands only). Gray shading indicates structural stages that are above or below the historical range of variability. Historical percentages (H%) were derived from Hall (1993), Johnson (1993), and USDA Forest Service (1995), as summarized in Blackwood (1998). Forest structural stages are described in Table 3-19.

(*) This is primarily due to logging & wont be corrected by more logging.

The information presented in Table 3-20 suggests that the SI, SECC, UR, and YFMS structural stages are outside of their historical ranges for the dry upland forest PVG, and that every structural stage except SI and SECC is outside of its historical range for the moist upland forest PVG.

Tree Density

Table 3-21 summarizes existing tree density classes for the forest vegetation affected environment. It shows that the predominant tree density class is moderate (37 percent), followed closely by low (36 percent) and then by high (27 percent). (*) so why does this project focus its purpose & need on removing tree density when "high density" is assessed at only 27% & may represent moist & cold forest types that are naturally more dense?

Table 3-21 Tree Density Classes - Forest Vegetation Affected Environment

Tree Density Class	Acres	Percent of Total
Low	5,060	36
Moderate	5,200	37
High	3,800	27

Sources/Notes: Summarized from the South George vegetation database (forested, suitable, NFS lands only). Criteria for assigning polygons to tree density classes are provided in Powell (2009).

An HRV analysis was completed for tree density classes of the forest vegetation affected environment. Because tree density varies by biophysical environment, the HRV analysis was stratified by potential vegetation group: dry upland forest and moist upland forest. Note that cold upland forest PVG is not included because it has too few acres (180 acres) for a credible HRV analysis. Tree density HRV results are presented in Table 3-22. Without HRV analysis & with so few acres of cold forest, it should be protected from logging, roading, & fuel reduction.

Table 3-22 HRV Analysis of Tree Density Classes – Forest Vegetation Affected Environment

Tree Density Class	DRY UPLAND FOREST PVG				MOIST UPLAND FOREST PVG			
	Historical Range		Current Amount		Historical Range		Current Amount	
	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres
Low	40-85	1180-2510	30	890	20-40	2190-4370	37	4,010
Moderate	15-30	440-890	26	780	25-60	2730-6550	40	4,400
High	5-15	150-440	44	1,280	15-30	1640-3280	23	2,520

Sources/Notes: Summarized from the South George vegetation database (forested, suitable, NFS lands only). Gray shading indicates tree density classes that are above or below the historical range of variability.

Moist forest is all within HRV for density, so why is logging planned there?

How was HRV determined for tree density? Based on what evidence from where, from what years?

The information presented in Table 3-22 suggests that the dry upland forest PVG portion of the forest vegetation affected environment has too little of the low density class and too much of the high density condition. For the moist upland forest portion of the affected environment, all three density classes are within their historical ranges of variability.

ENVIRONMENTAL CONSEQUENCES

This section discloses the environmental consequences of implementing the silvicultural activities proposed for each of the alternatives. Subsections discriminate between: (1) direct effects, which are caused by an activity (action) and occur at the same time and place; (2) indirect effects, which are caused by an activity (action) and are later in time or farther removed in distance than direct effects, but are still reasonably foreseeable; and (3) cumulative effects, which result from the incremental impact of an activity (action) when added to other past, present, and reasonably foreseeable future actions.

Note that this definition of cumulative effects is not followed in this DEIS for various sections' analysis of cumulative effects. eg. for soils.

Three indicators are used to characterize the environmental consequences of implementing the silvicultural activities proposed for each of the alternatives: species composition (forest cover types), forest structural stages, and tree density classes. Potential vegetation is not used as an indicator because it is not affected by silvicultural activity or management treatment; however, the amount of potential vegetation included in each alternative does vary, as shown in Table 3-23.

Table 3-23 – Potential Vegetation Group Acreage by Forest Vegetation Affected Environment and by Alternative

PVG Code	Forest Vegetation Affected Environment (acres)	Alternative A (acres)	Alternatives B and C (acres)	Alternative D (acres)
Cold UF	180	0	0	0
Dry UF	2,950	0	930	930
Moist UF	10,930	0	2,970	1,670
Total	**14,060**	**0**	**3,900**	**2,600**

Sources/Notes: Summarized from the South George vegetation database (forested, suitable, NFS lands only). PVG Code is described in Table 3-17. Affected environment acreages are provided for comparison purposes only and were taken from Table 3-17. (*) So despite the Purpose & Need being based on too much forest density (re: fire risk, insect & disease reduction) most logging is focused on moist forest, which is not outside of HRV for density.

