



APPENDIX 2
MANAGEMENT UNIT
DATA TABLES

Data Table for Conservation Area 101 Olympic National Forest				
Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
1 Buckhorn Pass to Charlia Lakes Buckhorn Wilderness (4,700)	This area was surveyed for whitebark pine and blister rust in the early 2000s. Blister rust incidence in live stems observed in 5 transects in 2003-2004 ranged from 11% to 39%. Blister rust also observed on PIMO. Several species of <i>Ribes</i> abundant in vicinity; frequent fog events in late summer provide conditions conducive to successful blister rust infection of 5-needle pines. Whitebark pine is patchy and strung out along ridges, with krummholz forms near ridge tops. Very little PIAL east of the dominant N-S ridgeline, although some in flat area surrounding meadow/ snowbowl east of Marmot Pass. The two largest concentrations are immediately NW of Marmot Pass (PIAL dominant, with ABLA tree islands), and north of Boulder Shelter area (mixed stand with ABLA, PICO, PIMO, PSME). The area north of Buckhorn Pass has not been surveyed, but PIAL is definitely present there. There are very few living large-diameter PIAL in unit. Some PIAL regeneration throughout area, although nutcracker population seems consistently very low; no more than 5 individual birds observed in any year from 2002-2007, although 2007 had an abundant cone crop. Trees as small as 4" to 6" DBH have been observed to bear cones. There is a relatively large cohort of trees this size, so future cone crop potential may be good. Analysis of cores from nine 4-6" DBH trees in the Olympics (Forest and Park) showed ages ranging from 27 to 98 years. Cones have been collected from 16 trees in this unit.	Trail access only. Minimum hike ~6 miles to whitebark pine habitat (trails = Upper Dungeness, Tubal Cain, Upper Big Quilcene).	No recent documented fires and no on-the-ground evidence of recent fires detected.	No recent MPB activity detected in aerial or on-the-ground surveys. Three pine hosts are present within this unit: PIAL, PIMO, and PICO. Old snags show evidence of past MPB activity.
2 Goat Lake Buckhorn Wilderness (2,100)	This area has not been surveyed for PIAL. Anecdotal reports and photos indicate the species is present in this unit. PIAL is present in adjacent Royal Basin to the west (Olympic National Park).	Trail access only – steep way-trail from Camp Handy (Upper Dungeness trail), or up and over ridge from Royal Basin trail.	No recent documented fires.	No recent MPB activity detected in aerial surveys.

Prepared by: R. Shoal

Data Table for Conservation Area 202 Okanogan-Wenatchee National Forest

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
1 Tatie Peak (12,900)	Restore PIAL basin to south of peak if post fire regeneration not adequate. Prior to the 03 Needles fire this was a beautiful mature stand of mixed PIAL. Collection potential in unburned portion and future restoration planting likely needed. MPB just starting to show up in S ½ in suitable habitat. The 03 fire will provide good fuel break for future ignitions, however, MPB are very active throughout the area and the extensive past MPB has left heavy fuel loads in the north leaving the habitat at high risk of loss.	Good day access on Pacific Crest Trail and trail 479 from Hart's Pass road and Chancler road to creek crossing where bridge is out. 4-wheel access to Barron mine and northern portions of the Unit.	2003 Needles fire burned some nice mature PIAL habitat. Unknown if any PIAL survived. 1970 Hungry Creek burn.	Very little recent activity. Between 1994 and 2003 extensive outbreak in PICO north ½. Possible loss of PIAL after 03 fire.
2 Golden Horn North Cascades Scenic Corridor (15,600)	Evidence of scattered PIAL. Status unknown. 03 Needles fire burned over N 1/2 in very steep rocky terrain reducing potential for planting opportunity. Transition zone between west side and east side plant communities. Lots of ABAM and TSME in the mature forest composition. Risk of habitat loss is moderate to high. Recent fire to the north will provide a good fuel break for several decades however, MPB activity has recently increased and is moving into suitable habitat.	Good access off the Pacific Crest Trail at Rainy Pass. Stock access is poor or inaccessible.	2003 Needles fire and 1970 Hungry Creek	MPB activity is moderate and mainly east of Cutthroat Pass.
3 Lakeview Ridge East Pasayten Wilderness (52,500)	Area is in the rain shadow of the ridge. MPB well established throughout area. One area w/ 40% blister rust w/ good access from Slate Peak – could be possible collection site if PIAL stand. Most the PIAL north of Hart's Pass in Haystack Mt area are small Krummholz, otherwise, status unknown. Transition zone between west side and east side plant communities along the ridge. ABAM and TSME give way to ABLA and PIEN in the mature forest composition. Risk of habitat loss is high due to MPB activity and high fire risk due to lack of recent fires in area. Some fire break protection from 06 Tatoosh fire to north which took out extensive past MPB killed stands.	Best access off Hart's Pass/Slate Peak. Stock accessible but access to trail head w/ stock is via stock truck only. No trailers are allowed on Hart's Pass road. About 10-15 miles into area via horse. Trails mainly follow drainage bottoms so access to habitat will be more challenging.	1986 Eureka, 1989 Lodgepole, 1990 Pistol, 1994 Stub Creek, 2002 Middle Quartz, 2006 Tatoosh Complex, 2001 Boundary trail, 1970 Bunker Hill.	Evenly dispersed small patches throughout. Recently starting to move into PIAL habitat.

Data Table for Conservation Area 202 Okanogan-Wenatchee National Forest				
Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
4 East Creek North Cascades Scenic Corridor (11,500)	Beetle activity just showing up along edge of PIAL habitat. Not much is know about this area. Suspect to much maritime influence to support much PIAL is in the transition zone where there is lots of ABAM, TSME. Abundant avalanche chutes on slopes dominated by alder. Gold Hill mine helispot is in the upper ABLA zone. Past MPB have taken out much of the PICO habitat along Hwy 20 and are now moving into PIAL habitat along east edge of Unit. Risk of habitat loss is high due to lack of recent fires and abundant beetle killed trees in the general area. Moderate risk of loss from MPB which are just starting to movie in from the SE.	Poor access. Trail mainly Some 4 wheel access off Chancler Rd (5400-700) into North portion of area to Trail 455. Gold Hill mine helispot	None	MPB activity light and just starting to show up.
5 Devil's Dome Pasayten Wilderness (36,800)	Very little is known about this area. It is west of the crest and much moister than the rest of the area. Transitional mix of vegetation from west to east w/ abundance of TSME and ABAM. Devil's Dome area trail (752) has mapped suitable habitat but is ABLA dominated (derived from past photos). Very steep rocky and rugged terrain makes cross country travel difficult in most the area. Very little MPB or known stands of PIAL. Risk of habitat loss is low to moderate due to moister climate and low density of MPB in the area. Recent fires have occurred where past MBP activity has been the heaviest.	Very Poor Access. Best access is via boat off Ross Lake and then a day's hike in or up the 77+ continuous switchbacks onto Jackita Mt and Devil's Dome (trail 738 & 752). Trails are not stock accessible. Best opportunity to access habitat is via the Lakeview Ridge trail 754 which provides good access to habitat in both this Unit and Unit 3. Horses would be needed to access Lakeview Ridge trail.	1990 Freezeout and 1996 Elbow basin.	Just starting to show up along BC boarder in North end of Unit. Past activity has been heaviest in this area.

Prepared by: T. Ohlson

**Data Table for Conservation Area 203
Okanogan-Wenatchee National Forest**

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
<p>1 Sheep Mt Pasayten Wilderness (24,100)</p>	<p>Excellent mature PIAL extensive stands. Great area for collection particularly Gabriel Creek and north. MPB most extensive in 3 Fools Pass area. Old burn near 3 Fools has 3' tall PIAL with blister rust – 54% detected from past surveys. Quartz Mt burn involved fringes of suitable habitat that may provide for restoration planting opportunities in the future. Risk of habitat loss is moderate to high. Protection from advancing fires from east and west created by recent fires reduce the risk of fire but moderate levels of blister rust will reduce cone production over time and increasing MPB activity increase the risk of loss.</p>	<p>Good Stock Access. Access from US side is difficult. 25+ miles in by horse. But trail access for horses is well maintained. You can see roads from Ramon Lake on BC side. May be good to partner with BC wildlife folks for seed collection due to compatible seed zones (would be day hike from BC side to access collection sites). Terrain provides relatively easy access to surrounding area via foot once back in the area.</p>	<p>2002 Quartz Mt Burn took out some habitat on west side of unit, but majority is intact.</p>	<p>Some large patches of MPB activity along Sand Ridge to North and South end of unit around Two Bit Cr. Starting to spread inward and into PIAL.</p>
<p>2 Andrews Peak Pasayten Wilderness (18,400)</p>	<p>Most of the suitable habitat burned in the 2003 Farewell fire and burned hot through most of this area. This is a high priority for supplemental planting and regeneration surveys. Possible cone collection potential around Andrews Peak and east of Rimmel Mt. MPB activity detected throughout the area. There is no seed available for restoration or collections that have been made in this CA. Risk of habitat loss to fire or MPB is low overall. Where residual trees survived fire, loss to MPB is high.</p>	<p>Good Stock Access. It is about 15 miles into Andrews Pass. No good central staging area outside the “black” There are 4 established outfitter drop camps that would make good staging areas to access much of this area.</p>	<p>2006 Van Peak, 2003 Farewell (high severity in Andrews Creek), 1987 Dutton Creek, 1958 Newland Creek. Between the 2003 Farewell and 2006 Van Peak fires most of the area burned over.</p>	<p>MPB activity detected since 03 fire may be fire scorched trees that died after the fire or MPB becoming active in post-fire green tree areas. Unknown</p>

Data Table for Conservation Area 203 Okanogan-Wenatchee National Forest

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
3 Bald Mt Pasayten Wilderness (14,900)	Very little PIAL in the Spanish Creek headwaters. Most PIAL is along Border Ridge trail (not on map) and south side of Bald Mt. Likely reproductive age or just coming of age since these areas burned in 1929 and trees would have likely established since this time. Past fires may attribute to the low density of MPB throughout the area. Area is predominately spruce forest with very little LALY, PICO or ABLA. Collection potential Bald Mt, Border Ridge, Wolframite and Apex Mts. Uncertain PIAL status. Seed tree and stand condition surveys needed. Risk of habitat loss is moderate to high. MPB are not well established now but likely to increase given past epidemic levels in adjacent areas and recent large fires which have taken out the PICO stands. Also lack of fire in the area leaves this block vulnerable to fire from the north, east, and west.	Good horse access. FS administrative cabin central to west ½ of unit. It is about 17 miles into cabin through Andrews Peak unit. Could access Andrews Peak area as day hike from cabin.	None detected in last 50 years. Area was extensively burned in 1929 except the wetland complex just north of Bald Mt.	MPB activity southeast of Bald Mt and activity is just starting to show up in suitable habitat. Likely as a result of MBP spread from 2003 Needles fire to the south.
4 Setting Sun Pasayten Wilderness (3,000)	Extensive MPB throughout unit. Known cluster of PIAL stands near summit of Setting Sun Mt. PIAL likely taken out now by MPB. Possible target for future replanting behind MPB mortality, but is low priority for Seed Zone. PIAL status is unknown. Extensive MPB activity and lack of recent fires leaves this area at a high risk of habitat loss.	Poor access. No trail or road. Road access to w/in 2 miles of area from Weenan Creek basin. Cattle trails likely provide ease of travel into base of Setting Sun Mt. Possible good helispot access adjacent to wilderness boundary & Setting Sun Mt.	1994 Whiteface fire bounds area to south. No significant amount of PIAL habitat involved.	MPB activity centers larger and extensive through area.
5 Copper Glance Lake (4,000)	Copper Glance cirque basin is primarily LALY. Some PIAL detected in plot data. Not sure of the extent of PIAL in this area. Habitat is suspected to be marginal. MPB is becoming well established in the area. Risk of habitat loss is also high given extensive MPB activity and lack of recent fire.	Very Poor Access. Good trail into Copper Glance Lake only. Rest of area no trail access available. Some road access to edge of habitat through 1994 Whiteface Fire.	1994 Whiteface fire bounds to south. No significant amount of habitat involved.	MPB spreading throughout area. May have already taken out much of the PIAL at the lake.

