Established and Proposed Research Natural Areas in the Clearwater and Nez Perce National Forests

An FOC preliminary report

April 2012

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The Forest Service, Bureau of Land Management, Fish and Wildlife Service and National Park Service permanently protect some of the finest examples of natural ecosystems as Research Natural Areas (RNA), the Forest Service most active in this endeavor.

The purpose of RNAs is to use them in scientific studies and educational activities. They provide for the protection of biological diversity at the species, ecosystem and landscape levels. RNAs also serve as reference areas or controls when baseline monitoring occurs. Natural history studies and educational use by native plant societies and environmental groups continues to occur in the Clearwater and Nez Perce National Forests.

Clearwater National Forest RNAs

Sneakfoot Meadows RNA is 6,000 ft elevation and occupies a flat glaciated basin in the northern Bitterroot Mountains. The RNA features a variety of sedge meadows and sphagnum bogs surrounded by several kinds of subalpine fir forest habitat types together with old growth Englemann spruce. Both elk and moose make heavy use of the meadows and adjacent conifer cover. A low gradient, first and second order stream (E channel) meanders through the forested and wetland complex. Abundant growth of aquatic moss occurs here and herbaceous riparian growth shades the stream occupied by westslope cutthroat trout. Oxbows representing old stream channels provide standing water for aquatic biota.

Cutoff channels (oxbow lakes) form from meandering stream.

Lochsa RNA, located on two sides of the Lochsa River, is 1281 acres in size. It occupies a refugium within which coastal species have survived in isolation since the Pliocene epoch and uplift of the Cascade Mountains. The flowering dogwood and red alder are featured species there. Three permanent high energy streams dissect the steep slopes and the dense canopy and deep pools contribute to the high diversity and biointegrity of macroinvertebrates in Apgar and Glade Creek.The site is adjacent to Apgar and Glade Creek Campgrounds. An FOC workshop occurred here in 2011.

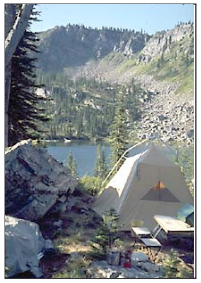
Collecting macroinvertebrates in Apgar Creek - FOC workshop.

Diverse flora lining Apgar Creek includes coastal disjunct species.

Four-Bit Creek RNA contains a small second order meandering stream forming the northeast boundary of the RNA. It has a sand/gravel substrate and is very sinuous. A high diversity of macroinvertebrate species occur here in the gravel/sand substrate compared to only a few species in the sand substrate**.** The channel is shaded by sedges and shrubs which comprise a well develped riparian zone in a stringer meadow (see below). The floodplain includes large areas of tall-forbs with no conifers. Thinleaf alder and red osier dogwood adjoin the streambed in places. The stream's presence in the Clearwater Mountains is representative of the most productive forest land in the Northern Rocky Mountains. Four-Bit Creek runs into Eldorado Creek forming the northern border of the RNA. Eldorado Creek flows into Lolo Creek then into Middle Fork Clearwater River. The creek is on the Lolo trail, an old and historically important Nez Perce pathway across the Bitterroots.

High production of macroinvertebrates in upper narrow section of Four Bit Creek with a gravel and sand substrate.

Steep Lakes RNA located on the ID-MT stateline, part of the Hoodoo Roadless Area, is 784 acres in size. Surrounding forests are dominated by mountain hemlock and subalpine fir with some whitebark pine and Sitka alder present. Golden trout (relatively rare in Idaho) were planted in the lower lake in 1962. A graduate study compared invertebrate communities in the upper fishless lake with the lower stocked lake as to size-selective predation by the trout. Most invertebrates were smaller in the lake stocked with fish.The presence of large size freshwater shrimp there may be due to relatively high alkalinity in the water. This shrimp species has not been reported in other mountain lakes in northern Idaho where alkalinity is much less. Water and plankton samples from Upper Steep Lake were collected following the 1980 eruption of Mt. St. Helens to determine what effect if any the ash had on lake productivity. There was no lasting affect noted.