Scale of Analysis

Geographical Context - The geographical context for estimating direct effects is forested, suitable, National Forest System (NFS) lands located within the forest vegetation affected environment (Figure 3-1) and directly affected by implementation of an alternative. Silvicultural activities included in Alternatives B and C would directly affect approximately 3,900 acres of the affected environment; silvicultural activities included in Alternative D would directly affect approximately 2,600 acres of the affected environment.

The geographical context for estimating indirect effects is forested, suitable, NFS lands located within the forest vegetation affected environment (Figure 3-1). The analysis of indirect effects considers the effects of activities (actions) occurring at a different time or place than the action causing an effect.

The geographical context for estimating cumulative effects is the entire South George project planning area (approximately 21,000 acres). There was no need to extend the cumulative effects analysis area beyond the project planning area boundary because forest vegetation conditions affected by the proposed action (various categories of species composition, forest structural stage, and tree density) are common and widely distributed throughout the planning area, the Pomeroy Ranger District in which it occurs, the Umatilla National Forest (Christensen et al. 2007) containing the Pomeroy Ranger District, and the Blue Mountains ecoregion containing the Umatilla National Forest.

Temporal Context - The temporal context for evaluating environmental effects includes past, present, and reasonably foreseeable actions in South George project planning area, as described below.

- Past actions (page 3-2) have influenced existing conditions in the project planning area. A database was developed by using Most Similar Neighbor imputation procedures to characterize existing vegetation conditions (Justice 2009). Existing conditions are current as of 2009, when the database was developed. Database information was validated by completing field reviews during 2009 and 2010. The field reviews found that existing conditions in the planning area appropriately reflect past changes resulting from three types of silvicultural activities: timber harvest, tree planting, and noncommercial thinning (see below). Existing conditions also reflect the historical influence of wildfire, insect and disease activity, fire exclusion, ungulate herbivory, and other non-silviculture changes.

- Present (ongoing) actions (page 3-3) were considered when evaluating cumulative effects. The main present action affecting forest vegetation conditions is the Park Ridge project involving noncommercial thinning and prescribed fire activities designed to increase residual tree vigor, address dwarf-mistletoe and other insect or disease issues, and reduce surface fuel loadings. The cumulative effects analysis also explicitly considers direct and indirect effects expected from implementation of actions included in any of the South George alternatives (Alternatives B, C, and D).

- Reasonably foreseeable actions (pages 3-3 to 3-4) were included in the cumulative effects analysis. Reasonably foreseeable actions include non-commercial thinning and fuel reduction activities on approximately 500 acres annually, and the Eastside prescribed fire project potentially affecting forest vegetation conditions by reducing ladder fuels and implementing similar treatments designed to address wildfire hazard (both actions are authorized by Decision Memos). Based on the Forest's schedule of proposed actions, no other actions potentially affecting vegetation conditions in the project planning area are anticipated over the next 5 years. What about after 5 years? It is disingenuous to imply that there will not be more commercial logging in the area, as the So. George Project is logging after only 20 years since past heavy logging.

- For the purpose of cumulative effects analysis, future vegetation conditions incorporate direct and indirect effects from three sources: (1) implementation of proposed activities included in South George alternatives (Alternatives A, B, C, and D); (2) present (ongoing) activities; and (3) implementation of reasonably foreseeable actions. The timeframe for cumulative effects analysis is the same 5-year period described for the reasonably foreseeable actions.

Following is a summary of silvicultural activities that occurred on National Forest System lands in the South George project planning area (see page 3-2):

- Approximately 15,200 acres of timber harvest occurring between 1960 and 2009.
- Approximately 2,750 acres of tree planting occurring between 1996 and 2008.
- Approximately 2,400 acres of noncommercial thinning occurring between 1968 and 2008.

Thus future commercial logging in the project area is reasonably foreseeable yet not disclosed or analyzed in the DEIS

(*) Why is there no analysis of cumulative impacts of repeated activities within units?