Data Table for Conservation Area 203 Okanogan-Wenatchee National Forest

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
6 Birch Mt (3,400)	Area is almost exclusively LALY around Burch Mt proper and north into Pasayten. Possible PIAL east side of Falls creek in open rocky slopes. MPB has spread extensively through about ½ this area. Habitat is marginal for PIAL. Risk of habitat loss to MPB is high and moderate for fire loss due to 03 Farewell fire that borders area to NE.	A non-system trail that is maintained by the public takes off from end of Falls Creek road to top of Birch Mt providing decent access to area. Trail 523 not maintained and Trail shown taking off from top of Birch Mt to north is old stock driveway that hasn't been maintained in decades – not passable.	None	Extensive activity in the south end of unit and spreading north.
7 Teapot Dome, Arnold Peak, Windy, and Topaz Peaks Pasayten Wilderness (18,700)	BC to North with contiguous habitat on both sides of border. A few PIAL stands documented. Conversations with wilderness users suggest there may be good opportunity for seed collection. Establish collection sites and restoration plantings likely needed. Risk of habitat loss due to fire is moderate due to recent fires, but MBP are active increasing risk of loss to high.	Poor road to trailhead, then long trail in. 6 to 12+ mile in. N ½ is only 2 miles from BC – possible access from BC and/or partner with BC forestry dept to meet joint seed collection goals. Trails well maintained for stock.	2006 Tripod Fire burned mod to high severity over the south ½ of unit, burning through about 1/3 of the suitable habitat. 2001 Windy Peak fire flanks the south of unit. 1910 & 1945 large fires in Windy & Topaz Peak areas. No fires detected since 1910 in the Arnold Peak area.	Some MPB showing up in PICO since 2000. Large blocks of MPB activity were burned in 06. Other large blocks of activity in E ½ and spreading W.
<p><i>Extensive past MPB mortality in PICO in south ½ of CA between the 2003 Needles fire and 1994 Whiteface fire leaves the non-wilderness habitat (units 5 and 6) at very high risk to fire loss and combine this with the very active MPB currently in the area and the risk becomes extreme. If a fire were to start in this beetle killed landscape, under the right conditions it would likely go all the way to Canada taking out the unburned portions of the Wilderness (units 1 and 4).</i></p>				

Prepared by: T. Ohlson

Data Table for Conservation Area 204 Okanogan-Wenatchee National Forest

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
1 Thunder Mt (900)	Unknown PIAL presences or condition. 1994 Thunder fire burned over some of the suitable habitat. The area reburned in 2006.	Good Road access. Some trail	1917, 1925, 1929, and 06 Tripod, 1994 Thunder Mt fire burned through portion of the area. 2006 Tripod burned over remainder of area. 2003 Isabel Fire stopped at ridge.	Most the PICO killed by MPB prior to 2004. Activity centers burned over in 03 & 06 fires.
2 N. 20 Mile Chewuch Research Natural Area (1,100)	This area is part of the Chewuch Natural Research Area. Much of this area is a large stand of mature PIAL, much of which escaped the 06 fire. Excellent potential for cone collection, conservation, and planting. 2007 verbenone pouches were tacked up on about 30 of the 80 acres of unburned PIAL. MPB just starting to show up in the stand. In 2008 permanent plots will be installed to track the effectiveness of the verbenone treatment and look at long-term survival of the population. High priority for collection, conservation, planting	Helicopter good. Trail steep, over 8 miles in. Not typically maintained for stock use. Water for camping is marginal.	06 Tripod spotty low to mod burn.	MPB in PIAL just starting to show up in 2007.
3 Tiffany Mt. Roger Lake Research Natural Area and Tiffany Botanical Area (7,200)	Blister rust documented at 25%, 31%, 48% and 56%. MPB activity had killed nearly all the PICO prior to 06 fire. Nearly entire area burned over in 06 and 03 fires. Unburned portion has mature PIAL but MPB very active. Prior to 06 fire mature cone bearing PIAL were well documented in area. MPB were found in mature PIAL in Whistler Basin in 2006 and had been active in the area for about 4 yrs. Need to revisit this area to determine where mature PIAL survived 06 fire. Establish collection sites, develop conservation strategies, and plant.	Trail is good w/o much elevation gain and networks to nearly entire area. Helicopter is likely option. Established helispot on Rock Mt, good area for helispot in Whistler Basin. Mt McKay portion has the most remote access within the unit. Good Road Access into Three Buttes area.	06 Tripod burned over most the area (moderate to high severity) along with the 2003 Isabel. Small portion of are burned in 1992 in McKay fire. Earlier burns detected in 1926.	MPB in PIAL detected since about 2000. Most PICO killed by MPB prior to 2004. MPB still active in unburned stands.
4 Spur Peak (500)	This stand burned in 2006 Tripod Fire and took out most, possibly all of the PIAL. Burned moderate severity through most of the area. Good place for replanting. Should survey to determine the full extent of the fire killed PIAL	Helispot centrally located and fairly good trail into area as of Oct 06 (was an old stock driveway).	No burn detected since 1910. Burned up in the 2006 Tripod Fire, moderate to high severity.	MPB detected in PICO and PIAL starting about 2000. Much dead PIEN & PICO in area. Oct 2006 MPB attacked fire scorched and killed trees.

Data Table for Conservation Area 204 Okanogan-Wenatchee National Forest

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
5 Starvation Mt (200)	Mature PIAL. Previous collections on 10 trees. Seed being tested for blister rust resistance. Some trees survived the 2006 fire. I was told that a small stand of mature cone bearing trees escaped the fire off the back side of the Mt and the smoke jumpers caged the cones in 2007. The jumpers can not remember who they were doing the work for and they never returned to collect the seed in the fall. Good spot for seeding/planting trials due to access. This is a priority area for collection, conservation, and restoration work.	Road access to the top with trails from there. Good access overall.	Small portion burned in 1935. Most the area burned over 2006 Tripod Fire	Since 2000 picking up some MPB activity in PIAL. Not much MPB activity in PICO currently. Post-fire conditions may have increased incidence of MPB.
6 Old Baldy (900)	Mature trees on the south slopes of Old Baldy Mt but not sure if they survived 06 fire. 77% blister rust detection in one area on N side. Condition of PIAL stand unknown. Need to survey to determine status.	No trail or road access. Short steep hike to top from Baldy Pass. There was an old trail to lookout but it is not easy to follow. Old lookout platform would be good helispot.	1929 fire. Burned over in 2006 Tripod Fire. Much of the area crown replacement fire. Not sure about survival of PIAL on South side.	Starting to detect MPB in PIAL – Patchy. Small patchy detection of MPB in PICO since 90's. MPB active over much of the suitable habitat in last 4 years.
7 Granite Mt (500)	Not sure if any PIAL survived the 06 fire season. Very little known about the PIAL in the area. Should be surveyed and condition assessed.	No Good trail or road access.	None since 1910. 2006 Tripod Fire burned over the area.	Last 6 yrs MPB in PIAL. Large MPB activity centers 04-06. Most likely burned up in 0 6 fires.

Starting in the late 1980's MBP and spruce beetle began to spread at an epidemic rate across the landscape and by the late 1990's there was extensive, contiguous blocks of beetle killed trees. This is what set the stage for the 2006 Tripod fire which burned over nearly 75% of this CA. The few mature PIAL stands that survived this fire are at very high risk of loss to MPB until the beetles are basically "starved" out of the area because the fire took out the vast majority of the remaining live PICO. Future restoration needs will be great in this CA because of the combined loss of PIAL from the fire and post-fire MPB. There is only once established collection site in the northern Okanogan portion of this Seed Zone and this site is in CA 204. The post-fire status of the Starvation Mt collection site is unknown. CA 205 also has experienced extensive fires along the north shore of Lake Chelan and is currently experiencing large scale MPB outbreaks in suitable PIAL habitat. There is one seed collection area in CA205 and it is in an area currently experiencing extensive MPB mortality in PIAL. Establishing seed collection areas in this CA and those CAs from Lake Chelan north is critical since these are the areas currently experiencing the highest incidence of MPB activity and have recently experienced large scale fires.

Prepared by: T. Ohlson

Data Table for Conservation Area 205 Okanogan-Wenatchee National Forest

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
1 Cedar Creek North Cascades Scenic Hwy (11,000)	Transition zone from east to west side forested habitats. Suspect the moist maritime influence has limited PIAL distribution and extent. Suspect habitat is very limited. Some PIAL detected, but mostly unknown. Risk of habitat loss to fire is increasing with increasing MPB activity and past fires provide little in the way of fuel breaks in the event of a fire start.	One main trail accesses and it is not maintained beyond pass into Twisp drainage as shown. Heliski area – helispots may provide good access even when snow on the ground for optimal planting conditions.	2006 Cedar Creek fire burned the largest patch of detected MPB activity in the unit. 1985 Hubbard Cr fire to south adds some fuel break for future fires. 2006 Cedar fire has created some fuel breaks w/in unit	Large and small patches scattered throughout unit.
2 Wolf Creek Lake Chelan – Sawtooth Wilderness with small inclusion non-wilderness (10,600)	Most of this area is heavy PICO and suspect the MPB activity is mainly in PICO but MPB appear to be spreading into PIAL. Documented PIAL around North and Scatter lakes provides the best opportunity for establishing collection sites. Lakes with good trail access from Twisp side. Needs inventory for collection potential. Is likely the best unit in N ½ of CA for establishing collection sites. Maybe some potential for future planting in old Hubbard fire. The upper Twisp River drainage is considered a fire “powder keg” just waiting to burn. Fuels are extremely heavy putting this entire area at risk. Increasing MPB activity is only adding to this risk.	Trail 403 not maintained past Slate Lake. Both 403 and Trail 414 good trail but steep – not good for stock. Trail 403 outside the Wilderness is not a maintained trail. North Lake and Wolf Creek trails good for stock.	1985 Hubbard Fire. Twisp River drainage is a tinterbox on the valley floor creating a very high fire risk for the drainage.	MPB becoming well established throughout area.
3 Renyolds Creek Lake Chelan – Sawtooth Wilderness (9,200)	NPS likely has most the PIAL habitat. FS side of ridge suspect is predominately LALY with isolated pockets of PIAL. Headwaters of Renyolds Creek – terrain is very rugged not very accessible. War Creek fire provides potential planting or collection sites. Basically, status unknown. The upper Twisp River drainage is considered a fire “powder keg” just waiting to burn. Fuels are extremely heavy putting this entire area at risk. Increasing MPB activity is only adding to this risk.	Bounds NPS – possible helicopter access to FS wilderness side. Trail access only and not all suitable for stock. Rugged terrain along ridge line limits access to some PIAL habitat.	1970 Williams , 1970 South Creek, 1994 War Creek, 1987 Renyolds Only War Creek burned any amount of suitable PIAL habitat. Twisp River drainage is a tinterbox on the valley floor creating a very high fire risk for the drainage.	Few patches starting to show up. This unit has the least amount of MPB activity of any of the surrounding area. Expect it is expected to increase substantially in the near future.

Data Table for Conservation Area 205 Okanogan-Wenatchee National Forest

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
4 Buttermilk Lake Chelan – Sawtooth Wilderness with small inclusion of non-wilderness (21,100)	LALY is the dominant tree through most of the area on N. side of the crest. Oval Lakes area has good stands of PIAL, otherwise, suspect it is codominant with LALY. Area accessible by trail 436 (Buttermilk Meadows) enters a nice PIAL area with 27% blister rust infection. Nice stand of mature trees. Area covers both sides of the Sawtooth crest. Good potential collection site.	Good Trail access. Good trails but north side of crest is steep in many places making access difficult. Stock accessible to ridge from main trails. Buttermilk Meadows trail provides good access to PIAL but not easily accessibly to stock, however.	2001 Rex Creek, 2006 Flick Creek, 1985 Cascade Creek? Rex creek fire burned up Trail 1248.	MPB activity is widespread in and around unit. Activity centered along trail 420 (E. fork buttermilk) is all in PICO.
5 North Navarre (11,400)	Blister rust detected in 3 areas with rates of infection ranging from 14%, 34% and 57%. Eagle Lakes area has the lowest % infection. Area is well suited for cone collection potential. Collection site established at S. Navarre CG. Cones from 7 trees in blister rust study at Dorena. Bryan Butte PIAL thinning study to enhance cone production. This 15 yr old study needs revisit. 2007 aerial verbenone study site in the south ¼ of unit. MPB are hitting the PIAL hard in this area. Need to establish more collection sites, develop conservation measures, and plant behind burned and MPB killed areas.	Good road access to ridge top and trail heads. Some motorized use of trail system (trail bike not 4 wheelers) Trail network is good. Not all trails are open to stock. Trail 418 is not maintained. Trail #s starting with 6000 are historic and not maintained.	Safety Harbor 1970. The 1990 Canoe Creek fire burned the south ¼ of unit.	Widespread activity throughout the area.
6 Canoe Creek (900)	Small area, however, nearly entire area either burned over or shows MPB activity. May be good potential for planting, possibly collection sites if stands survived fire. Well documented occurrence of PIAL in burn area.	Some trail. Access is difficult – roadless. Trail access from both Sawtooth backcountry and Wilderness side via boat. Logical extension of Unit 5 habitat. Helicopter access from Unit 5 side. Trail #s starting with 6000 are historic and not maintained.	1970 Safety Harbor and it appears this fire burned most of the suitable habitat.	At least ½ the area shows MPB activity.

Most of the north shore of Lake Chelan has burned at some time in the last 50 years and several fires since 2000 have reburned much of the area again. The upper elevations of these fires appear to stop where suitable PIAL habitat begins resulting in little loss of habitat to fire. MPB activity is widespread through this entire CA. The mature PIAL stands that survived these fires are at very high risk of loss to MPB. Future restoration needs will be great in this CA mainly because of MPB mortality in PIAL and where fire has killed PIAL stands. There is only one established collection site in CA205 and this is in an area currently with the highest levels of MPB activity. CA 205 is experiencing large scale MPB outbreaks where in suitable PIAL habitat is adjacent to the recent fires along the north shore of the lake. Establishing seed collection areas in this CA and those CAs from Lake Chelan north is critical since these are the areas currently experiencing the highest incidence of MPB activity and have recently experienced large scale fires.