Graduate student's tent at upper lake

Gammarus shrimp

Bull Run Creek RNA is 373 acres in size. Plant communities together with western redcedar and grand fir forests are located on soils derived from basalt together with loess and volcanic ash. The forest climax type is western redcedar/lady fern indicating a moist, warm site. The area once supported coastal disjunct species, but the Dworshak Reservoir has inundated part of these ranges.

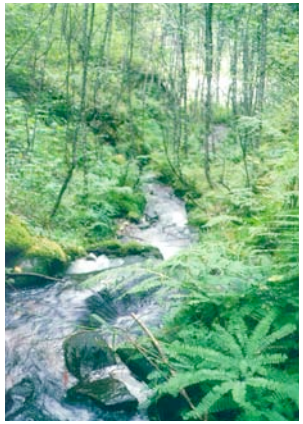
Bull Run Creek, a moderately steep gradient stream has cut through the lava. This stretch consists of a confined channel upstream with little soil present among the boulder and cobble banks. Downstream the creek continues through a shallow valley bottom with gentle slopes on both banks flowing its entire length through a coniferous forest. Pocket pools, small channel bed depressions formed behind boulders, are common in the riffle habitats. A short distance north of the RNA is Bull Creek Falls where the creek cascades over basalt cliffs in several cataracts. A mile east, Elk Creek Falls is more impressive.

Confined channel of upper Bull Run Creek.

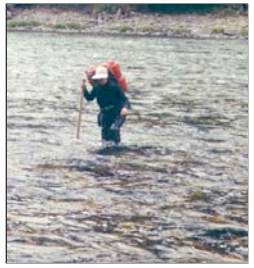
Bull Run Creek Falls.

Aquarius RNA, 3,900 acres in size, supports one of the most unique and best remaining examples of coastal related vegetation in the Northern Rockies. Elevations range from 1,600 to 3,995 ft. It is a nearly complete river canyon environment with properties similar to coastal regions. It contains the largest remaining red alder habitats not innundated by Dworshak reservoir. It has a high diversity of ferns, an abundance of regional endemic and coastal disjunct plant taxa, undescribed species of earthworms, newly described and undescribed species of terrestrial beetles. In addition, the Coeur d'Alene salamander and contrasting macroinvertebrate communities from different streams occur here.

There are six first order and two second order tributaries and a waterfall besides a section of the North Fork Clearwater River in the RNA. In addition, ephemeral seeps, some with steep rock outcrops, support a diversity of herbaceous vegetation. Landslides and slumps characterize the slopes with alluvial and colluvial fans along the river. Often, the steep slopes extend directly to the river edge.



Unidentified stream in Aquarius which supports a high diversity of coastal disjunct species along with undescribed and rare species of terrestrial and aquatic invertebrates.



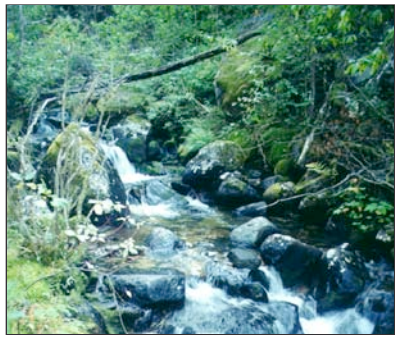
Crossing N. F. Clearwater River to access Aquarius RNA.

Bald Mountain RNA is located on the crest of the divide between the North Fork Clearwater River and Lochsa River. In a densely forested country, Bald Mountain is an open south facing slope grassland bald caused by snowy transfer and drouthy soils. Of special interest are the green fescue and associated beargrass communities. Forests here have resulted from the 1929 fire; in fact most natural stands on the Clearwater National Forest have once been burned. Bedrock geology underneath Bald Mountain is intruded Idaho Batholith.

Over the years, the Lolo Trail, passing through the RNA, was used by Indians, trappers, miners and explorers. As the grassland bald was one of the few openings amongst the dense forests, it was used for camping and feeding livestock. Bald Mountain Lake, below, is not part of the RNA. However the lake has been used as an outdoor laboratory to teach concepts of aquatic ecology.

Dutch Creek RNA contains a first order tributary to the Lochsa River. It is a steeply graded pinnate drainage, actively downcutting. Dutch Creek is primarily a cascade-pool type stream flowing over cobble and huge boulders. Within a distance of 1/2 mile, the channel descends 400 feet.