Note that historical activity acreage is not mutually exclusive, some acreage was affected more than once by different cutting methods (an initial harvest involving shelterwood seed cutting, and a subsequent harvest in the same area involving shelterwood removal cutting), or by different activities (such as tree planting occurring on an area where stand clearcutting had been completed, followed by noncommercial thinning when the planted trees were dense enough, and tall enough, to warrant thinning).

(*) Future commercial logging in the project area is reasonably foreseeable because the Forest service operates with a regular rotational commercial logging across the Forest, which includes the South George area.

Alternative A – No Action

Direct/Indirect Effects – Alternative A – No Action

Alternative A is the No Action alternative. It allows any previously approved (on-going) activities to proceed, but none of the silvicultural activities identified as proposed actions in Chapter 1 would be implemented under this alternative.

The concept of this alternative is that ongoing disturbance and succession processes influencing vegetation conditions in South George project planning area would continue without human interference. If the purpose and need described in Chapter 1 could be addressed by Alternative A, it would occur as a result of vegetation changes induced by natural ecosystem processes, not as a result of implementing silvicultural activities specifically targeted at addressing forest vegetation issues and needs.

Since no new forest vegetation activities would occur under this alternative, it would not provide an opportunity to address species composition, forest structure, or tree density conditions that are either over-represented or under-represented (i.e., above or below the historical range of variability).

The analysis context of this section is that direct and indirect effects refer to the estimated environmental consequences of implementing the proposed silvicultural activities. Since Alternative A would not

implement any of the proposed silvicultural activities, it is not expected to have any direct effects on the forest vegetation affected environment.

Implementing Alternative A has the following implications for forest vegetation in the project planning area:

- No silvicultural activities would occur to change species composition, so the ponderosa pine cover type would continue to be under-represented on dry-forest sites, along with the Douglas-fir, western larch, broadleaved trees, and lodgepole pine cover types on moist-forest sites. (*) How was it determined that WL, LP + broadleafed trees are under-represented on moist forest types?
- No silvicultural activities would occur to change forest structural stages, so the stand initiation and young forest multi strata stages would continue to be under-represented on dry-forest sites, along with the young forest multi strata and old forest multi strata stages on moist-forest sites. (*) Yet stand initiation & young forest stages exceeding assumed HRV are due to logging & need to be allowed to grow back into other stages. (*) Old forest is increased by letting it grow, not by logging.
- No silvicultural activities would occur to change tree (stand) density levels, so the low-density condition would continue to be under-represented on dry-forest sites.
- No silvicultural activities would occur to change forest canopy biomass levels and interrupt canopy continuity, so the low canopy-biomass condition would continue to be under-represented on dry-forest sites, along with the low and moderate canopy-biomass conditions on moist-forest sites. (*) Yet moist forest was found to be within HRV for density, so why is it assumed that low to moderate canopy biomass is under-represented?
- No silvicultural activities would occur to change insect and disease susceptibility by modifying host-type conditions on dry-forest sites, so low and high susceptibility to bark beetles in ponderosa pine, low susceptibility to defoliating insects, low and high susceptibility to Douglas-fir beetle, low susceptibility to fir engraver, and low susceptibility to root diseases would continue to be under-represented. (*) Yet there is no evidence presented in the DEIS that insects & root disease are beyond natural endemic levels in the project area.
- No silvicultural activities would occur to change insect and disease susceptibility by modifying host-type conditions on moist-forest sites, so low susceptibility to bark beetles in ponderosa pine, low and moderate susceptibility to defoliating insects, low and high susceptibility to Douglas-fir beetle, high susceptibility to Douglas-fir dwarf mistletoe, and low susceptibility to fir engraver would continue to be under-represented. (*) Higher susceptibility to insects & root disease is probably normal in moister forests - again, there is no evidence that these are above endemic levels.

Cumulative Effects – Alternative A – No Action

(*) Past actions, including timber harvest, tree planting, and noncommercial thinning, helped create existing conditions in the project planning area. Reasonably foreseeable future actions, which includes non-commercial thinning and prescribed fire activities, would reduce tree density and surface fuel loadings, and increase representation of early-seral tree species, on a limited portion of the project planning area

Because Alternative A does not include any silvicultural activities, it is not expected to result in direct or indirect effects on the analysis indicators: species composition, structural stages, and tree density. Since there are no direct or indirect effects of implementing this alternative on the forest vegetation indicators, there are also no cumulative effects associated with alternative A.