Data Table for Conservation Area 206 Okanogan-Wenatchee National Forest

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
1 Glacier Peak Wilderness North (33,500)	Likely mature trees. Some documented PIAL. Good potential for genetic diversity due to area size. Unknown status for most of area. Risk of habitat loss due to fire is high since there are no recent fires breaking up the continuity of the landscape fuels. MPB activity light prior to 2004 and since. Loss of habitat to MPB low. Overall risk of habitat loss is low to moderate.	Poor access. Need to boat to the end of Lake Chelan or to Lucerne and then drive to trailheads. Special approval needed for helicopter landings in the wilderness.	2001 Glory Mt – no PIAL habitat was involved.	Cluster of attacks down in SE corner of unit with some spread to north.
2 Glacier Peak Wilderness Central with small inclusion of non-wilderness (21,200)	Likely mature trees. Another large area that would provide good genetic diversity in populations. Opportunity to plant in fire area. MPB showing up adjacent to suitable habitat. Unknown status most of area. Tin Pan fire will provide a good fuel break for several decades and light MPB activity leave this area at moderate risk of habitat loss.	Poor access but better than Unit 1. Can drive to trailhead that will get you within 2 miles of habitat via Phelps Creek Road. Good network of trails. Stock use possible. Boat access from Lucerne and trails out of Holden Village. Helicopter access to PIAL stands just outside wilderness or within wilderness with approval.	2006 Tin Pan burned small fringe of habitat.	Becoming established in lower elevations and just starting to show up in suitable habitat.
3 Glacier Peak Wilderness South with small inclusion of non-wilderness (37,500)	Mature trees possible. No known PIAL. No MPB & no blister rust – Mostly unknown status of PIAL in this area. Small inclusion of non-wilderness is extension of suitable habitat and has similar access and information issues. Risk of habitat loss due to fire is moderate and to MPB is low.	Access poor. Road 6200, 6400, and 6504 provide closest road access, then 3 to 6 miles into any suitable habitat. Trail network sparse.	2003 Maple Creek, 1988 Indian Creek, 1970 Airport, 1990 Airplane Ridge, 1990 Boulder Creek, 1990 White River, 1990 Devils Club. Very little habitat involved in these fires.	Negligible
4 Entiat South (12,200)	Good documentation of PIAL. MPB appears very active in N ½ of area where blister rust is detected on 43% of trees. Central area blister rust is at 15% and 6% in S. Tyee lookout is established collection site. 10 trees used to collect seed for rust resistant trials. Site had 10% blister rust. Continue to collect cones on Tyee Ridge, conserve. Good potential for planting trials along Tyee ridge. Survey rest of area to establish new collection sites, conservation areas, and planting sites. Risk of habitat loss due to fire and MPB is high.	Good road access off 6210 rd (Wen River District), and 5100 on Entiat side. Good trail network throughout area, stock and motorbike accessible. Several helispots on Entiat Ridge. Good road and helispot access to Tyee Lookout collection site.	2001 Tommy Creek or 1994 Tyee fire involved small finger of habitat in south end of unit, which included the Tyee lookout collection site.	Significant in northern portion of unit area and will likely continue to spread south.

Data Table for Conservation Area 206 Okanogan-Wenatchee National Forest

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
5 Entiat North (10,200)	Well documented PIAL throughout area. Blister rust ranges between 8% and 26% and MPB activity expanding. Possible place for thinning and cone collection. Recent fires from the east and west provide some protection from future fire ignition and spread. MPB not yet widespread in unit but high levels of MPB across the lake may leave this area more vulnerable to increased MPB activity in the future.	Road access to trailheads good. Good network of trails in area. Stock and motorbike accessible. Helispots available.	1970 Shady fire burned a small area of suitable habitat very south end that included the PIAL stand with 8% blister rust.	Moderate activity throughout stand.
6 Stormy Mt (100)	Established collection site with 3 trees. Seed in rust resistant trials. Blister rust 2% to 4% in stand. 1994 and 2004 fires may have opened up planting opportunities. Continue to collection and plant. Seed needed before restoration plantings can take place. Risk of habitat loss from future fire appears to be low due to recent fire activity. Any surviving PIAL may be at risk or succumb to MPB attack.	Good road access to within a couple of miles of habitat. Trail into area good also.	1970 Entiat fire burned over site. 1994 Tye and 2004 Pot Peak skirted around edges of habitat.	None detected.
7 Devil's Backbone (900)	14% blister rust detected in at least one stand. Very large Mature PIAL along ridge survived 1970 fire and may have survived 1994/2004 fires. Status currently unknown. If these trees survived, would be excellent collection and conservation site potential and possible planting opportunity. Risk of habitat loss due to fire is low and current MPB activity very low in are but active outside burn area. Mature PIAL may be at higher risk to MPB. Risk of habitat loss due to fire is low.	Road access to top of ridge. Good trail access with very little elevation gain. Motorized trail access.	1970 Entiat Zone and 2004 Pot Peak.	None

CA-206 should be considered for reducing risk of MPB, especially units 4 and 5 due to threat and descent access. Cones have been collected in the Sawtooths, but not in Unit 5 and only 1 location in Unit 4. CA 205 and 206 have recently experienced vast areas that have recently burned and these fires have not necessarily taken out the PIAL. It is more critical to deal with the potential MPB that will follow behind these fires. Focus on non-wilderness areas first with good access to establish more cone collection sites and conservation areas.

Prepared by: T. Ohlson, R. Niman, and J. Cannon

**Data Table for Conservation Area 207
Okanogan-Wenatchee National Forest**

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
1 Nason Ridge (5,900)	Nice piece of contiguous habitat in center of seed zone. PIAL documented along trail and at lookout. Excellent potential for seed collection and conservation. No blister rust or MPB activity noted. No MPB detected. No recent fires. There is a low risk of habitat loss due to no noted MPB activity but lack of recent fires increase the risk of habitat loss to fire. Establish collection areas and survey for future restoration needs.	Hwy 2 access to trails with 4 mile hike into suitable habitat. Trail access good along ridge where PIAL is. Rough terrain but good trail access along ridge. Lookout with Helispot in center of good PIAL stand.	None	None
2 Whitepine Alpine Lakes Wilderness (14,400)	Moister area than surrounding units due to topographic relief. NE corner 41% & 53% blister rust. Good target area for collection due to access. Blister rust detected in S at 26%. MPB becoming well established and may threaten long-term collection potential in area. No real fire activity in last 50 years. High risk of loss due to lack of past fires and high level of MPB activity.	Trail access only to area. Good rd access via 6930 Rd to Lake Julius w/ short trail into Dill and Roaring Cr headwaters where potential collection site is. Other road access to site possible via pvt (Longview fiber) with permission. Rest of area is much longer trail access.	Fringes of 2001 Icycle Cr fire in unit. No PIAL habitat involved.	Becoming well established.
3 Bootjack Mt Alpine Lakes Wilderness (32,800)	MPB becoming established in small scattered islands across area. 45% BR infection in one stand to the south no MPB detected in area. Could be good collection potential but needs site survey to determine access & stand condition. Moderate risk of habitat loss due to lack of fire and current MPB activity. Future collection opportunities once access is determined.	Trail only and access not great. Long distances on trail to suitable habitat except were rd 7600 goes up through middle of area.	1990 Black Jack, 2003 Square lake w/in unit. 1994 Hatchery 1974 Eightmile and 2001 Icycle fires along fringe of unit. Most PIAL habitat not involved in fire – fires stopped at edge of habitat.	Patches small and scattered.
4 Esmerelda Basin (4,900)	Mature PIAL known some documented with 37% blister rust infection. MPB activity to the east but not yet in this area.	Good road and trail access.	None	none

Data Table for Conservation Area 207 Okanogan-Wenatchee National Forest				
Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
5 Ingalls Creek Alpine Lakes Wilderness (2,300)	MPB very active in this area. Likely the highest concentration of MPB in suitable habitat in this CA. No documented PIAL. Status of PIAL unknown and surveys needed. Since MPB are active and well distributed and there is little recent fire activity in the surrounding, there is a high risk of habitat loss.	No good road access. Good trail access from both the Cle Elum and Wen. River sides. Long trail distances to access but stock accessible. Possible helicopter access via suitable habitat just outside wilderness boundary but needs survey to determine.	2003 Crystal – no habitat involved.	Widespread in suitable habitat.
6 Waptus Lake Alpine Lake Wilderness (15,700)	Large vast area of suitable habitat with no information as to presence of PIAL or condition of stands. Surveys would be desirable but access is difficult and likely not an option without potential partnership w/ back country horsemen or the like. Moderate risk of habitat loss due to lack of fire and MPB activity. SW most location of habitat in CA. Surveys eventually needed to establish PIAL presence.	Some road access (trail heads) close to suitable habitat. Stock accessible from both the Cle Elum and Wenatchee River sides. Trails well maintained for stock use.	None	None
7 Miller Peak (1,100)	Known Krummholz PIAL in area. Reproduction unknown. Very active MPB to north, no recent fires. No know Blister rust in areas or detected in photos. Very small area relative to other units. No recent fire history and MPB very active to N. Risk of habitat loss high.	Poor. Private road access possible, some trail, but no good road access overall. Possible helicopter site(s) could be established.	None	Just starting to come over the ridge from Ingalls Creek.

Prepared by: T. Ohlson, J. Sandreeto-Reed, and G.Ferrier

Data Table for Conservation Area 208 Okanogan-Wenatchee National Forest				
Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
1 Mission Ridge (1,300)	Established collection site w/ 10 trees. Area with 10% blister rust. Seed being tested for blister rust resistance. Unknown status for additional collection opportunity or restoration needs in rest of area – Survey to expand potential collection area and determine restoration needs associated with MPB activity. Lack of recent fires and expanding MPB activity put this area at high risk of habitat loss.	Road 7122 appears to provide good access to central portion of habitat which is the top of Mission Ridge Ski Hill. Road 9712 provides access to N end. No trails. Road is in poor condition so access would be via off-road-vehicle or high clearance 4-wheel drive.	None	2 large blocks in suitable habitat, 1 involves the documented PIAL stand. Appears to be spreading.
2 Table Mt (100)	No known blister rust or pine beetle activity. No surveys completed. Clark's nutcracker present. Known PIAL in the area with excellent potential for collection and restoration. Priority to establish additional collection sites since this is the southern most area in the CA. Risk of habitat loss from MPB and fire is moderate.	Excellent road access from both Reeser Creek and Swauk Pass.	None	None

Prepared by: T. Ohlson, J. Sandreeto-Reed, and G. Ferrier

**Data Table for Conservation Area 301
Okanogan-Wenatchee National Forest**

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
Bonaparte Mt (1,100)	<p>Very little is known about the PIAL on Bonaparte Mt. Photos from lookout show Krummholz stands of PIAL with some evidence of flagging (blister rust?). Mixed PIAL stands could be thinned. Unknown if any of the trees are cone bearing. Much of the suitable habitat is unexplored. This is a very isolated PIAL population and important for its genetics. Surveys needed to determine condition. Risk of habitat loss is moderate given lack of noted recent MPB activity and recent fires to south and north provide some protection from future fires.</p>	<p>Very good and easy access to the lookout. Helispot at lookout and off-road-vehicle trail access.</p>	<p>1985 Baker Mt fire to SW and small 1973 Bonaparte fire to NE. No habitat involved.</p>	<p>None current.</p>

Prepared by: T. Ohlson and J. Cannon

Data Table for Conservation Area 302 Colville National Forest

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
1 Kettle Crest (4,400)	<p>Mature stands, Conserve/ Safeguard, Collect, Restore.</p> <p>Good potential for planting in burned over areas and other suitable unburned habitat. PIAL covers a much smaller area than shown on map. These are remnant populations of much larger stands. These stands are on the southern limits of where PIAL grows in this area. There is only 1 more reported PIAL stand further S along this ridge line on the Colville Indian Reservation. Cone producing trees. Cones have been collected from 3 of these stands, but seed has been almost used up in genetic studies. One of the 3 areas shows potential for blister rust resistance. More potential for collection in the area. There is limited regeneration throughout the area. There is competition that needs treatment. 35% blister rust in N central portion next to burn boundary. Jim Hadfield also has rust survey data for 2 areas in Walpaloosie (50% and 42%). A small planting of PIAL was done on the SE side of Sherman Peak next to trail 72. Recent fires to the north and south will provide a fire/fuel break to the remaining habitat for some time. The central portion of the area is at risk from fires approaching from the east or west. Risk of loss to fire in the remaining unburned habitat is likely moderate. When considering this is the only habitat in this conservation area and MPB mortality is evident in the remaining PIAL, risk of habitat loss is quite high for this isolated population.</p>	<p>Designated roadless area.</p> <p>Only access to areas is by trails.</p> <p>Trail system shows access to all suitable habitats.</p> <p>Trails are well maintained. Some areas are a long hike from trail head.</p> <p>Access to areas N of highway 20 are from road system 2030 on E side of crest & road system 2040 on W side of crest.</p> <p>Access to areas S of highway 20 are from Sherman Pass trail head on Highway 20, road system 2020 on E side of crest, & road system 2050 on W side of crest.</p> <p>There are helispots located all along Kettle Crest Trail 13.</p>	<p>1988 White Mountain (1988 #195 unknown fire), 1994 Copper Butte, 2001 Mt Leona. These fires involved habitat in the north and south end of the unit. Stand replacing fires and mixed severity fires.</p>	<p>MPBs have been killing the larger PIAL throughout this area. The larger PIAL need some protection to remain viable seed production sources.</p>

Prepared by: T. Ohlson and T. DeSpain

Data Table for Conservation Area 303 Colville National Forest

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
1 Abercrombi-Hooknose (1,800)	Mature stands, Conserve/ Safeguard, Collect, Restore. PIAL is well documented. Good potential for planting after site preparation. Lots of open areas that could be planted. PIAL covers much smaller area than shown on map. These are remnant populations of much larger stands. These are the only PIAL stands along this ridge line. Cone producing trees. A small number of cones have been collected from 1 small tree. There is limited regeneration throughout the area. A lot of competition that needs treatment. 22% blister rust in one documented stand. Risk of habitat loss is high due to MPB activity and no recent fires to break up landscape fuels.	Designated Roadless area. Only access to areas is by trails. Trails are well maintained. There is no trail access to N area (Hooknose). Area is a long hike from trail heads. Access is best from the W from road system 2078. There are potential helispots along the ridge.	Older fires burned in surrounding areas, but no recent ones.	MPBs have been killing the larger PIAL throughout this area. The large PIAL need some protection to remain viable seed production sources.
2 Salmo-Priest Wilderness (4,600)	Mature stands, Conserve/ Safeguard, Collect (Very high probability of finding rust resistant trees). PIAL is well documented. PIAL covers a much smaller area than shown on the map. Some stands have only a few trees remaining. There is competition that needs treatment. Good potential for planting after site preparation. Lots of open areas that could be planted. A small planting was completed S of the Salmo Mt Lookout area. Stands with 21% and 18% blister rust. Jim Hadfield also has rust survey data for Crowell Ridge (24%) and Salmo Mt (44%). Cone producing trees throughout the area. Cones have been collected from a number of trees throughout the area, but the seed has been almost used up in genetic studies. Trees from this area have been tested in R1 and R6 rust testing programs. 2 rust resistant trees have been located in Sullivan Mt and Crowell Ridge areas. Seed and scion need to be collected from these trees for preservation of rust resistance genes. These rust resistant stands need to be protected from MPB and fire. There is some regeneration throughout the area. Risk of habitat loss is high due to MPB activity and no recent fires to break up landscape fuels.	Only access to areas is by trails. Trail system shows access through most of suitable habitat. Trails well maintained. No trail access to N western area. Very rugged terrain. Road access good to Sullivan Mt (road system 2212) and Salmo Mt (road system 2220) areas. Road system 2212 to Sullivan Mt closed seasonally. Salmo Mt Lookout is just outside the wilderness with good road access to Lookout.	Older fires burned over area, but no recent ones.	MPBs have been killing the larger PIAL throughout this area. The large PIAL need some protection to remain viable seed production sources.