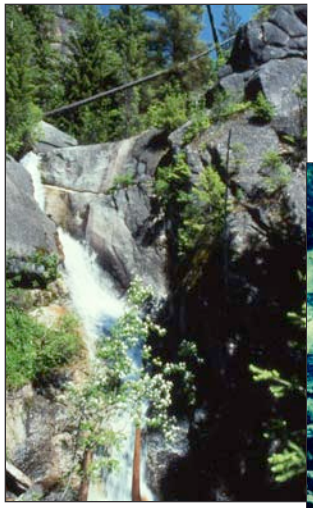
Outside the narrow riparian zone, vegetation is early seral forest and shrubfields. Many large snags remain standing along the stream from early fires and the stream is criss-crossed with downed logs (see below). A number of moss and liverwort taxa are identified in the channel. The major feature of the RNA is old stands of northwest paper birch.



Chateau Falls RNA consists of Chateau Creek, a third order stream, that joins with Cave Creek before its confluence with North Fork Clearwater River in the Pot Mountain Roadless Area. It is a high gradient, cascade-pool type stream in pink granite bedrock. The lower third of Chateau Creek is in the RNA. FOC conducted a workshop here in 2010.

Along Cave Creek at the western boundary the vegetation consists of a narrow stringer of primary deciduous trees and shrubs which includes paper birch and Rocky Mountain maple.Upstream from the confluence with Chateau Creek, Rocky Mountain maple dominates the overstory. The widest areas of the stream bottom are occupied by a tall shrub layer of thin-leaf alder, Rocky Mountain maple, serviceberry and a variety of understory plants. The forest habitat type is western red cedar/queencup bead lily. An open forest overstory of Douglas fir with many large snags are still standing from the 1930 fires.

The main reason for the establishment of this RNA is four spectacular waterfalls some of which measure up to 80 feet in height with water cascading from one step to the other. The upper falls drops about 45 feet over a sheer granite face then cascades through a series of basins in the bedrock. However, the stream volume is not enough to create much spray.



Upper falls.

Middle falls.

Lower falls.

Upper Hemlock Creek Proposed RNA is an enlarged portion of the Snowy Summit USGS Quad covering 1,945 acres. It is a third order stream with a number of first and second order tributaries. A third order tributary (Zoe Creek) enters Hemlock Creek near the northern boundary and is included in the proposed RNA. From Strawberry Springs it is about 2.5 miles downstream to Zoe Creek. Upper Hemlock Creek is a moderate to high gradient, cobble and boulder stream with a strong perennial flow of cold water and a limited input of fine sediment. The substrate takes on a darkened look. This organic stain indicates little movement over time due to the angular rock. Hemlock Creek is a major tributary to Weitas Creek.

In addition to running water, there exists wet meadows, broad upland meadowlands and stringer meadows along the stream. Six tree species and 15 shrub species were observed here. The presence of *Fontinalis neomexicanus*, an aquatic moss, is indicative of soft water. The physical, chemical and biotic conditions of Upper Hemlock Creek indicate a site of high biological integrity. Many sensitive macroinvertebrate species exist here, intolerant of much impact. The stream has been used as a reference site or control to compare macroinvertebrate communities there with those in streams impacted by landslides in the Clearwater National Forest.

Shrubs commonly line Upper Hemlock Creek providing shade and habitat for macroinvertebrates and fish. Stringer meadows are common along the stream together with broad meadow lands on the slopes.

Fortynine Meadows Proposed RNA (391 acres in size) is about 15 miles south of Avery, Idaho close to Breezy Saddle. The proposed site is a long, narrow meadow with a small, cold spring stream flowing through it. Overhanging banks provide some cover for the bull trout population there. Small ponds occur in the meadow but dry up later in the summer. Species of *Fontinalis*, an aquatic moss, provides structure and stability thus ensuring greater invertebrate diversity and biomass. Firethread sedge is dominant in June and cottongrass (see below) the most prevalent sedge in July. Sites like Fortynine Meadows can be used as reference points to observe changes in land and water over long periods of time. Beaver living in Fortynine Meadows have occupied and abandoned this peatland site over a period of about 20 years. An overnight workshop was held here to collect and identify plants and macroinvertebrates. Forest Service botanists made a more extensive collection of flora in the peatland and have recommended Fortynine Meadows as an established or permanent RNA.

