

# WILDERNESS EVALUATION

## Bethel Ridge - 617038

**9,437 acres**

### **OVERVIEW**

#### **History**

This area was inventoried as a roadless area in the Roadless Area Review and Evaluation (RARE II) EIS. The area was given an identification number of 6037. The following inventory completed in 1988 for the Wenatchee Forest Plan determined it did not meet the criteria for a roadless area, and was not carried forward in the inventory. For this more recent inventory in 2006, the original area plus additional acreage was determined be a potential wilderness area (PWA) in accordance with the criteria described in Forest Service Handbook (FSH) 1909.12, Chapter 70.

The following table shows the management area direction from the 1990 Wenatchee National Forest Land and Resource Management Plan for the 2006 potential wilderness area.

**Table 1--Management area percentages (rounded)**

Wenatchee National Forest			
EW1	GF	ST1	ST2
14%	42%	10%	33%

#### **Location and Access**

This potential wilderness area lies north of Highway 12 and east of the William O. Douglas Wilderness. The southern portion is adjacent to Highway 12 for about 3 miles. Primary access is from Highway 12 and Forest Road 1500.

#### **Geography and Topography**

Elevation ranges from about 2,400 feet near Highway 12 to 6,090 feet on Bethel Ridge. Steep and rugged terrain dominates the southern portion of the PWA. These steep slopes rise up to Bethel Ridge, which generally runs from the southwest to the northeast. Gently sloping high alpine meadow areas are found along the ridge.

#### **Current Uses**

Current use is for dispersed recreation. There are established four-wheel trail routes along Bethel Ridge and in the Little Rattlesnake drainage along with connections to additional four-wheel trail miles to the east of the potential wilderness area. Big game hunting is a popular activity during the fall. Some firewood cutting also occurs in this area.

## **Appearance and Surroundings**

The area has a moderate visual variety of landforms and vegetation. The dominant feature is the basalt tableland that defines southern half of the area. Considerable amounts of rock mixed with stringers of vegetation are found in the sub-drainages. Vegetation includes mixed conifers and sagebrush in the high alpine meadows.

The area is primarily viewed as foreground and middle ground from both the trail system and adjacent highway and National Forest System roads.

## **Key Attractions**

The main features include Bethel Ridge which affords many outstanding viewing opportunities from points along the trail system. The steep and rugged rocky landforms in the southern portion of the PWA provide a natural-appearing scenic view from Highway 12.

## **CAPABILITY FOR WILDERNESS**

### **Level of Natural and Undeveloped Environment**

The area has retained much of its natural appearance although the radio tower along the ridge is highly visible from both inside and outside the potential wilderness area. Much of the PWA is relatively close to roads and ongoing management activities.

The Bethel Ridge PWA is impaired by light pollution from the Yakima and Naches area. The entire PWA rates a Class 3 on the Bortle Scale. A Class 3 Rural Sky has some indication of light pollution on the horizon. Clouds may appear faintly illuminated in the brightest parts of the sky near the horizon, but are dark overhead. The Milky Way still appears complex. Light domes from population centers may appear on the horizon (10-15 degrees above horizon). Visual observing is still relatively unimpaired. Time lapse photography could be impaired by light pollution.

Water quality data is not available for most of the PWA; however, due to the relatively low level of disturbance water quality is assumed to be high. Localized disturbance may be present due to grazing activities.

Two noxious weed species are known to exist in the PWA; Canada thistle and oxeye daisy.

### **Level of Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation**

While the area can provide opportunities for challenging cross-country travel, it would be very difficult to get out of the range of noises from roads and other management activities. This would be especially true in the southern portion of the PWA adjacent to Highway 12. While Bethel Ridge provides outstanding views of the surrounding area, the view also includes considerable evidence of nearby management activities including timber harvest.

The area has limited opportunity to provide a sense of solitude due to the proximity to nearby roads and highly visible evidence of management activities and developments.

**Special Features**

This area provides source habitat for wolverine and is the peripheral recovery area for Canada lynx as well as nesting habitat for peregrine falcons.