(*) So there's nothing wrong with allowing natural disturbance processes to thin and diversify the forest. Logging & other management is not needed for this. Avoid fire suppression & prevention efforts in the back country, such as the South George area.

Species composition, forest structure, and tree density are expected to change in the future under a No Action scenario, but the changes would be unpredictable and derived from natural disturbance and succession processes, not from implementing any of the proposed activities (actions). Since change would relate primarily to the timing, magnitude, duration, and intensity of future disturbance, along with limited change caused by present (ongoing) and reasonably foreseeable future actions, and because consideration of unpredictable change is speculative and beyond the scope of this analysis, no attempt was made to estimate the future effects of disturbance.

(*) This is directly contradicted by the underlined section of the last par. of DEIS p. 3-54.

Natural disturbance processes would change species composition, forest structure, and tree density - largely by thinning. Table 3-22 on DEIS p. 3-51 admits that moist forest is not "overly dense" by specifying that it is not over HRV for density.

If none of the proposed activities would be implemented to move existing conditions closer to desired conditions, then forest vegetation within the project planning area would remain overly dense and continue to be dominated by mid- and late-seral stages of species composition. Old forest (late-old) structure on moist-forest sites would continue to be deficient because proposed activities would not be used to increase tree growth and thereby promote large-diameter trees (trees whose diameter is 21 inches or greater), or to reduce stand density sufficiently for establishment of a new cohort (stratum) of understory trees.

(*) This discussion lacks professional integrity.

For the No Action alternative, South George project would not be authorizing any actions; therefore it would not be adding anything to the effects of past, present, and reasonably foreseeable future actions. Based on the definition provided in the CEQ regulations (p. 3-1), there would be no cumulative effects for the No Action Alternative. (*) In the absence of excess density (eg. in moist forest) there is no reason to log to promote larger diameter trees or to reduce density.

Direct and Indirect Effects Common to Alternatives B and C

Direct effects are assumed to occur only on the portion of the forest vegetation affected environment included in Alternatives B and C (approximately 3,900 acres). Alternatives B and C are discussed together because the silvicultural activities proposed for implementation are the same for both alternatives. Three indicators are used to present pretreatment and post-treatment trends for vegetation conditions: species composition, forest structural stages, and tree density classes. Direct effects on species composition, forest structural stages, and tree density are a consequence of implementing timber harvest silvicultural activities for Alternatives B and C: commercial (low) thinning (80 acres), "improvement" cutting (3,020 acres), seed-tree cutting with reserves (550 acres), and clearcutting with reserves (250 acres). (*) So heavy logging is the predominant logging proposed, not removing small trees most likely to have grown in since the last logging & most likely to affect flammability (increase fire risk) & tree competition (re: insects.)

Indirect effects consider the impact of implementing Alternatives B and C on the larger forest vegetation affected environment in which they occur. The direct effects of implementing Alternatives B and C on their portion of the affected environment (approximately 3,900 acres) are applied to the entire affected environment (approximately 14,060 acres) to estimate the indirect effects.

Maps located in Appendix A show the geographical location and spatial juxtaposition of silvicultural activities in Alternatives B and C.

Direct Effects for Species Composition - Alternatives B and C

Species composition, as represented using forest cover types, is expected to change in response to implementation of silvicultural activities proposed for Alternatives B and C. Most of the forest cover types that would be affected by implementation of silvicultural activities included in Alternatives B and C are late-seral (grand fir and spruce-fir), and they are decreased as a direct effect of implementation; early or mid-seral cover types (ponderosa pine, Douglas-fir, and western larch) are either enhanced or get established by these alternatives, so they are increased as a direct consequence of implementation.

(*) i.e. most logging is in moist forest where density was found not to exceed the historical range of variability and thus which is unlikely to be more prone to fire or insects or root disease than it would naturally be. Where is the evidence that the moist forest are in South George used to have more Ponderosa pine, Douglas fir, and Western larch prior to logging historically? No such evidence is presented in the DEIS. Not coincidentally, Ponderosa pine, Douglas fir, and Western larch are preferred timber industry tree species.