Nez Perce RNAs

Fish Lake RNA, a low elevation, shallow waterbody, in the Buffalo Hump area of the Gospel Hump Wilderness, covers 754 acres. Alluvial deposits adjacent to the relatively large flat lake shores have accumulated around Fish Lake due to the gentle topography. Soils are deep and relatively stable supporting dense amounts of sedges, rushes, grasses and forbs.The productive moraine lake is 29 acres in size and contains a long shoreline with extensive wetland growth. It has four inlets and one outlet with high quality spawning gravels present. Rainbow and brook trout exist in the lake. Moose are plentiful foraging the lake bottom.

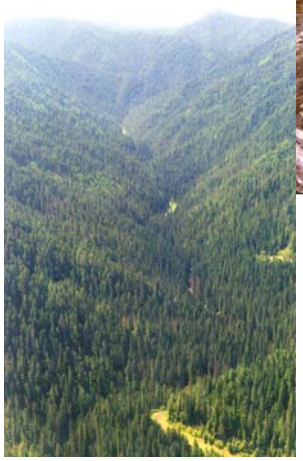
No Business Creek RNA is a tributary of Slate Creek near Slate Creek Ranger Station off Highway 95. The 1,350 acre RNA consists of a steep forested area in the lower Salmon River country with elevations ranging from 2,520 to 7,200 feet. Twelve forest habitat types exist most of which are dominated by grand fir. Some are in the Douglas Fir climax series; others are in the subalpine fir series. Maidenhair fern, western yew and white alder are rarely encountered at this latitude.

The geology is complex and unusual for the region with calcareous and gneissic rocks present. This may have something to do with the high alkalinity of the stream. The tailed frog requires the cold, clear water that exists in No Business Creek. Do not enter this RNA without appropriate maps.

O'Hara Creek RNA is reached from Highway 12 by traveling south along the Selway River. It encompasses most of an entire drainage system that covers 7,000 acres with elevations ranging from 2,100 feet at the northern boundary to 6,815 feet atop Iron Mountain. The RNA is characterized by steep mountain slopes with narrow benches along major stream bottoms. It exists within the border zone of the Idaho Batholith consisting of quartzites, schists and gneisses.

The aquatic system, the primary feature of the RNA, includes first to fifth order streams, cascades and waterfalls, beaver ponds and wetside meadows. Anadromous fish populations are present.

Both lower and upper forest zones are represented by Douglas fir, grand fir, western redcedar and subalpine fir. Coastal disjunct species of plants are present and rare species include *Synthris*, giant horsetail and clubmoss. Six fern species grow on the stream terraces.



Moose Meadow Creek is 9 air miles from the Red River Ranger Station and covers 1,000 acres. Elevations range from 6,400 to 7,425 feet. The head of the basin is relatively gentle with some steep slopes.The stream gradient is moderate and the water clear and cold winding its way through meadows and a rocky channel. Collectively the wet meadows are very diverse varying from sphagnum bogs to grass and sedge wet meadows. They are located along stream courses but some are positioned on side slopes and even ridges.

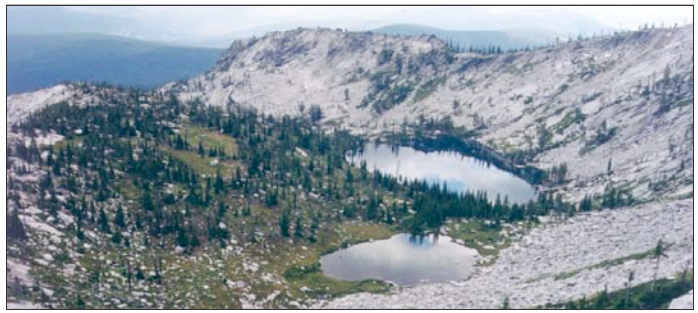
The Pacific giant salamander has been observed in the stream. Forests are dominated by lodgepole pine, subalpine fir and Englemann spruce. However the mountain pine beetle has caused significant lodgepole pine mortality. Bog sites support mountain bog gentian, slender bog orchid and Washington mumulus.