**Manageability of Boundaries**

Much of the potential wilderness area boundary is defined by adjacent roads (including Highway 12) and timber harvest units which would be relatively easy to locate on the ground. The narrow connection (less than ½ mile wide) between the southern lobe and main body of the potential wilderness area would complicate management as a single unit.

**AVAILABILITY FOR WILDERNESS**

**Recreation**

There is well-established use on 4x4 motorized trails within the Bethel Ridge PWA. Wilderness designation would preclude motorized use and would affect a larger area due to connections to additional trail miles outside the PWA, some of which connect to State Department of Fish and Wildlife lands where motorized use is allowed seasonally. Use of this area is low compared to other motorized trail systems on the district.

Tourism marketing in the Yakima and Naches vicinity emphasizes agro-tourism and visiting wineries. The Naches Valley Chamber of Commerce website portrays this area as a place that offers scenic drives on Highways 410 and 12, snow skiing, river rafting, hiking, hunting, snowmobiling, and bird-watching. Links are provided to Forest Service web-based information. The Bethel Ridge PWA is not directly promoted.

Use of the Bethel Ridge PWA is not strongly tied to non-local visitors. Other motorized trail systems on the Naches Ranger District attract more tourism-based use. If designated as wilderness the PWA is likely to receive some media promotion, and a resulting increase of hiking use is predicted; however, it is not likely to attract non-local use due to the lack of water and key destinations.

If this area were to be designated wilderness, the main recreation contribution would be preserving a Columbia basalt flow setting and a white oak forest in wilderness. This benefit may outweigh the need to preserve existing opportunities for motorized use, especially since such use levels are low. However, management of the area to exclude motorized use could be challenging due to the use patterns on adjacent state lands.

**Table 2--Miles of recreation trails**

Motorized Trails	Non-motorized Trails	Snowmobile Trails
8	0	0

**Wildlife**

This area is inhabited by many forest birds and animals such as black bear, cougar, summering deer and elk, and blue and spruce grouse. This area also provides potential habitat for gray wolf. The area along the top of Bethel Ridge also provides potential lynx

habitat. The cliffs that border the Tieton Basin provides nesting habitat for peregrine falcons.

The Tieton bighorn sheep herd inhabits the area along the breaks of the Tieton. A small population of mountain goats inhabits the cliffs above the Tieton Basin. A portion of this area is in the Bethel lynx analyses unit (LAU).

A few northern spotted owl nest sites are located in this area although the habitat has been degraded due to spruce budworm outbreaks. There are no other known classified threatened or endangered species documented in this area.

The PWAs provide varying levels of habitat for focal wildlife species. To help evaluate the habitat these areas provide, the following information was provided: the focal species emphasized in the area, the amount of habitat for each focal species, the priority ranking for the habitat (based on conservation assessments and recovery plans), and the proportion of the total habitat available on the Forest that is within the PWA.

**Table 3--Availability of habitat for federally listed Threatened and Endangered wildlife species and R6 Focal Species**

Wildlife Species	Acres Habitat	Habitat Priority Ranking (1=high, 2=mod, 3=low)	Percent Total Forest Habitat In Evaluation Area
Canada lynx	423	3	1
Wolverine	4,502	2	Less than 1
American Marten	1,390	1	Less than 1
Bighorn sheep	1,006	1	1

A key issue relative to the sustainability of wildlife habitats is the identification of the amount of dry forest that is in a late-successional habitat area (LSHA). LSHAs that occur in dry forests can be at high risk of high severity wildfire, insects and disease that reduce the sustainability of the late-successional habitats. Active management such as prescribed fire and thinning may be needed to restore these habitats and enhance their sustainability.

**Table 4--Acres of dry forest habitats that are present within the evaluation area and also within a Late Successional Habitat Area**

Late Successional Habitat Area	Acres of Dry Forest
Tieton	Approx. 5,500

### Water and Fish

This PWA contains approximately 9,440 acres almost evenly divided between two sub-watersheds; Little Rattlesnake and Lower Tieton (6<sup>th</sup> HUCs). The Little Rattlesnake sub-watershed covers 16,385 acres, with 67 percent of that acreage managed by the U.S. Forest Service. The 5,023 acres of the PWA in the Little Rattlesnake equals 31 percent of the subwatershed. Stream reach conditions in the Little Rattlesnake Creek subwatershed that respond to natural and human caused disturbances were evaluated as good because collected stream data values were similar to expected values measured in high functioning stream habitat elsewhere on the Okanogan-Wenatchee National Forest. When compared

against unmanaged subwatersheds in good condition on the Okanogan-Wenatchee National Forest, vegetation condition is altered from expected condition and road management effects have occurred in the Little Rattlesnake Subwatershed. Considering changes in vegetation and road density in combination, all of these subwatersheds were rated fair. When vegetation condition and road effects were combined with measured stream responses to summarize overall subwatershed condition, this subwatershed was rated fair.