Data Table for Conservation Area 303 Colville National Forest				
Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
3 Molybdenite Mt (500)	Mostly Unknown status. Some plot data indicates PIAL is fairly well represented in this small area. Need to Survey to determine collection potential, conservation, and restoration opportunities. Lack of recent fires across this landscape leave habitat at high risk of loss.	Road access appears to be good to within ½ to 1 mile of habitat. No trail access into habitat. Access basically Unknown	Only older fires outside of area.	Unknown
4 Calispell Peak (500)	Mature stands, Conserve/ Safeguard, Collect, Restore, Survey. Very small area with very few PIAL. PIAL covers a much smaller area than shown on the map. Lots of open areas that could be planted. One of the southern most populations of PIAL. Important for gene conservation of outlying populations. No MPB activity detected since 2004. Lack of fire throughout this CA leaves habitat at a high risk of loss, especially with current MPB mortality occurring in adjacent areas.	Good road access right up to S boundary of area. No trail access.	None	Unknown – MPB has been active in lodgepole pine stands that are next to this area. Any large PIAL need some protection to remain viable seed production sources.
5 and 5a Round Top-Mankato Salmo-Priest Wilderness (600)	Mature stands, Conserve/ Safeguard, Collect (Very high probability of finding rust resistant trees), Restore. PIAL is well documented. PIAL covers a much smaller area than shown on the map. Some stands have only a few trees remaining. There is competition that needs treatment. Good potential for planting after site preparation. Lots of open areas that could be planted. Cone producing trees scattered throughout the area. Cones have been collected from a few trees in the Round Top Mt area, but the seed has been almost used up in genetic studies. Trees from this area have been tested in R1 and R6 rust testing programs. 1 rust resistant tree has been located in the Round Top Mt area. Seed and scion need to be collected from this tree for preservation of rust resistance genes. This rust resistant stand needs to be protected from MPB and fire. There is some limited regeneration throughout the area. Round Top Mt is a designated Research Natural Area. There is regeneration coming into the Mankato Mt area after the 1994 Mankato fire. Risk of habitat loss is high due to small numbers of remaining trees and MPB activity. Past fires in 86 and 94 provide some buffer to future fires.	Very small areas. Access is only by trail 512. Trails are well maintained. Road access to trail head is from county road 22.	1986 unknown, 1994 unknown and 1994 Mankato (area 5A) fires. 199 and 191 fires did not involve PIAL habitat. Stand replacing and mixed severity fires.	MPB has killed trees weakened by fire. The large PIAL need some protection to remain viable seed production sources.

Data Table for Conservation Area 303 Colville National Forest

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
6a and 6b Hall Mountain (250)	Mature stands, Conserve/ Safeguard, Collect, Restore, Survey. PIAL is well documented. Good potential for planting after site preparation. Lots of open areas that could be planted. PIAL covers the very small areas shown on map. Some stands have only a few trees remaining. These are remnant populations of larger stands. These are the only PIAL stands along this ridge line. Cone producing trees. There is very limited regeneration throughout the area. There is competition that needs treatment. Risk of habitat loss is high due to lack of recent fires, small population size, adjacent MPB activity, and lack of recent fire.	Very small areas. Access is only by trails 503, 533, and 540. Trails are well maintained. Road access to trail heads is from county road 22 and road system 500. Road system 500 is seasonally closed for wildlife.	Only older fires outside of area.	Unknown – MPB has been active in lodgepole pine stands that are next to this area. Any large PIAL need some protection to remain viable seed production sources.
7 and 7a North and South Baldy (<50)	Mature stands, Conserve/ Safeguard, Collect, Restore, Survey. PIAL is documented on North Baldy. Good potential for planting after site preparation. Lots of open areas that could be planted. PIAL covers very small areas shown on map. There are only a few trees remaining. These are remnant populations of larger stands. These are the most southern PIAL stands along this ridge line. Cone producing trees. Cones were collected from a tree or trees on North Baldy, but almost all seed was used up in planting PIAL in the 1994 Olson Peak fire area 20 miles to the west. Jim Hadfield visited a stand on Baldy Mt and determined 12% blister rust. Risk of habitat loss is high due to lack of recent fires, small population size, adjacent MPB activity, and lack of recent fire.	Road 306 accesses the top of both North Baldy Mt and South Baldy Mt.	None	Unknown – MPB has been active in lodgepole pine stands that are next to this area. Any large PIAL need some protection to remain viable seed production sources.

Prepared by: T. Ohlson and T. DeSpain

Data Table for Conservation Area 401 Okanogan-Wenatchee National Forest				
Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
1 Little Naches South (400)	Is small area, but with greatest number of documented PIAL stands. Blister rust is at 27% in at least one stand and MPB activity is just starting to encroach into suitable habitat. This is the only area in CA with active MPB. PIAL status unknown. Survey needed to determine collection and conservation potential. Risk of habitat loss is high due to increasing MPB mortality and since no fires have been documented in the area since 1910. Highest risk of habitat loss in the CA due to fuels created by MPB and lack of fires across the landscape.	Road and trail access good. Access by road 1900000 and adjoining roads 1901, 1905, 1911, 1914, and 1915.	No documented fires in area since 1910.	High concentration of attack sites in and near this unit. Is the only place in unit with MPB activity.
2 Little Naches Central (1,300)	PIAL status is Unknown. No known MPB activity in the area since 1994. Blister rust unknown. Largest concentration of habitat in CA. Important potential area for collection. Surveys needed to determine status and presence of PIAL. No fires recent or historic. Risk of habitat loss to fire is high.	Trail access only.	No documented fires in area since 1910.	No MPB activity since 2004 or between 1994 and 2003.
3 Little Naches North (1,200)	PIAL status is Unknown. No known MPB activity in the area since 1994. Blister rust unknown. Northern most habitat in CA and Seed Zone. Important for genetic diversity. Surveys needed to determine status and presence of PIAL. Risk of habitat loss to fire is moderate since no fires have been detected since 1910 and there is no evidence of MPB mortality in the area to increase fuel loading across the landscape.	Good road and trail access.	No documented fires in area since 1910.	No MPB activity since 2004 or between 1994 and 2003.
4 Naches Trail 688 (50)	One documented stand of PIAL in area. No MPB activity detected since 1994. Blister rust unknown. Status of PIAL Unknown for this stand and rest of unit. Risk of habitat loss to fire is high. Surveys needed	Good road and trail access.	No documented fires in area since 1910.	No MPB activity since 2004 or between 1994 and 2003.
5 Naches Road 1701-530 (<50)	Five documented PIAL stands in this area. Condition and status of PIAL unknown. No MPB activity detected since 1994. Blister rust unknown. Risk of habitat loss to fire is high. Surveys needed.	Good road access.	No documented fires in area since 1910.	No MPB activity since 2004 or between 1994 and 2003.

Prepared by: T. Ohlson, M. Poor, and D. Marcott

Data Table for Conservation Area 402 Okanogan-Wenatchee National Forest

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
1 Norse Peak William O. Douglas and Norse Peak Wilderness (19,800)	Well documented PIAL along the ridge line in southern ½. Blister rust unknown. MPB starting to take out habitat in SE ½ of area along trail 958 and just starting to become established in N ½ of unit. Good area to target cone collection and possibly planting. Surveys needed to determine status. Risk of habitat loss will continue to be high for MPB attack. Over the last 10 years the SE portion of this unit has been extensively hit by MBP and MPB continue to be active here. This has left a landscape with high concentrations of bug killed fuels and the area is at higher risk of fire loss than unit 2 because of this.	No good road access but trail access appears to be good. Includes portion of the MBS National Forest in far NW corner. Stock would have to be arranged through packer/ guide service or back country horseman groups.	None detected in recent or historic records	Becoming well established in SE ½ and becoming established in N ½
2 Chinook N ¼ of area on MBS NF. (5,200)	PIAL well documented in area with high incidence of blister rust 53%, 59%, 75% and 76%. Status of PIAL is Unknown. Appears to be good potential for establishing collection sites. MPB activity is only detected in a couple of small areas. Unknown MPB activity in PIAL.	Good road access from MBS NF side and Road 1700-670 on Naches side to edges of habitat with good trail access into central portion of habitat. Butts up against NPS – Helicopter access unknown.	None detected in recent or historic records	Just starting to show up in 2 or 3 small patches

There have no been fires across this CA in the last 50 years. Nor do the records indicate there have been any fires since 1910. There is an increasing incidence of MPB to the SE in CA 404. MPB have been active in this area for over 10 years and are continuing to spread through the area. This entire CA currently is at moderate to high risk of habitat loss due to fire when considering the increasing MPB activity. However, if drier weather conditions increase the spread of MPB the risk will become considerably higher due to increased fuels and the continuity of these fuels across the larger landscape. There are no recent fires to break up continuity of fuels that would slow the spread of fire if it gets started.

Prepared by: T. Ohlson, M. Poor, and D. Marcott

**Data Table for Conservation Area 404
Okanogan-Wenatchee and Gifford Pinchot National Forests**

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
1 William O. Douglas Wilderness (18,700)	Known populations of PIAL with 22% blister rust in N portion of unit. Otherwise, very few documented PIAL stands and status of PIAL is unknown. MPB activity is evenly scattered throughout area. Surveys needed.	Closest road access appears to be from road. 1605225. Jeep road.696 runs along top of rim between Wilderness and non-wilderness boundary on the NE side. Trails are not well networked making access to rest of unit more difficult.	2001 Dog Creek – fire appears to have stopped at start of PIAL habitat. Rattlesnake Peak Fire – 2007. Involvement of suitable habitat unknown.	Widely and evenly dispersed throughout area.
2 Goat Rocks Wilderness and White Pass Ski Area (35,800)	Central location to seed zone – good spot to establish collection sites. Blister rust in PIAL at 40% and 50%. Most MPB just below PIAL habitat and just starting to show up within suitable habitat.	Access is by road 688. Road is very primitive – 4X4 only. Northern portion of area in non-wilderness is on FS land at White Pass Ski area.	None in recent past and none detected since 1910.	Activity just starting to show up in PIAL habitat from areas at lower elevation.
3 Clover Springs (700)	Small area with good representation of PIAL. Established collection site. Cones collected from 8 trees that are currently in a blister rust resistance test at Dorena. The collection stand has 14% and 22% blister rust detection. Other areas with 56% blister rust. Need to continue to collect seed, conserve and safeguard this stand and survey surrounding area for other collection, conservation, and planting opportunities behind MPB.	Rd. Access is by road. 1600000, 696 jeep road.	None in recent past or detected since 1910.	MPB has been documented since 2001 and activity continues to increase.
4 Bumping ½ William O. Douglas Wilderness ½ non-wilderness (12,000)	Small area with one known PIAL stand. Status of PIAL in this stand and rest of unit are unknown. MPB activity not known in PIAL but MPB is active in adjacent areas.	Good access by road 18001808, 1809 into center of unit.	None in recent past or detected since 1910.	MPB activity in area.
5 Section 3 Lake (2,900)	MPB activity widespread in SE and appears to have taken out the 2 known PIAL stands. In the NW portion, MPB took out most of the block of habitat in 2003. MPB may have killed PIAL in this block. 19% blister rust was detected in one area. Good potential for planting behind beetle killed stands. Need surveys to determine current status.	Access to west by roads 1204000, 1205000. Access to East 105000 to 615/621, all 4X4.	East Spruce/Dome Fires; 2001 does not appear to have involved any suitable habitat.	MPB wide spread and activity in PIAL habitat. MPB first detected in 1994 and took out most of the habitat by 2003 and continues to be very active.