Square Mountain Creek RNA is situated in the center of the Gospel-Hump Wilderness in the South Fork Clearwater River at an elevation of 6,960 feet.. The narrow, deep inlet to the lake contains small size pea gravel as a substrate. The relatively wide shallow outlet has a bottom substrate of coarse particulate organic material in contrast to the inlet's mineral substrate. The outlet is also much warmer than the inlet.The most obvious difference in community structure of the two streams is the greater diversity of stoneflies and caddisflies in the inlet stream. The lake has a maximum depth of 17 feet, an extensive littoral or shallow zone and low alkalinity (ultra-soft water).

The entire area burned in 1919 and partially burned again in 1933. Tree cover is minimal over much of the RNA due to fire and lack of adequate soil development. Whitebark pine-subalpine fir habitat types are found here together with six subalpine fir types. *Douglasia idahoensis*, a category 2 candidate and Forest Servic Sensitive Species, occurs along the southwest boundary.

Warm Springs Creek RNA encompasses a narrow V-shape valley of Warm Springs Creek at its confluence with Running Creek both of which have a moderate gradient. The substrate consists mostly of boulders and cobble. Sharp relief occurs here and is responsible for a diverse number of climax associations. Douglas fir habitat type dominate south facing and west facing slopes with an overstory of Ponderosa pine and understory of shrubs and graminoids. Mesic grand fir and western red cedar habitat types often with a Pacific yew understory occupy north-facing slopes and along the streams.Two hot springs exist along Warm Springs Creek. Both flow from the top of rocky outcrops and cascade down into the creek .

Grave Peak RNA is situated on the northern boundary of the Selway Bitterroot Wilderness in the Clearwater Mountains about 8 air miles from the Powell Ranger Station. The RNA is within the granitic Idaho batholith uplifted and exposed in the late Tertiary epoch, and later multiple glacial erosion. Coniferous vegetation consists of subalpine fir, whitebark pine, subalpine larch and Englemann spruce. A 6 acre lake (see below), exceeds 16 feet in depth. The lake's outlet eventually empties into three ponds a short distance downstream. Another shallow pond above the lake, at 7,440 feet elevation, is surrounded by herbaceous vegetation and shrubs. It is fed by melting snow in the talus rock above. A riffle type stream connects the pond to the lake about 100 feet downstream. It is advisable to spend a couple of days visiting this RNA since access is rather difficult.



Fenn Mountain Proposed RNA is part of the Selway-Bitterroot Wilderness located in the Craig Mountain Range, about 13 air miles from Fenn Ranger Station on the Selway River. The granite rock of Cambrian age has a foliated texture from the parallel alignment of its mica mineral as well as other crystals in the rock.

Florence Lake is a large (30 acres), deep (25 feet) cirque lake at 6,288 feet elevation. Thirteen inlets to the lake come off the surrounding steep slopes. The lake has a low alkalinity content. Both cutthroat and rainbow trout are reported to be of large size. A single outlet stream flows into Hjort Lake, a smaller water body. The Fenn Mountain area is a rugged, rocky environment very difficult to access.

Elk Creek RNA is within the Gospel Hump Wilderness Area in the Red River Ranger District. The 7,055 acre RNA extends from high water line of the Salmon River (2,000 feet elevation) to the upper slopes of Elk Creek at 8,371 feet, a difference of 6,371 feet. The easiest access to the RNA is by jet boat.

Elk Creek RNA represents a large range of habitat types along a steep south facing elevational gradient in the Salmon River Canyon. Xeric forests and grassland types are located at the lowest elevations near the river level. An especially good example is mount-mahogany, bluebunch wheatgrass habitat type. Mid and high regions support ponderosa pine, Douglas fir, grand fir and subalpine forest types. Also, the RNA contains a large population of the rare plant, Idaho Douglasia, a Northern Region sensitive species.

Where Elk Creek RNA occurs on the granitic Idaho Batholith, Little Granitic Creek RNA occurs in Hell's Canyon along the Snake River, primarily on basalts with granitic inclusions. Habitat types are similar in both RNA's but parent materials are different. Here is an opportunity to compare paired watersheds in different physical settings and different substrates.