Little Rattlesnake Creek has excellent water quality and meets state and Okanogan-Wenatchee National Forest temperature standards. Fish species occupying Little Rattlesnake Creek and headwater tributaries within the include westslope cutthroat trout and sculpin. Westslope cutthroat are considered a classified Sensitive species in Region 6 of the Forest Service. Little Rattlesnake Creek is occupied by steelhead downstream of the evaluation area.

The other 4,412 acres in this PWA cover 6 percent of the 70,412-acre Lower Tieton subwatershed (6<sup>th</sup> HUCs). About 65 percent of the Lower Tieton is managed by the U.S. Forest Service. Stream reach conditions in the Lower Tieton subwatershed that respond to natural and human caused disturbances were evaluated as fair because collected stream data values were lower than expected values measured in high functioning stream habitat elsewhere on the Okanogan-Wenatchee National Forest. Subwatershed vegetation conditions were altered from expected natural forest conditions; analyzed road effects were substantial. Vegetation condition and road effects considered cumulatively were rated *poor*. When vegetation condition and road effects were combined with measured stream responses to summarize overall subwatershed condition, the Lower Tieton was rated *fair*.

The Bethel Ridge PWA has a water source protection area totaling 2,745 acres that contributes to a community water system for the City of Yakima Water Division.

**Range**

There are two domestic allotments within the Bethel Ridge PWA; the Rattlesnake Allotment (sheep) and the Soup Creek Allotment (cattle).

**Table 5--Grazing suitability and current allotments**

Percent Area Suitable for Cattle Grazing	Percent Area Currently in Cattle Allotments	Percent Area Suitable for Sheep Grazing	Percent Area Currently in Sheep Allotments
3	8	7	2

**Vegetation and Ecology**

The lower elevations of the PWA are characterized by ponderosa pine, Douglas-fir, grand fir and western larch. Upper elevations support subalpine fir, mountain hemlock, lodgepole pine, and Engelmann spruce. Forested stands are in mid-to-late successional stages. There are also scattered wet meadows, big sagebrush shrublands, and subalpine meadow systems. Plant communities associated with cliffs and talus are also present.

With wilderness designation options to utilize mechanical treatments to manage vegetation would be precluded. Generally, the priority for restoration treatments occurs within the wildland urban interface (WUI) or within the dry and mesic forest groups. Because WUI represents over one-half of the potential wilderness area, precluding restorative treatments is a concern. The concern is increased by recognizing that dry and mesic forest occupies over two-thirds of the area.

**Timber Harvest Suitability**

The underlying criteria for determining timber harvest suitability are found in the Forest and Rangeland Renewable Resources Planning Act of 1974, 36CFR219.12, and Forest Service Handbook 1909.12, Chapter 60.

For the Colville and Okanogan-Wenatchee National Forests, the general criteria for timber suitability that will be used for timber harvest suitability are:

- Is it forest land (10 percent crown cover minimum, productivity >20 ft<sup>3</sup>/ac/yr).
- The area has not been withdrawn from timber harvest or production.
- Soil, slope, or other watershed conditions will not be irreversibly damaged (based on soil attributes for erosion, instability, or compaction potential, slopes >65 percent, and certain land types)
- Reforestation can be assured within five years (lack of shallow soils, low frost heave potential, low surface rock, plant community type, certain land types, and elevation <5,500 feet)
- Economic and technologic viability (<0.5 miles from existing transportation system, species value or condition, volume availability, logging systems)

In consideration of all the criteria for determining timber harvest or timber production suitability and not just the fact that harvestable species can grow at a specific location, it appears this PWA does not have conditions that pass all the criteria. The main criterion for failure is that unacceptable resource impacts would likely occur due to road construction activities. This does not preclude helicopter operations that could fly material over sensitive areas to adjacent road systems. However, in most if not all cases helicopter logging and the associated expenses (such as manual slash treatments) would not be an economically viable option.