**Data Table for Conservation Area 404
Okanogan-Wenatchee and Gifford Pinchot National Forests**

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
6 Timberwolf ½ in William O. Douglas Wilderness ½ non- wilderness (200)	Small area with PIAL trees 50-70 years old. Cone production noted in past. 33% blister rust detected. No MPB activity detected in this stand. High priority for collection and conservation area.	Access through road 1506000-190.	None in recent past or detected since 1910.	None detected since 1994.
<p><i>Three small fires occurred in 2001 and there have been no fires between 2001 and 1910. MPB have been active in this area for over 10 years, particularly in the south ½, and are continuing to spread through the area. This entire CA currently is at high risk of habitat loss due to fire when considering the increasing MPB activity. However, if drier weather conditions increase MPB rate of spread the risk will become considerably higher due to the increased fuels and the continuity of these fuels across the larger landscape. There are no recent fires to break up continuity of fuels that would slow the spread of fire if it gets started.</i></p>				

Prepared by: T. Ohlson, M. Poor, and D. Marcott

**Data Table for Conservation Area 405
Gifford Pinchot National Forest**

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
1 Mt Adams Wilderness (14,200)	There are some krummholz-type patches around High Camp at the north end of the area and the south end near Cold Springs.	Access easy at south end from Cold Springs trailhead. Access from other points involved 1½ to 3 hour hikes	No recent documented fires,	No recent MPB activity detected in aerial
2 Cold Springs (1,500)	PIAL occurs outside the conservation area above Trail #9 in krummholz formations along rocky ridges and as standing tree groups on more gentle slopes. PIAL also occurs on Aiken Lava Bed into lower elevations than typically found.	Access via Cold Springs trailhead located in SW corner of the area. To reach Trail # 9, "Round the Mountain", takes about 40 minutes. Cold Springs Trailhead is about 50 minutes from the town of Trout Lake.	No recent documented fires	No recent MPB activity detected in aerial surveys

Prepared by: John Scott

Data Table for Conservation Area 501 Mt Hood National Forest

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
1 Meadows (2,900)	<p>Meadows is located just west of Mt Hood Meadows Ski Area, is mostly PIAL; a very dense stand with dense regeneration. The majority of stems are in the pole size class and stand age is fairly young (< 112 years). Blister rust present (69% of live stems with 55% of live stems have a severity score of ≥ 3) although a healthy blister rust free regeneration layer exists. 70% of stems were dead. Clark Creek, located east of Mt Hood Meadows Ski Area, is mostly PIAL; dense stands with low amounts of regeneration. The majority of stems are in pole and mature size classes; taller, and somewhat older (Clark Cr. is 142 – 172 years Some PIAL are quite large (25" DBH). 54% of stems were dead. <i>Blister rust infection is relatively severe at Clark Cr. where >80% of the live stems are infected and >50% have a severity score ≥ 3 (bole infection, or branch infection located 6" or less from bole and/or topkill caused by blister rust.) Pruning could help the 15% or so of stems with branch infection located between 6" and 24" from bole, but at least 50% of the stems at these sites will suffer topkill or die fairly soon. Planting with resistant stock will be needed at these sites as long-term survival of these trees is doubtful.</i> Cones were present on >44% of the live stems at both Meadows and Clark Creek. Potential restoration area, high visitor destination and high potential for partnerships and development. Clarks Nutcrackers in abundance observed in both areas.</p>	<p>Good access to ski areas at the high elevations. Dirt road access for ski area maintenance adjacent to several PIAL areas. Additional access from Timberline and other trails.</p>	<p>No evidence of fire was observed in the condition survey. Disturbances are mainly geologic (landslides, debris flows), hydrologic (avalanche) and movement of soil surface by wind. None mapped.</p>	<p>Large scale MPB epidemic in the area expected to continue. Transect surveys for this unit did not detect MPB but aerial surveys did detect MPB.</p>

Data Table for Conservation Area 501 Mt Hood National Forest

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
2 Cloud Cap (300)	<p>Tilly Jane has very dense, Krummholz stands, nearly 100% PIAL. Abundant PIAL regeneration with relatively light blister rust infection (27% with 25% of live stems with severity score ≥ 3). 5% of stems were dead. Cones were observed on 10% of the live stems.</p> <p>Cloud Cap has dense stands with low amounts of regeneration. The stand is primarily PIAL with some Mt hemlock. A majority of stems are in pole and mature size classes, taller, and somewhat older (85-100years). <i>Blister rust infection is relatively severe at Cloud Cap where >80% of the live stems are infected and 50% have a severity score ≥ 3 (bole infection, or branch infection located 6" or less from bole and/or topkill caused by blister rust.) Pruning could help the 15% or so of stems with branch infection located between 6" and 24" from bole, but at least 50% of the stems at these sites will suffer topkill or die fairly soon. Planting with resistant stock will be needed, as long-term survival of these trees is doubtful. Mt hemlock encroachment has affected PIAL survival at Cloud Cap. 31% of the stems were dead. Cones on Cloud Cap were present on 60% of the live stems. Would recommend Cloud Cap for genetic conservation because it's the northern most contiguous stand in the seed zone. Potential restoration area, high visitor destination and high potential for partnerships and development.</i></p>	Road access. Rough improved dirt road with many switchbacks.	Need to investigate. No evidence of fire was observed in the condition survey. None within the last 50 years.	Large scale MPB epidemic continues and will be a continued threat. Transect surveys for this unit did not detect MPB but aerial surveys did detect MPB.
3 Timberline (2,200)	<p>Primarily PIAL, moderate density, abundant regeneration. Light blister rust infection (27% with 25% of live stems with a severity score >3). 28% of stems were dead. Cone collection has occurred in the past and some were evident during condition surveys (12% of live stems). Potential restoration area, high visitor destination and high potential for partnerships and development.</p>	Good road and trail access. May have additional access from ski maintenance roads.	No evidence of fire was observed in the condition survey. None mapped.	Large scale MPB epidemic continues and will be a continued threat. Transect surveys for this unit did not detect MPB but aerial surveys did detect MPB.

Data Table for Conservation Area 501 Mt Hood National Forest

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
4 Dog Springs (300)	<p>Dog Springs is mixed stand of PIAL, PICO, TSME and ABLA. The PIAL is very low density, extremely low regeneration, and fairly young (81 years). <u>The PIAL population at the Dog Springs site is in the poorest health of any stand on the Mt Hood NF.</u> 82% of stems were dead. <i>Blister rust infection is severe at these sites, 90% of the live stems are infected and 60% have severity scores >=3. Dog Springs is the only site where pruning might do some good (30 % of live stems have an infection score of 2). All sites would benefit from planting with resistant stock, particularly at Dog Springs where regeneration is nearly non-existent and stocking and survival rates very low.</i></p> <p>Good cone collection potential site due to accessibility. 20% of the live stems were bearing cones in 2003.</p>	Road access good. Gravel road to edge of Wilderness.	Need to investigate. No evidence of fire was observed in the condition survey. None mapped.	In 2003, MPB was observed with many dead pines observed in the condition survey, mostly PIAL. Believe MPB activity is continuing to spread during 2007. Anticipate additional mortality.
5 Lookout Mt / Flag Point Badger Creek Wilderness (1,100)	<p>Lookout Mt is a dense PIAL stand with relatively dense regeneration. Most stems are in the sapling and pole size classes, short, and relatively young (<93 years). Lookout Mt. is in better shape (39% infection of live stem), but still it has 28% of live stems with a score >=3. 51% of stems were dead (recent and old). Cones were present at Lookout Mt on 32% of the live stems. One of the most eastern most extent on the forest of PIAL and likely separate population than the Mt Hood PIAL population. Flag Point has moderate density, very low regeneration. Stand is mixed species. Stems are more evenly distributed across size classes and fairly old (71-210 years). Flag Point has severe blister rust infection with 84% of live stems infected and 63% with severity score >=3. 51% of stems were dead (many were recent). <i>Pruning could help the 15% or so of stems with branch infection located between 6" and 24" from bole, but at least 50% of the stems at these sites will suffer topkill or die fairly soon. Planting with resistant stock will be needed since regeneration is very low.</i> Very few cones were observed; 5% of live stems were cone bearing.</p>	Rough road to Flag Point and Lookout Mt stands. Trail access to higher points where PIAL can be found. Lower elevation areas within the unit are too low for PIAL.	Need to investigate. No evidence of fire was observed in the condition survey. None mapped.	In 2003, MPB were observed and intensity was either light or difficult to determine. Believed to be continuing during 2007 and anticipate additional mortality. Continued high level of MPB in adjacent lodgepole pine stands
6 Mt Hood Wilderness (9,600)	Scattered pockets of dense large size PIAL with high levels of recent mortality due to a combination of blister rust and MPB. Potential for cone collection depending on NEPA requirements.	Limited trail network in area. PIAL present along trail. Limited road access to trailheads.	None mapped.	Recent and continuing activity.

Data Table for Conservation Area 501 Mt Hood National Forest				
Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
7 Badger Butte Badger Creek Wilderness (100)	Badger Butte is primarily PIAL moderate density, most stocking is mature size, and stand age is moderate, (127-168 years). Abundant seedlings for next generation. High mortality (89%) due to blister rust (88% live stem infection with 75% with severity score >=3). Potential for cone collection. Observed 12% of live stems were cone bearing.	Road access nearby (~1/4 mile away). No trail.	Need to investigate No evidence of fire was observed in the condition survey. None mapped.	High levels of MPB in the adjacent lodgepole pine.
8 Trail 685 (500)	Suitable habitat along ~ 4 miles of ridge line, adjacent to Badger Creek Wilderness boundary. Presence or condition of PIAL unknown. Needs survey.	Good trail access and it appears to have good road access to trail system from both the N and S ends of ridge line.	None mapped.	None detected on map or immediately adjacent to area.
<i>The risk of PIAL habitat loss is high to very high for this CA. Lack of fires, high levels of MPB activity in both PIAL and adjacent PICO are increasing fuel loads and setting the area up for large scale high intensity fires in the future. Blister rust levels are exceeding 80% in many of the stands, decreasing the cone producing potential in this area which adds to increased risk of habitat loss.</i>				

Prepared by: T. Ohlson, J. Rice, and N. Lankford

**Data Table for Conservation Area 502
Mt Hood / Willamette / Deschutes National Forests**

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
1 Horseshoe Lake Olallie Lakes Scenic Area (200)	Horseshoe Lake is low density stand with moderate regeneration. The majority of stems occur in the sapling size class, heights are low (average 9'-14') and ages are moderate (40-138 yrs). Mortality is low. (9% of stems were dead). Blister rust is present but most of the stand appears blister rust free (23% of live stems were infected with 18% having a severity score of >=3). Potential cone collection site. 18% of live stems had cones during 2003 condition survey. This stand falls in the Olallie Lakes Scenic Area. Risk of habitat loss to MPB is moderate, but given no recent fires to break up continuity of fuels across landscape the combined risk of habitat loss is high.	Road access to within a mile of stand. Pacific Crest trail accesses stand.	Need to investigate No evidence of fire observed during 2003 condition survey.	High level of MPB in lodgepole stands in area.
2 Mt Jefferson Vicinity Mt Jefferson Wilderness (5,200)	Status of PIAL mostly unknown. 50% blister rust noted in one area along northern edge of unit. Note Warm Springs Reservation had a big fire in 2007 (WSA fire, close to 100,000 acres not on map) which burned the Olallie Butte flanks and southward in higher elevation PIAL habitats mainly on the eastside. Contact Lynn Medley for more information on this including other PIAL habitats on the reservation of The Confederated Tribes of Warm Springs, at 541-553-2416. Chris believes seed collections took place in 2006 on Tribal reservation lands. Recent fires have increased risk of habitat loss to MPB in near future. Surveys needed to determine status and restoration opportunities. No MPB activity detected in PIAL in 2005, but 2007 fires likely have but PIAL in this area at high risk of loss. Given recent fires provides some protection from future events, risk of habitat loss to future fire is moderate.	Trail access only. No roads within ~ 1.5 miles of habitat. Pacific Crest Trail is stock accessible	No recent fires detected	Chris has heard MPB mortality is very high in area. As of 2005 no MPB activity was detected in PIAL on Olallie Butte.
3 Three Fingered Jack North Mt Jefferson Wilderness (4,900)	Moist the suitable habitat burned over in recent fires. PIAL status unknown at this time. Several PIAL stands appear to have survived the fires but likely now are experiencing increased MPB mortality. Survey to determine PIAL status, collection potential, and restoration needs.	Remote trail access only. No nearby roads from west and limited road access to trails from east. Pacific Crest Trail access from south end via Hwy 20.	2003 B and B complex, 2002 Mount Marion, 2006 Puzzle	None detected from aerial surveys between 2004 - 2006. Activity prior to this unknown.