Little Granite Creek Proposed RNA is located in the Little Granite Creek watershed of the Hell's Canyon Recreational Area. The site begins at the lower reaches of Granite and Little Granite Creeks and proceeds upward to include most of the entire Little Granite Creek drainage. The geologic forces of uplift of the Seven Devils, downcutting by the Snake River and Little Granite Creek and glaciation created the present day landscape.

A number of vegetation zones exist from 2,000 feet along the Snake River in the bottom of Hell's Canyon to 9,000 feet, the highest peaks in the Seven Devils Wilderness Area. On the lower slopes grasslands predominate with bluebunch wheatgrass and Idaho fescue being dominant.The grasslands transition to shrubs and Ponderosa pine and finally coniferous forests. On steep, near vertical rock walls, spiny greenbush and stands of whitebark pine occur on the highest ridges.

Seven Devils Mountain range.

In addition to the high upland diversity, there are numerous species of riparian and aquatic communities in the lakes and streams. At the higher elevations, lake basins are located in a mosaic of subalpine vegetation and rock gardens amongst steep boulder strewn ridges. Overlying basalts cover extensive granite intrusions with glaciation playing a large part in forming the high cirque lakes. It is rare to find an entire watershed in such good condition as Little Granite Creek.

Newsome Creek RNA, 120 acres in size, is located at the head of Newsome Creek, a major drainage, which flows into the South Fork Clearwater River. Elevations range from 4,430 - 5,720 feet, a difference in 1,290 feet. The site was selected as an RNA for its old growth, climax stands of grand fir and its understory of Pacific yew. Small openings of Sitka alder penetrate the dominant grand fir cover type. In addition this RNA attracts moose and provides habitat for pileated woodpeckers and other wildlife species.

Potential Research Natural Areas in the Nez Perce forest

No significant conflict exists with the below areas.

Lightning Creek is 2,000 acres in size. The cells represented are Idaho fescue-bluebunch wheatgrass, Idaho fescue-prairie Junegrass, Idaho fescue-Hood's sedge. It occurs in the vicinity of the Snake River and lies in a current sheep grazing allotment. It contains two mining claims that could become active. No apparent recreation use occurs that could not be accomodated within the RNA.

Bill's Creek is 30 acres in size. Cells represented are Sand dropseed, Red three-awn and hackberry. It is located on a bench 100 feet above the Snake River, a recreation and livestock trail passing through the area. Potential conflicts would arise only if sheep were permitted to "camp" in the area.

Alum Beds is 600 acres in size. Cells represented are Snake River greenbush. It is a low elevation stream with a hydrothermal community. The boundary could be set back from the river shoreline so any conflict with the boating public would be negligible. Placing the lower boundary above the Snake River trail avoids grazing conflicts if the RNA were to be confined specifically to the immediate vicinity of Alum Bed outcrop.

Rhodes Peak, a proposed RNA, occurs in the Selway Bitterroot Wilderness Area. According to Chuck Wellner, it is floristically quite different than either Fenn Mountain or Grave Peak RNAs. No other physical or biological information of the area is available now.