**Table 6--Stand data percentages**

Suitable for Timber Harvest	Forest Groups		WUI	
	0%	Parkland	0%	Total WUI
Cold Dry		1%	WUI in Dry and Mesic Forest	62%
Cold Moist		22%		
Mesic		10%		
Dry		59%		
Non-forest		8%		

### ***Fire***

Annual fire occurrence is high with most fires started by humans. Twenty-five years of fire suppression history shows 19 lightning and 62 human-caused fires occurring in and around the area. All fires have been suppressed at five acres or less. This area is best portrayed as Fire Regimes 3 (35-100+ year fire return interval with mixed severity) and 4 (35-100+ year fire return interval with stand replacement severity). Within these fire regimes, the majority is in Condition Class 3. In this condition, the vegetation composition structure and fuels have a high departure from the natural and predispose the system to high risk of loss to fire of key ecosystem components.

### ***Insects and Disease***

The Wilderness Act of 1964 allows for the control of insects and disease, but taking such actions in wilderness is rare. Forest Service wilderness policy (Forest Service Manual 2324.11) directs the agency “to allow indigenous insect and plant diseases to play, as nearly as possible their natural ecological role”. Policy also directs the agency to “protect the scientific value of observing the effect of insects and disease on ecosystems and identifying genetically resistant plant species”, and finally, “to control insect and plant disease epidemics that threaten adjacent lands or resources.”

An aerial survey of this PWA was completed in the vicinity of this PWA in 2007. Heavy western spruce budworm defoliation has occurred since 2000 with top kill and mortality present. In addition the area has pockets of spruce beetle, fir engraver and mountain pine beetle mortality, high levels of root disease and dwarf mistletoes, and heavy fuel loadings. The Wenatchee Service Center has analyzed data produced by the 2007 aerial survey in order to provide land managers with a summary of forest insect activity in particular areas. Aerial survey information can give a valuable overview of recent tree damage and damaging agents at the time of the flight. Note that trees identified as killed by bark beetles generally were attacked in the summer of 2006 or spring of 2007. It takes several months for the crown of a beetle-killed tree to lose its green color. The speed of the color change depends on the condition of the tree at the time of attack.

The most extensive damaging reported was defoliation by western spruce budworm. About 2,300 acres was mapped, which was considerably less than reported in 2006.

Numerous pockets of mountain pine beetle damage to lodgepole pines were mapped, totaling about 800 acres. One 17-acre pocket of beetle-killed whitebark pine was mapped in Cash Prairie.

Damage by fir engravers was reported in a few places, totaling 660 acres.

One small (8 acres) pocket of balsam woolly adelgid was mapped north of Cash Creek.

### ***Threatened, Endangered, and Sensitive Plant Species***

There are no known records of sensitive plant species at this location.

### ***Noxious Weeds***

Two noxious weed species are known to exist in the PWA; Canada thistle and oxeye daisy.

## Minerals and Soils

The surface geology is made up mostly of basalt of the middle Miocene Columbia River Basalt (CRB) Group. CRB in this area is underlain by the late Oligocene to early Miocene andesitic tuff, tuff breccia, and lahar and lava flows, and basaltic rocks. These slightly older Fifes Peak Formation rocks are more easily weathered and eroded than the basalt of the CRB Group. To the north and south of Bethel Ridge are steep slopes with abundant basalt talus, underlain by weathered basalt-derived clay deposits which are mapped as landslide deposits. Both the CRB and Fifes Peak Formation in the area are expected to be underlain at depth by Eocene sedimentary rocks.

Due to the anticipated Eocene sedimentary deposits below the Fifes Peak volcanic rocks, the area has a moderate to high potential for the occurrence of natural gas and a moderate potential for the occurrence of oil. The area is considered to have a low potential for the occurrence of moderate to high temperature geothermal resources which might be valuable for the generation of electricity. The area has a low potential for hard rock mineral resources.