Data Table for Conservation Area 502 Mt Hood / Willamette / Deschutes National Forests

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
4 Three Fingered Jack South Mt Jefferson Wilderness (4,900)	Observed limited PIAL along Pacific Crest Trail (2006) along the vicinity of 3 Finger Jack. PIAL appears to be well documented in this unit, but Chris believes much of the area east of the Pacific Crest Trail is PICO. Good habitat potential is along the 4012 trail in the very S end of unit. This needs surveying. Much of the area burned over in 2002 & 2003 fires. Suspect heavy rust infection levels. One stand w/ 84% blister rust. Mainly single stemmed and isolated PIAL along Pacific Crest Trail including a 2006 stand cone collection (4 trees) in the Porcupine Rock vicinity (not burned over). Seed in rust resistance test at Dorena. Heavy MPB in spots, along with conifer encroachment – 3 Finger Jack exposed southern ridgelines and upper exposed aspects (climber routes – want to explore '08) appear to have PIAL habitats including Krummholz patches which are priority areas for further tree selection/collection/resistant candidates. Climbing ladder cached in vicinity for further collections. The north high country aspects including Canyon Creek meadows vicinity at base of “Jack” have thinly isolated PIAL due to heavy sub-alpine fir/mixed conifer associations. Most of the burned over stands were lodgepole or mature mixed conifer stands. MPB active in PIAL increasing risk of loss in post-fire environment. Very high risk of habitat loss due to recent fires and increased MPB activity.	Tough access - minimum 7 miles on trail. Stock accessible trails.	2003 B-B complex, 2002 Mt Marion Much of the burned over in these 2 fires.	Spotty, Porcupine Rock vicinity PIAL stands have moderate mortality from MPB. Considerably more mortality & activity than the map indicates.
5 Black Butte Summit (200)	Isolated population of PIAL. Good PIAL on mountain top. Population on the southern aspect - 5 PIAL select trees with collections (2006). Seed is stored and being tested for rust resistance at Dorena. PIAL ranges from single stemmed to semi-Krummholz near summit. Moderate to heavy rust infection levels (27% indicated on map). PIAL overall in poor shape. Old burn that occurred between 1950 -1960 has good PIAL regeneration. Trail to summit (active fire lookout) is very busy and popular with hikers. Good interpretive sign possibilities. High priority for continued rust resistant selections and collections, good potential for planting rust resistant stock on and around summit. No recent fires increases risk of habitat loss along with active MPB and relatively high blister rust in PIAL. Overall risk of habitat loss is high.	Good road and trail access – about 2 miles to summit. Helispot opportunity.	1970's burn on E side of summit is not PIAL habitat. Area is PICO dominated.	12% MPB activity in PIAL in 2005

Note: Chris Jensen believes the greatest opportunity for PIAL habitat on Deschutes is along the highest ridgelines. He does not believe there is PIAL habitat outside the wilderness except on Black Butte and on the Warm Springs Reservation. This could be a mapping/typing over-representation of habitat.

**Data Table for Conservation Area 503
Deschutes and Willamette National Forests**

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
<p>1 Three Sisters & Mt Washington Wilderness (17,400)</p>	<p>PIAL habitat throughout the Three sisters Wilderness. N ½ of the unit has wide range of blister rust infection rates ranging from 14% to 100%. Collections and inventory have occurred along the wilderness fringes in Ball Butte vicinity (Southeast) and Black Crater (North) vicinity. 2006 Lake George fire prevented planned inventory and collections in the Mt Washington vicinity and McKenzie pass areas. Good PIAL habitat that needs collections, fire burned high elevation habitats on southern flanks of Mt Washington – good potential for studies, surveys, etc. Collections from 5 trees in 2006 in Black Crater in stands with 27% blister rust. Black Crater fire (2006) did not burn the upper reaches into PIAL habitat (or select PIAL trees). No tree selections or collections (yet) to occur in the core or center of wilderness (S ½), Surveys are needed to determine PIAL status. MPB active throughout the area. 2006 fires will likely increase MPB activity in PIAL. Risk of habitat loss is very high given recent fires and increased incidence of MPB mortality in PIAL.</p>	<p>McKenzie pass vicinity accessible by Highway in North 1/2. Remote trail access to west edge of habitat. Pacific Crest Trail has stock access.</p>	<p>2006 Lake George bounds habitat to the north. 2006 Black Crater Fire to east (2 very small areas) included PIAL habitat. Otherwise no recent fires in the area.</p>	<p>Active MPB on eastern front of Wilderness. Areas of moderate to heavy PIAL mortality. Much more MPB activity in area than indicated on map.</p>
<p>2 Tam McArthur Rim Three Sisters Wilderness (6,700)</p>	<p>Good PIAL habitat throughout unit. Good distribution of seedling/sapling sized PIAL on Tam McArthur rim. Good potential for long term monitoring plots on Ball Butte, Tam McArthur Rim, and vicinities. Moderate to heavy MPB activity and mortality in PIAL / PICO. Blister rust infections range between 5% and 19%. Conservation of seedling / sapling stands important for next generation cone producers. Risk of habitat loss is high to very high due to lack of recent fires and increasing mortality from MPB in PIAL.</p>	<p>No trail or road access into center of area. Some trail and road access around perimeter of area.</p>	<p>None mapped.</p>	<p>MPB activity - moderate to heavy through out area. Widespread damage/mortality in Three Creeks Lakes Basin and eastern front country of the Three Sisters Wilderness.</p>

Data Table for Conservation Area 503 Deschutes and Willamette National Forests

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
3 Bachelor Butte / Tumalo Mt (19,600)	Bachelor Butte (Mt Bachelor Ski area) has a good population of PIAL – 8 select trees, moderate MPB with PIAL mortality occurring, 12% blister rust in stand. PIAL seed germ study plots installed in 2006 (working with John Schwandt). Good potential for rust resist planting, continue to select trees for rust resist., to cooperate with ski area for interpretation signs, and possible conifer encroachment/thinning/ releasing PIAL in some areas of ski area. Good PIAL habitats on both Tumalo Mt to East of Bachelor Butte and Kwoh Butte to South. Suitable PIAL habitat is likely more restricted east and west than is shown. South of Kwoh butte and trail 8004, PIAL habitat is more limited due to heavy mixed conifer forest and is likely not suitable for inclusion in Conservation Strategy. Unit is roadless down to Sheridan Mt. Roaded section, which includes Sheridan Mt, shown as suitable habitat is not suitable and the map should be adjusted. Lack of recent fires and increasing MPB mortality in PIAL leave this habitat at high to very high risk of loss.	The developed ski area on Bachelor butte has good road access. The remainder of the unit is a designated road less area. Tumalo Mtn has trail access; the remaining southern has limited trail access.	None mapped.	Active MPB activity - moderate to heavy through out area – including widespread damage/mortality on Tumalo Mt and more spotty on Bachelor Butte.
4 Broken Top Non-wilderness inclusion and Three Sisters Wilderness (900)	Mature PIAL. Established collection areas. Cones collected from 8 trees inside & outside the wilderness. Seeds in rust resistance trials at Dorena. PIAL seedlings planted in a number of small rehab sites outside wilderness near Broken Top trailhead. Potential for more tree selections, collections and planting rust resist stock. Area has 10% to 20% rust infection rates. Conservation of collection stands needed along with establishment of additional collection sites is needed. Lack of recent fires and increasing MPB mortality in PIAL leave this habitat at high to very high risk of loss.	No trail access in unit. Some trail and road access along the periphery.	None mapped.	MPB active in area moderate to heavy. Infestations resulting in high mortality.

Data Table for Conservation Area 503 Deschutes and Willamette National Forests

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
5 Three Creeks Basin (900)	<p>Nearly pure stands of mature PIAL in Three Creeks Lake Basin and vicinity with rust incidence of 20-25%. Seed collections from 8 trees showing good rust resistance. Good existing seed inventories from vicinity. Most select trees received verbenone pouches in 2006, which for some were too late. Potential for rust resist plantings around lake and vicinities outside Wilderness boundary. Moderate to heavy MPB activity and PIAL / PICO mortality occurring. The size and composition of this stand of PIAL is unique for this area. Lack of recent fire and high incidence of MPB killed PIAL leave this habitat at very high risk of loss.</p>	<p>Excellent road access with campground in the heart of population.</p>	<p>None mapped. 1979 Bridge Creek provides some fuel break protection from the SE.</p>	<p>MPB activity - moderate to heavy through out area – including widespread damage/mortality in Three Creeks Lake Basin and eastern front country of the Three Sisters Wilderness.</p>

Prepared by: T. Ohlson and C. Jensen

Data Table for Conservation Area 504 Deschutes and Willamette National Forests

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
1 Packsaddle Mt Three Sisters Wilderness (7,400)	No PIAL ground-truth knowledge of area – desire to survey in '08. Suspect limited habitat exists in area. Would expect to find limited PIAL populations on higher peaks (Packsaddle, Roundtop and Irish Mtns,) Area lacking in suitable PIAL habitat i.e. exposed ridges/summit. Heavy mixed conifer forests in much of area. Unit needs PIAL survey and possible cone collection/ resistance selections. No recent fires and increasing MPB activity in area leave the area at moderate to high risk of habitat loss.	Difficult and lengthy trail access – all Wilderness trails.	None	MPB in area.
2 Cultus Mt (1,000)	Have selected and collected cones (2006) from 5 PIAL select trees near summit on Cultus Mt. Cultus Mt PIAL population estimated to have +/- 40% rust infection rates. Lower elevation habitat for PIAL. Good habitat overall. PIAL early seral species on this site. Conifer competition increasing. Spotted Owl habitat area may restrict thinning opportunities. No recent fires and MPB activity in area leave the area at moderate to high risk of habitat loss.	Road access. Road is rough to old Lookout.	None	MPB in the area.
3 The Twins (13,300)	No ground-truth PIAL knowledge of unit. I have observed isolated and scattered PIAL along Rd 4290 and spurs. Desire to survey The Twins peaks for PIAL. I think PIAL habitat is limited due to lack of exposed topography, contiguous forest canopy. Suitable habitat includes just the crest and higher mountain tops. No recent fires in area and blister rust levels unknown. 1996 fire breaks up fuel continuity in very NW section providing some protection from future fire events. MPB activity in area leaves the area at moderate risk of habitat loss.	Difficult trail access to the higher peaks (The twins) in area.	1996 Charlton to the NW of habitat. Provides some fuel break to very N end of area.	MPB in area.
4 Maiden Peak & Maklaks Mt (7,500)	No ground-truth PIAL knowledge of western part of unit. The few, isolated mountain tops such as Maiden Peak has good PIAL habitat on exposed summit and east aspects. Survey – priority area to access habitat in 2008 along with tree selection. 26% blister rust detected near Maiden Peak. Maklaks Mtn also appears to have PIAL habitat near exposed summit (no road or trail). No recent fires and MPB activity in area leave the area at moderate to high risk of habitat loss.	Maiden Peak is accessible by a 5 mile trail. Maklaks Mt has no road or trail access.	None	MPB in area.

Data Table for Conservation Area 504 Deschutes and Willamette National Forests

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
5 Hammer Butte Lookout (300)	Good PIAL population on upper southern aspects but population has moderate to high rust infection levels, moderate conifer encroachment, low MPB. No known blister rust in rest of area. Entire area burned over in 2003 Davis Lake fire. Isolated population. Need to survey area for potential restoration and assess post-fire PIAL survival and condition. Collections made from 5 select PIAL and in rust resistance testing in Dorena. Available seed for restoration unknown. Active fire lookout on summit provides good access. This site is one of the lowest known elevation habitats for PIAL. Since the area burned over in 2003, suspect increased MPB activity may result in high risk of habitat loss due to post-fire increases in MPB.	Good Road access to summit - Gated and closed to public (fire lookout).	2003 Davis Lake burned over entire habitat.	MPB likely increased after fires. Current Status unknown.
6 Odell Butte (200)	Isolated population of PIAL. Currently mapped in CA 701, but Chris feels this area best fits into this CA. Area is about 3 miles SE of Hammer Butte. Collections made from 5 select trees and currently in rust resistance testing at Dorena. Due to lack of fires to break up fuel continuity and increasing MPB activity, risk to this habitat is high.	Good Road access off the Hwy.	None	MPB are more active in the area than map indicates. Current status in PIAL is unknown.

Note: Chris Jensen feels the only suitable habitat is associated with the mountain crests and ridge lines. Areas of suitable habitat need to be reduced in the largest blocks of habitat identified.