References

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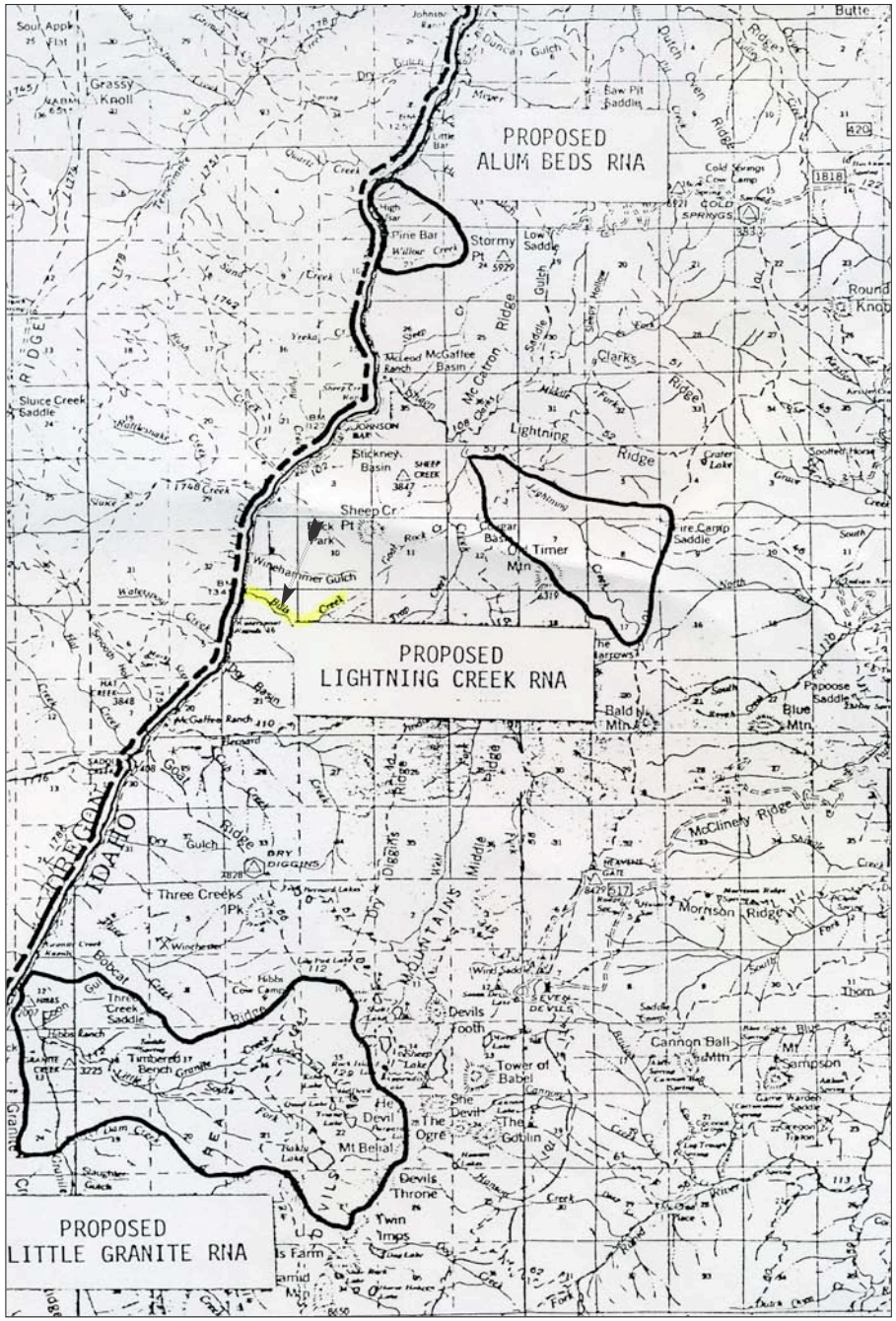

Proposed Nez Perce Forest RNAs.

Lund Creek - Pinchot Marsh RNA/ACEC

A Resource Management Plan and Environmental Impact Statement was issued in 2006 by the BLM asking for comments to preserve lands east of Grandmother Mountain. In 2007, the BLM selected Lund Creek and Pinchot Marsh as an RNA/ACEC. It left out Breezy Saddle, Lookout Mountain, Crater Peak and Long Hike Peak in their selection.

In an ACEC, special management attention is required to protect and prevent irreperable damage to important historic, cultural or scenic values, fish and wildlife resources or other natural systems and processes.

Pinchot Marsh is located south of Orphan Point on Road 301 out of Clarkia, Idaho. The marsh is approximately 40 acres in size at an elevation of 5,440 feet. It consists of small slow-moving streams draining the marsh to form Pinchot Creek which eventually joins Floodwood Creek to the south. Sedges dominate the vegetation with an understory of sphagnum moss. Long tailed salamanders and spotted frogs together with several species of macroinvertebrates are located here..

The upper reach of *Lund Creek* is within the ACEC. The lower reach crosses National Forest lands before merging with the Little North Fork Clearwater River. Spawning and rearing success for bull trout and westslope cutthroat trout occur in Lund Creek. Subalpine peatlands (bogs and marshes) containin a mix of plant species common to western mountain systems together with taxa typical of boreal habitats in the far north. Widow Mountain forms a backdrop to the entire drainage.

Pinchot Marsh.

Atop Widow Mountain looking down into Lund Creek drainage.