(*) Re: Table 3-26, note that Grandfir in the dry forest type is within HRV and spruce-fir is not analyzed, yet both are targetted for reduction. Also Ponderosa pine ~~& Douglasfir~~ is ~~are~~ considered under HRV for dry forest, yet ~~both are~~ is targetted for reduction by logging, including logging trees ≥ 21" dbh. Lodgepole pine is considered under HRV for moist forest yet is targetted for reduction

Table 3-26 HRV Analysis Of Species Composition For The Entire Forest Vegetation Affected Environment, Reflecting Direct Effects Of Implementing Alternatives B and C

Cover Type	DRY UPLAND FOREST PVG				MOIST UPLAND FOREST PVG			
	Historical Range		Current Amount		Historical Range		Current Amount	
	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres
Herb-shrub	0-5	0-150	0	0	0-5	0-550	2	210
Shrub	0-5	0-150	0	0	0-5	0-550	0	0
Western juniper	0-5	0-150	0	0	—		—	
Ponderosa pine	50-90	1480-2660	37	1,090	5-15	550-1640	8	860
Douglas-fir	5-20	150-590	55	1,630	15-30	1640-3280	10	1,140
Western larch	0-10	0-300	0	0	10-30	1090-3280	16	1,750
Broadleaved trees	0-5	0-150	0	0	1-10	110-1090	0	0
Lodgepole pine	0-5	0-150	0	0	10-25	1090-2730	2	200
Western white pine	—		—		0-5	0-550	0	0
Grand fir	1-10	30-300	8	230	15-30	1640-3280	43	4,680
Spruce-fir	—		—		1-15	110-1640	19	2,090

Sources/Notes: Current amounts are summarized from the South George vegetation database (forested, suitable, NFS lands on the entire forest vegetation affected environment – approximately 14,060 acres, except for 180 acres of cold upland forest not included in this analysis), and reflecting the direct effects of implementing Alternatives B and C (affecting approximately 3,900 acres of the affected environment). Gray shading indicates cover types that are either above or below the historical range of variability. Historical ranges were adapted by the author of this specialist report from Morgan and Parsons (2001); they are based on multiple 1200-year simulations representing landscapes in a "dynamic equilibrium" with their disturbance regimes.

(*) Please send us a print copy of the specialist report by Morgan and Parsons (2001).

Having an ecologically appropriate representation of forest cover types well distributed throughout the South George project planning area, each of which exists within its historical range of variability, is a desired future condition for forest vegetation. The information presented in Table 3-26 suggests that the silvicultural activities proposed for implementation in Alternatives B and C were marginally successful at changing the pre-implementation HRV results regarding species composition:

Simulations can not replace hard historical evidence for determining HRV.

- Before implementation, the Dry UF PVG had 3 cover types that were outside of HRV and the Moist UF PVG had 6 cover types that were outside of HRV (Table 3-18).
- After implementation, the Dry UF PVG has 2 cover types that are outside of HRV and the Moist UF PVG has 5 cover types that are outside of HRV (Table 3-26).

(*) How can this be assumed? Implementation has not yet occured or been evaluated!

(*) Such results are unlikely to last in the moist forest as it will likely come back as GF + LP.

For Moist UF PVG, comparing Tables 3-18 and 3-26 shows that implementing Alternatives B and C would result in western larch reaching the historical range (larch was below the range and needed to be increased to get within the range), and these alternatives make some progress toward reducing grand fir and spruce-fir representation toward their historical ranges (grand fir was substantially above the range before treatment, and still is after treatment). Douglas-fir representation increased slightly after treatment (from 7 percent to 10 percent), but the increase was not sufficient to get Douglas-fir within its historical range. Models are not reality on the ground.

(*) This directly contradicts Table 3-26 HRV findings re: Western Larch in Moist forest.

For Dry UF PVG, comparing Tables 3-18 and 3-26 shows that alternative implementation would increase the representation of ponderosa pine slightly (from 32 percent to 37 percent), but it is still below the historical range. Proposed dry-site activities also increased the representation of Douglas-fir (from 46 percent to 55 percent), pushing it even further above the historical range. Proposed activities reduced the abundance of grand fir substantially (from 22 percent to 8 percent), which means that grand fir would transition from being above the historical range (Table 3-18) to within the historical range (Table 3-26) after project implementation.