Prepared by: T. Ohlson and C. Jensen

Data Table for Conservation Area 505 Deschutes National Forest

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
1 Newberry National Volcanic Monument (7,300)	<p>Good PIAL habitat and tree distribution along south, east, and northeast rim of caldera. Some small pockets and scattered individual PIAL trees in and around the caldera floor. Paulina Peak has good PIAL habitat/populations and nearly pure mature PIAL stands west of Peak summit. Rust distribution low – ranging from 10%-15% on western portions of unit (Paulina Peak vicinity) to 0% in eastern areas including The Dome, Red butte and Sand butte vicinities, despite ribes presence in these PIAL stands. Observed PIAL stands in eastern area around Paulina Peak (2121 rd vicinity) with moderate mistletoe infections. In the western area around Paulina peak, there is a PIAL seed germ plot (2006) and a seedling out-planting study (2007). Established seed collection site. Seeds collected from 18 trees. Seeds being blister rust resistance tested at Dorena. Excellent opportunities exist in area for resistant plantings, more resistant candidate tree selections, public interpretation kiosk or signage/interpretation. Trail at Paulina Peak parking lot/viewpoint provides good access and public visibility. MPB activity is light and 1988 Paulina fire provides some protection from the east along with other smaller fires outside CA. Risk of habitat loss is currently moderate due to light MPB activity and recent fires that have broken up the fuel continuity.</p>	<p>Good access. Entire rim has established trail; limited road access with in unit. Seasonal road access to Paulina Peak summit – with heavy summer visitation.</p>	<p>No recent fires within unit to break up fuel continuity. 1988 Paulina fire will provide a good fuel break for some time.</p>	<p>Small centers of attack scattered in area. Only light to very light MPB mortality in PIAL.</p>

Prepared by: T. Ohlson and C. Jensen

Data Table for Conservation Area 601 Wallowa-Whitman National Forest

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
<p>1 Mt Howard/ Big Sheep Basin Eagle Cap Wilderness with small non-wilderness inclusion (13,300)</p>	<p>In 2005, there were 18 permanent plots (#10-27) established in this Unit using the Whitebark Pine Ecosystem Foundation (WPEF) Method and extensive plot data is available. Whitebark pine (PIAL) occurrence is predominately at the ridgeline of Mt Howard from the wilderness boundary south; there are only incidental amounts of PIAL in the non-wilderness stands indicated on the draft map, but are being included in the overall boundary for this Unit; trees range in size from saplings to poles (mostly <9" DBH); larger trees 21"+ are dead from MPB activity, both past and more recent. Cones have been collected from the top of Mt Howard in this Unit previously and sent to Dorena Genetic Resources Center for rust testing (no results at this time); there is no PIAL seed currently on inventory from this Unit that could be used for general reforestation or restoration activities. Recent fires to SE and E provide some protection from future ignitions but increasing MPB leaves this habitat is at moderate to high risk of loss.</p>	<p>The northern portion of this Unit is accessible via the top of the Mt Howard gondola lift and then hiking south to East Peak.</p> <p>Access into the eastern and southern portions of the Unit are via the end of Rd 3900100, Big Sheep Creek Road, and then hiking the Tenderfoot Trail system #1819 and #1812 west and north into Big Sheep Basin and Wing Ridge.</p>	<p>No other large fires have occurred in this Unit other than the 20,000+ acre Canal Fire of 1989 just outside the eastern boundary as mapped.</p>	<p>Not only is there evidence of significant mortality from the MPB epidemic of the 1970's that was widespread across northeast Oregon, as evidenced by the numerous, older PIAL 'ghosts' that remain on the higher elevation landscape, but approx one-third of the plots in this Unit are experiencing more recent beetle activity, as well.</p>
<p>2 Lostine Eagle Cap Wilderness (69,400)</p>	<p>In 2005, there were 51 permanent plots (#1-9; 28-69) established in this Unit using the WPEF Method and extensive plot data is available. Trees range in size from saplings to poles with about 10% of the plots having a greater abundance of small to medium size trees, ranging from 9-16" DBH; most larger trees 21" and greater are dead from recent MPB activity; 20% of the plots had significant amounts of mortality recorded (>25% of the trees tallied). The most northern ten plots around Frances Lake Trail have a greater abundance of seedlings as compared to all other plots; this increased regeneration success may need further investigation. A few small fires in west 1/2 provide little protection from future ignitions but given the size of this unit and MPB activity this habitat is at moderate to high risk of loss.</p>	<p>This Unit is mainly accessible via Rd 8210, the Lostine River Road, and the many trailheads that take-off from points along this road—Frances Lake Trail #1663; Bowman Trail #1651 to Chimney Lake Trail #1659; Two Pan Trailhead #1670 to Copper Cr Trail #1656; East Lostine River Trail #1662 to the Lakes Basin Trail #1810.</p>	<p>As mapped, the Green Lake Fire of 1987 and Hazel MT Fires of 2003 and 2004 on the southwestern edge of the Unit, and Bear Creek Fires A & B of 1986 and Fox Point Fire of 1994 on the northwestern edge of the Unit, are the only significant fires in the last 25 yrs.</p>	<p>As mentioned in Unit 1 above, MPB activity and mortality was significant in the past, and more recently, beetle activity is showing up again and creating additional new mortality.</p>

Data Table for Conservation Area 601 Wallowa-Whitman National Forest

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
3 West Eagle/ Buck Creek Eagle Cap Wilderness (8,100)	In 2005, there were 21 permanent plots (#80-100) established in this Unit using the WPEF Method and extensive plot data is available. Trees range in size from saplings to poles, mostly <6" DBH; there were very few trees >15" across all plots in this Unit; only one plot had any significant mortality which was attributed to blister rust. Several small fires have broken up the fuel continuity and provide some protection from future ignitions, but increasing incidence of MPB leave this area at moderate to high risk of loss.	Access is mainly from the La Grande Ranger District, either via the end of Rd 7787, the Buck Creek Road, and then hiking east and north along Buck Creek Trail #1944 towards China Cap; or via the end of Rd 7700500 at West Eagle Meadows, then hiking north along the West Eagle Creek Trail #1934 to Echo and Traverse Lakes.	As mapped, the Little Minam Fire of 1985, Squaw Butte Fire of 1987, Mule Peak Fire of 2005, and just outside the northwest boundary of this Unit, the Jim White Ridge Fire of 2004, are the significant fires that have burned here in this Unit in the last 25 years.	MPB activity, both past and more recent, is not as prevalent in this Unit as the others.
4 Summit Point/ South Fork Imnaha River Eagle Cap Wilderness (31,200)	In 2005, there were 10 permanent plots (#70-79) established in this Unit using the WPEF Method and extensive plot data is available. Trees range in size from saplings, poles, to small-saw less <15" DBH; two plots with significant mortality from recent MPB activity. Recent fires are few, small, and do little to break up fuel continuity leaving the habitat vulnerable to fire. Large fires to the east do provide good fuel break for future ignition. Even with some fire protection and the reduced MPB activity, the risk of habitat loss is at least moderate.	Access is from that portion of the Whitman Ranger District out of Halfway, mainly off of Rd 7715, the Summit Point Lookout Road, and then hiking north along Trail #1885 beyond Pine Lakes and Crater Lake on over to the South Fork of the Imnaha River	As mapped, the Ditch Creek Fire of 1987 and Trout Creek Fire of 2007 are located within this Unit. Twin Lakes Fire of 2006 is larger than indicated on your map. The two hatched areas were added to the map to show the additional acres for this fire.	Aside from two of the ten plots in this Unit, MPB activity, both past and more recent, is not as prevalent in this Unit as the others.

The Eagle Cap Unit lies entirely within the Eagle Cap Wilderness, except for very small 'fingers' along the fringes of some boundaries (i.e., Unit 1 and the north-facing slope just south of Mt Howard). Based on the data collected from the 100 plots established in these Units, mortality of whitebark pine was approximately 15%. The principle cause of mortality, especially among the older trees, was attributed to the mountain pine beetle epidemic that occurred in northeastern Oregon during the 1970's. White pine blister rust accounted for approximately 15% of the observed mortality, mostly of which was in the younger age classes. In strong contrast to the Elkhorn Area at 73%, only 27% of the live trees in the Eagle Cap Area (Wallowa Mountains) were infected with blister rust and the majority of the infected trees had bole cankers or branch infections located within 6" of the bole. The oldest live whitebark pine trees (>500 yrs) and slowest growing (>100 yrs per inch of radius) also occurred in this Eagle Cap Wilderness Area of the Wallowa Mountains.

Due to the fact that this area lies within the wilderness, opportunities to RESTORE whitebark pine could be more problematic than in the Elkhorn Area just because artificial regeneration and conifer release activities are not normally in keeping with the goal of minimizing human interference. However, suppression activities for insect and disease outbreaks may be permitted with approval (Chief of the Forest Service) to prevent loss within wilderness. Biological methods, when available, would be favored (i.e., wildland fire use for resource benefits).

**Data Table for Conservation Area 602
Wallowa-Whitman National Forest**

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
<p>1 Marble Creek Pass / Baker City Watershed (5,500)</p>	<p>In 2005, there were 23 permanent plots (#1-17, 95-100) established in this Unit using the Whitebark Pine Ecosystem Foundation (WPEF) Sampling Method and extensive plot data is available.</p> <p>Plots sampled in this Unit were some of the healthier trees in the entire Elkhorn Area and approx one-third of the plots sampled exhibited few to no active cankers.</p> <p>Trees mostly ranged in size from seedlings to small-saw (<16 inches DBH); large trees 21" and greater are few and mostly dead from past white pine blister rust or MBP infections;</p> <p>Some cone collections have been made in this Unit previously, but only a little over just one pound of seed is currently on inventory.</p> <p>Within this Unit, a 35-acre thinning and sanitation project was designed to reduce the current severity and future potential intensification of white pine blister rust on two PIAL stands just below treeline in the Elkhorn Range of the Blue Mountains on the Wallowa-Whitman NF; project implementation occurred in FY1999/2000 and consisted of falling rust-infected PIAL, falling sub-merchantable ABLA, PIEN, PSME competing with PIAL, and then hand piling and burning the slash in order to increase spacing, reduce rust infection, and increase vigor of leave trees; all objectives appeared to be met, but soon after project completion, the Canada Lynx Conservation Assessment & Strategy (08/2000) eliminated any further restoration projects in similar PIAL communities on the Forest; the most recent Conservation Agreement Amendment (06/2006) that classified the NE Oregon Forests as unoccupied habitat may provide opportunities for further restoration projects in the future once such a project can be tested through the Endangered Species Act and Consultation process; there are many situations where PIAL has been encroached on by spruce and fir as a result of fire suppression over the last 80 yrs and the competition from these late seral species has affected</p>	<p>Travel Marble Creek Road, 6510, to Marble Creek Pass where the Elkhorn Crest Trail, #1611, takes off towards Twin Lakes.</p> <p>Most of this Unit lies within the Baker City Watershed and any additional motorized access from that mentioned above is very limited. What may appear to be roaded access on maps, can be behind locked gates with controlled entry in order to limit access into the City Watershed that provides the municipal water supply to Baker City.</p>	<p>There have been few to no fires of any significant size in this Unit for the past 80 yrs. This Unit encompasses the Baker City Watershed, and as a result, fire suppression has been very aggressive over the years in order to prevent any degradation to the municipal water supply for Baker City.</p>	<p>MBP activity and mortality in lodgepole was relatively severe and widespread across the Blue Mts in the 1970's. One consequence of that infestation was the apparent movement through lodgepole stands up the draws and into higher elevation stands where susceptible whitebark pine was also affected. Not only is there evidence of significant mortality from that past infestation, as evidenced by the numerous, older PIAL 'ghosts' that remain on the higher elevation landscape, but approx one-third of the plots sampled in this Unit are experiencing recent beetle activity.</p>

Data Table for Conservation Area 602 Wallowa-Whitman National Forest

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
<p>2 Crater Creek / Mt Ireland with small inclusion of the N Fork John Day (NFJD) Wilderness (6,500)</p>	<p>Area not as originally mapped, the Unit is immediately adjacent to both the southern and eastern borders of the North Fork John Day (NFJD) Wilderness where some stands of whitebark pine do occur within the Wilderness area, especially along its eastern boundary just off the Elkhorn Crest Trail.</p> <p>In 2005, there were 48 permanent plots (#31-43, 60-94) established in this Unit using the WPEF Method and extensive plot data is available; all plots were conducted outside the NFJD Wilderness boundary.</p> <p>Both active and inactive cankers were observed on most plots in this Unit where live trees mostly ranged in size from seedlings to small-saw size trees (<15" DBH); there are some larger live trees in the 16-20" diameter sizes, and even fewer 21" and greater trees, which are mostly dead from past white pine blister rust or mtn pine beetle infections.</p> <p>Past 1996 fire to the NW provides some fuel break protection from future ignitions along with other fires to the north. With MPB activity increasing and high incidence of blister rust, the risk of habitat loss is likely high.</p>	<p>Travel Cracker Creek Road, 5530, to Pole Creek Pd, 5536, to end of Road 5536200 and pickup Pole Creek Ridge Trail, #1624. Hike north towards Elkhorn Ridge and the Elkhorn Crest Trail, #1611.</p> <p>Travel Cracker Creek Road north of Bourne onto the Columbia Hill Road, 5505, and continue north to where the Elkhorn Crest Trail intersects NFJD River Trail, #1640, the Summit Lake Trail, #1635, and the North Powder River Trail, #1632.</p> <p>Travel the Elkhorn Drive, 73 Road, from Sumpter west to Deep Creek and travel north to end of Road 7370130 to Mt Ireland Trail, #1604.</p>	<p>The Sloans' Ridge Fire of 1996 (not included on your map) burned approx 10,000 acres within the NFJD Wilderness, nearly three-quarters of the entire wilderness area from its eastern boundary westward. The fire was predominately stand-replacing and may have provided an opportunity to re-introduce some PIAL back into the area, but the amount of competing, advanced regeneration that may have established over the last 12 years since the fire could possibly hamper success. Additional plots/surveys within the NFJD Wilderness area may be needed to determine likelihood of success following any artificial regeneration activities.</p>	<p>As mentioned in Unit 1 above, MBP activity and mortality was significant in the past, and more recently, beetle activity is showing up again and creating additional new mortality.</p>

**Data Table for Conservation Area 602
Wallowa-Whitman National Forest**

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
<p>3 Elkhorn Face (6,600)</p>	<p>No permanent plots have been established in this Unit to-date; whitebark pine occurrence and current health status is unknown for this Unit.</p> <p>If funding for the establishment of similar permanent plots as conducted in the other three Units is limited, at a minimum, a walk-thru survey of this area is needed.</p> <p>Small 2006 fire in center of unit breaks up fuel continuity. Risk of habitat loss is unknown. MPB activity and surrounding blister rust infection rates likely leave this area at moderate risk of loss.</p>	<p>Unit is predominately roadless. North Powder River Road, 7301 to Red Mt Lake Trail, #1625, or to Summit Lake Trail, #1635.</p> <p>Rock Creek Road, 5520, to Killamacue Creek Trail, #1617, or to Rock Creek Lake Trail, #1626.</p> <p>Pine Creek Road, 5460, to Pine Creek Reservoir or to Rock Creek Lake Trail, #1626.</p> <p>Both the North Powder River Road and the Rock Creek Road are extremely rough, 4-wheel drive/high clearance only, and can be impassable for much of the year.</p>	<p>The Elkhorn Complex Fire of 2006 lies within this Unit.</p>	<p>MPB activity detected in the area since 2004. Unknown at this time if MPB are active in PIAL.</p>