There are no active or pending oil, gas, or geothermal leases in the area and the energy industry has not indicated a recent interest in the area, although both the Bureau of Land Management (BLM) and state of Washington are actively leasing lands a short distance to the east for oil and gas. According to the BLM mining claim database (<http://www.blm.gov/lr2000/>) there have been no mining claims located in the area since prior to 1977, which is as far back as BLM records go.

## Cultural and Heritage Resources

Bethel Ridge was used by ancestors of the Yakama Indians as a travelway between village sites in the Naches valley and upland hunting and gathering grounds. In the more recent past the area has been used for grazing, hunting and recreational pursuits. Only portions of the area have been surveyed for archaeological resources. Properties documented in and adjacent to area include several lithic scatters, numerous lithic isolates, a talus pit, historic cabin remains and remnants of a telecommunication line. Some of these properties have been formally determined ineligible for listing on the National Register while others remain formally unevaluated. Future surveys and evaluations will undoubtedly augment our current understanding of prehistoric and historic use patterns in the area, and formally identify properties of National Register significance.

Wilderness designation would not preclude archaeological or ethnographic studies of the area to determine its historic significance. Archaeological properties susceptible to damage from mechanized equipment would no longer be at risk to such activities with a wilderness designation.

## Land Uses and Special Uses

Range allotments are managed under term grazing permit.

The Bethel Ridge Potential Wilderness Area falls entirely within lands ceded to the U.S. Government under the Yakama Treaty. Indian tribes hold rights reserved under treaty and recognized in statutes, executive orders and policies. Generally, these include rights to fish at usual and accustomed grounds and stations, the right to hunt and gather on open and

unclaimed lands, the right to erect temporary houses to cure fish, and the right to pasture horses and cattle on open and unclaimed lands.

### **Private Lands**

There are no private lands within the Bethel Ridge PWA.

## ***NEED FOR WILDERNESS***

### **Location and size of other wildernesses in the general vicinity, and distance from proposed area and population centers:**

The Bethel Ridge PWA is approximately one mile east of the William O. Douglas Wilderness (168,232 acres) and approximately 12 miles north east of the Goat Rocks Wilderness (107,018 acres). The area is two hours driving time from the Puget Sound Basin (Seattle, Tacoma, Olympia) and less than one hour driving time from Yakima.

In ranking this PWA for its potential to provide a high quality wilderness recreation setting it ranked as high due to providing an altogether new setting (the basalt flows of the Columbian Basin Ecoregion) to the National Wilderness Preservation System. Existing 4x4 trails would provide a spectacular setting for primitive recreation. Views include the columnar basalt cliffs, dry meadows, and the Rimrock Lake area including Kloochman Rock and Goose Egg Mountain. In addition, this PWA offers the only Oregon white oak in the PWAs in our planning area—this being an underrepresented vegetation type in wilderness. The area is reasonably accessible off of Highway 410. Due to a lack of available water, the area would not lend itself to overnight use.

### **Present visitor pressure on other wildernesses, and trends and changing patterns of use:**

Overall use in the nearby wildernesses is generally moderate with some notable high use areas in the White Pass and Chinook Pass areas. The majority of use is by hikers/backpackers with significant amounts of stock use in the Goat Rocks and William O. Douglas Wildernesses. Slight to moderate increases in use are predicted for the near future with most of the increase coming as day use versus overnight use. Day-use is particularly high in the White Pass and Chinook Pass areas. The Pacific Crest National Scenic Trail can be accessed at either pass.

### **Extent to which non-wilderness lands provide opportunities for unconfined outdoor recreation experiences:**

The established 4x4 trail system provides motorized recreation opportunities. The area is also popular with hunters.

The Okanogan-Wenatchee National Forest provides varied potential wilderness areas that are not designated wilderness. Some portions of these areas allow motorized use, whereas other areas are non-motorized. Other inventoried potential wilderness areas that provide unconfined outdoor recreation opportunities include Blue Slide, Goat Rocks Adjacent, William O. Douglas Adjacent, Norse Peak Adjacent, and Manastash.

**The need to provide a sanctuary for those biotic species that have demonstrated an inability to survive in less than primitive surroundings, or the need for a protected area for other unique scientific value or phenomena:**

***Wildlife***

This area provides habitat for a number of species that require primitive surroundings, including westslope cutthroat trout, bull trout, anadromous fish species, peregrine falcon, mountain goat, bighorn sheep, American marten, gray wolves, and wolverines. Preservation of the area as wilderness would contribute to providing sanctuary for these species. Active management such as prescribed fire and thinning may be needed to restore the sustainability of northern spotted owl habitat in dry forest, and thus would not be compatible with wilderness designation in these locations.

***Fish***

Several native species in the interior Columbia River Basin have demonstrated an inability to survive in less than primitive surroundings, especially the bull trout. In addition to habitat changes on National Forest System lands, other factors off forest such as hydropower generation, hatchery programs, harvest, and changing ocean conditions further challenge the persistence of some far-ranging native species. Broad-scale assessments have demonstrated a positive correlation between unroaded areas and persisting native fish stocks. Often, assessments like these don't differentiate between wilderness and roadless areas; rather they combine the two into an "unroaded" category. These assessments show current strongholds (most secure and robust populations) are dependant on wilderness and roadless areas. Some of the more resilient native fish populations in the Interior Columbia Basin are located in unroaded areas on National Forest System lands.

For the Okanogan-Wenatchee National Forest PWAs were assigned an aquatic ranking based on federally listed and sensitive fish species that are sensitive to human disturbances. A high ranking was assigned when listed fish species occur in the PWA or when ecological process including high quality water help sustain listed fish species downstream of the PWA. All other PWAs are ranked low. This PWA is assigned a low ranking based on these factors.

***Rare Plant Species***

An analysis was completed to prioritize which PWAs would contribute the most to providing refugia for those plant species on the species of interest/species of concern (SOI/SOC) list. The analysis ranked three factors. The first factor, the total number of sites occurring within the PWA, ranked as low for this PWA. The second factor, which also ranked as low for this PWA, examined the degree of rarity of any SOI/SOC species present, and also recognized the importance of individual PWAs in supporting a high incidence of populations relative to Washington state as a whole.

PWAs are generally unsurveyed for rare plants due to a relative lack of projects occurring in these areas. Thus an additional factor examined the potential for the PWA to support SOI/SOC species. Based on databases, first the SOI/SOC plant species were identified that

are present within a five-mile radius of the PWA, but are not known to occur within the PWA. Then the PWA was analyzed to see if the potential habitat for these species occurs within the PWA. Based on this analysis, this PWA ranks as low.

Finally, a composite score was assigned to each PWA based on combining each of the rankings described above. This PWA ranks overall as low priority for preserving rare plant refugia with a wilderness designation.

### **Ability to provide for preservation of identifiable landform types and ecosystems:**

Most of the area is categorized as Columbia Basin basalt, which is underrepresented in the wilderness system. Bethel Ridge and Lion Rock are the only two PWAs that represent this landform in the planning area. A portion of the area represents the East Cascades Ecoregion. This ecoregion type is well represented in existing wilderness lands in the Cascade Range.

An analysis compared vegetative cover types that are under-represented in wilderness on the National Forest System in Region 6 with those same cover types present in the PWA. Large-scale cover types were available through existing data layers and represent approximately 47 percent of the vegetative cover of this PWA (approximately 3,460 acres). These types include Oregon white oak, forb lands, alpine meadows, non-alpine meadows, and ponderosa pine. Taken as a whole, the contribution of underrepresented vegetation types ranks as high for the portion of this area with underrepresented cover types, and also as high for the number of acres that are represented within this PWA relative to the other PWAs in the planning area.

Some under-represented cover types fill microhabitats such as riparian areas or perched water tables. Such finer scale cover types represented in this PWA include abundant amounts of cottonwood and aspen.

In particular, the Oregon white oak cover type, which comprises approximately 12 acres in this PWA, is important because this is the only PWA in the planning area with Oregon white oak, and this cover type is not currently represented in wilderness within the planning area. Additional cover types that would make a significant contribution within the eastern Washington planning area include quaking aspen, cottonwood, forb lands, and non-alpine meadows.