Data Table for Conservation Area 602 Wallowa-Whitman National Forest

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
4 Anthony Lakes / Crawfish Basin (1,400)	<p>Not as originally mapped, the Unit is immediately adjacent to the northeastern border of the North Fork John Day (NFJD) Wilderness where some stands of whitebark pine do occur within the wilderness area, especially along its eastern boundary just off the Elkhorn Crest Trail.</p> <p>In 2005, there were 28 permanent plots (#18-30, 44-58) established in this Unit using the WPEF Method and extensive plot data is available.</p> <p>Both active and inactive cankers were observed on most plots in this Unit where live trees mostly ranged in size from seedlings to pole size trees (<10 inches DBH); there are some larger live trees in the 12-18" diameter sizes, and even fewer 21" and greater trees, which are mostly dead from past white pine blister rust or MBP infections;</p> <p>Some cone collections have been made in this Unit previously, and there is currently 11 pounds of seed on inventory.</p> <p>Past fires provide good fuels breaks from future ignitions. Increasing MPB and high blister rust infection rates in area leave this habitat at high risk of loss.</p>	<p>Travel Elkhorn Drive, 73 Road, just east and downhill of Anthony Lakes Ski Resort at Little Alps, 7300131 Road to Van Patten Lake Trail, #1634.</p> <p>Elkhorn Drive, 73 Road, to Anthony Lakes Campground and Elkhorn Crest Trail, #1611 to Black Lake Trail, #1600, and Hoffer Lakes Trail, #1641.</p> <p>Elkhorn Drive, 73 Road, past Anthony Lakes Ski Resort to Lakes Lookout Road and follow Road 7300210 west to backside of ski lift to intersection with Lakes Lookout Trail, #1618, and Crawfish Basin Trail, #1612. Crawfish Basin Trail, #1612, will intersect the Elkhorn Crest Trail, #1611, at Dutch Flat Saddle.</p>	<p>The Crawfish Basin Fire of 1995 and a small portion of the Sloans' Ridge Fire of 1996 both lie in this Unit. The Crawfish Basin Fire was a Prescribed Natural Fire of approx 500 acres that was a mixed severity of ground-creeping and some tree torching, but mostly a mosaic of spotty burning across the area. Whereas the Sloans' Ridge Fire became a wildfire and consisted mostly stand-replacing that resulted in high intensity and high severity.</p>	<p>As mentioned in Unit 1 above, MBP activity and mortality was significant in the past, and more recently, beetle activity is showing up again and creating additional new mortality.</p>

*Overall, the Units in this broader Elkhorn Area make up a good central location within Seed Zone 6 for managing PIAL outside wilderness. The area is mostly accessible via the Elkhorn Crest Trail, and access to the Trail can be made from numerous points from high elevation roads. Based on the data collected from the 100 plots established in these Units, mortality to whitebark pine was approximately 8%. The principal cause of mortality, especially among the older trees, is attributed to the mountain pine beetle epidemic that occurred in northeastern Oregon during the 1970's. White pine blister rust accounted for approximately 15% of the observed mortality, mostly of which was in the younger age classes. Blister rust prevalence is extremely high in the Elkhorn plots, where infection rates were 73%. The majority of the infected trees (>75%) had either bole cankers or branch infections located within 15 cm of the bole (i.e., severity rating of 3). Opportunities to **RESTORE** whitebark pine in this area could be undertaken with additional conifer release and cone collection/artificial regeneration where appropriate.*

**Data Table for Conservation Area 603
Malheur and Umatilla National Forests**

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
<p>1 Indian Rock Malheur (200)</p>	<p>PIAL only occurs as individual trees or small clumps, rarely in any closed canopy situation. Only a few trees present at the top of Indian Rock, near the Lookout. PIAL status unknown for post-fire restoration, PIAL survival, or collection opportunities. MPB are currently active in the area. Mike does not believe there is suitable PIAL habitat in the southern portion of the potential habitat originally mapped. The Forest redrew lines and combined former Unit numbers 1 & 2 into continuous stringer (now Units 1, 2, 3, and 4). Mountaintops heavily/severely grazed by sheep in 1800-early 1900's, with subsequent loss of soil. Fires have burned large portions but rarely consumed all PIAL due to lack of continuous ground fuels. Beetle activity present, suspect blister rust. Given recent fires and active MPB in area, existing PIAL may have already been lost.</p> <p>This area has been scheduled into the PNW-LaGrande Lab's 2008 Program of work for the Area Entomologist and Pathologist to document the levels of beetle and blister rust levels in the WBP at several locations.</p>	<p>Indian Rock Lookout has good road access and likely good helispots left from past fires.</p>	<p>1994 Indian Rock, 1996 Summit. Entire area burned.</p>	<p>MPB is active in the area.</p>
<p>2 Malheur North (<50)</p>	<p>Unknown status of PIAL. No information at all from this area is available. Mike Tatum mapped as suitable habitat on Malheur side. Habitat suitability on the Umatilla side is not confirmed.</p> <p>This area has been scheduled into the PNW-LaGrande Lab's 2008 Program of work for the Area Entomologist and Pathologist to document the levels of beetle and blister rust levels in the WBP at several locations.</p>	<p>No direct road access and road from the S is closest access. While there are several trails, the trails tend to pass through what we believe are the highest concentrations of WBP (although scattered at best) The main trail can be followed from Indian Rock Lookout for about 7 miles to Vinegar Hill and stays on the ridge-top.</p>	<p>Nearly the entire area was burned over in the 1996 Summit and 1986 South fork fires.</p>	<p>None mapped. Unknown.</p>

Data Table for Conservation Area 603 Malheur and Umatilla National Forests

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
3 Vinegar Hill Umatilla (500)	<p>At the top of the circled Unit, in the area known as Vinegar Hill is a large population of PIAL. The area is approximately 193 ha in size. The stand is located mid way along E. Oregon Mt chain with good stands to the north and south. We have completed some conservation work and restoration treatments in the PIAL area during the last 6 years. The work has included stand exams (Vicky Erickson, Regional Office), thinning of competing conifer species (Vince Novotny, Umatilla NF), cone collection from 46 PIAL trees (Karen Prudhomme, Umatilla NF), seed planting studies (John Schwandt, Forest Heath Protection, Coeur d'Alene, ID) and tree planting (Karen Prudhomme, Vince Novotny, Umatilla NF). The area that was treated by thinning consisted of 3 units, totaling 33 ha. See the attached paper for more information about the project and the stand, including a map of the units. Some of the trees from the Vinegar Hill area are in blister rust resistance testing at Dorena and in genetic studies at National Forest Electrophoresis Laboratory. In the area, 49% has blister rust and MPB activity is extensive. We have treated the most accessible and the largest concentration of PIAL with thinning. We would plant with blister rust genetic stock in the openings. Our strategy is to conserve, collect and restore the PIAL in the area. The rest of the circled Unit will be address by Mike Tatum. (GIS shapefiles of the PIAL stand and of the treatment areas can be obtained by Vicky Erickson, Regional Office). No recent fires in immediate area, but some recent fires to N and W provide some protection from future ignitions. However, extensive MPB activity leaves this area at very high risk of loss.</p>	<p>Road access is good into the area with the largest concentration of PIAL. Helispots can be established in the large openings. There is also trail access to some of the isolated scattered PIAL.</p>	<p>1994 Reed fire burned SW of Unit. 1986 S. Fork and 1986 Lost Lake fires have taken out large blocks to the NW.</p>	<p>Large isolated pocket in the north end of Unit. MPB activity in PIAL is currently extensive.</p>

**Data Table for Conservation Area 603
Malheur and Umatilla National Forests**

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
<p>4 Vinegar Hill Mahleur (400)</p>	<p>Status of mature PIAL unknown. A cluster of stands appear to be documented around Vinegar Hill Lookout. Blister rust has been detected at 49% in one area. MPB are very active in the northern portion of the habitat that straddles both forests. One stand exam from the area shows PIAL at 10 TPA <2" DBH in a forest dominated by PICO with an average diameter 11.7", prime condition for MPB attack. There are over 1000 TPA of ABLA & PICO <4.5'. Possible thinning opportunity. Past fires to the west will provide good fuel breaks for some time. Area is vulnerable to fires from the NE, E, and S, especially as MPB activity increases.</p> <p>This area has been scheduled into the PNW-LaGrande Lab's 2008 Program of work for the Area Entomologist and Pathologist to document the levels of beetle and blister rust levels in the WBP at several locations.</p>	<p>Good Road access to Vinegar Hill and into center of unit. No known trails.</p>	<p>1994 Reed fire to the SW and 1986 South Fork fire to the NW</p>	<p>Large MPB activity center in North. Likely spreading into adjacent PICO.</p>

Data Table for Conservation Area 603 Malheur and Umatilla National Forests

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
5 Dixie Mountain Lookout Proposed Research Natural Area (<50)	<p>PIAL only occurs as individual trees or small clumps, rarely in any closed canopy situation. Very few trees present on top of mountain, few scattered in adjacent stands. Mountaintops heavily/severely grazed by sheep in 1800-early 1900's, with subsequent loss of soil. Top of Dixie Mountain is being planned for Research Natural Area establishment. Top of Dixie Mountain is being planned for Research Natural Area establishment; final boundary not yet determined but will likely be above continuous forest stands. Likely to begin National Environmental Policy Act (NEPA) in 2009 or 2010. Establishment report now being written under contract, once done NEPA begins. Included in the information provided by the Malheur is a copy of a March 29, 2006 Report by LaGrande Lab (PNW) Pathologists & Entomologists on Whitebark Pine on Dixie Mountain. PIAL survey of area for establishment report showed mature PIAL makes up 30% of the stand, followed by saplings (35%), poles (29%), and seedlings (6%). Blister rust infection documented at 88% w/ highest levels of infection occurring in the pole size trees. 42% of the mature trees in stand have been killed by MBP from past (~25 yrs ago) and present outbreaks. ABLA is competing with existing PIAL and needs to be thinned out. Other information from stand exams in area show PIAL as either dead or <2" DBH and only a minor component of the stands. Dense understory of competing conifer seedlings. Establish a collection site and conserve stands in line with Research Natural Area direction.</p>	<p>Road access to the top of Dixie Mountain Lookout. No trails in area.</p>	<p>Fire history unknown</p>	<p>MPB out break ~25 years ago killed many mature PIAL. MPB currently active in mature PIAL – cumulative mortality in mature PIAL is 42%.</p>

Prepared by: T. Ohlson, M. Tatum, and K. Prudhomme

Data Table for Conservation Area 604 Malheur National Forest

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
<p>1 Strawberry Mountain Wilderness with small inclusion of non-wilderness (3,200)</p>	<p>We redrew lines and combined former unit numbers 1 and 2 into continuous mountaintop stringer. PIAL only occurs as individual trees or small clumps, rarely in any closed canopy situation. Mountaintops heavily/severely grazed by sheep in 1800-early 1900's, with subsequent loss of soil. Fires have burned large portions but rarely consumed all PIAL due to lack of continuous ground fuels (fires have burned through approximately 1/3 of area.) Beetle activity present, suspect blister rust. Some PIMO overlaps PIAL habitat, PIMO has blister-rust. Post fire status of PIAL is unknown. Suspect it did not burn due to sparse fuels and open canopy stands. Beetles are active in area. Some PIMO overlaps PIAL habitat and PIMO have blister-rust, degree of infection unknown. Some cones were collected in 2006 by Mike Roantree. Location and status of the seed unknown. Included in the information provided by the Malheur is a copy of a August 11, 2005 Report by LaGrande Lab (PNW) Pathologists and Entomologists on Whitebark Pine at three evaluation areas in the Strawberry Mt Wilderness. The pathologist report for 3 areas in wilderness indicate -- Site 1: Mature PIAL w/ prolific cone production. PIAL dominant species with ALBA and PICO common. Blister rust 13% and MPB activity 3%. Site 2: Mature PIAL in mixed stand could use thinning. No cone production noted. 6% blister rust infection detected and 23% MPB mortality. Noted MPB attacking PIAL. Site 3: Mature PIAL. Abundant cone production. Good opportunity for collection and conservation due to good access. PIAL regeneration good. MPB active in area 9% mortality detected. 50% blister rust infection. This area is in T15S, R33E, Section 11 and 12. Available stand exam data suggests NE corner of unit with Mature PIAL, PIAL dominant and good regeneration. Just below this in central portion PIAL mostly <2' tall in mixed conifer stands of similar height. South end PIAL reaching diameters suggesting cone bearing potential. Good regeneration. All stands with PIAL need some level of thinning to perpetuate PIAL on the site. <u>We have increment cores from some plots which we can mail you upon request.</u> Past fires provide good fuel breaks in the event of future ignitions. MPB activity is just starting to show up in the area and blister rust is low to moderate levels. Risk of habitat loss is low to moderate given these factors.</p>	<p>Access via road (Roads-End Rd) up south side of wilderness gets you into PIAL. Numerous trailheads scattered in wilderness. Stock accessible trails unknown.</p>	<p>1986 Deardorff, 1987 Little Canyon, 1989 Monument Rock, 1989 Glacier, 1990 Sheep Mt, 1990 Corral Basin, 1990 Snowshoe, 1995 Overholt, 1996 Graham, 1996 Wildcat, 2000 Slide Mt, 2002 monument, 2002 Trout Farm, 2002 High Roberts.</p>	<p>Past MPB activity (~25-30 yrs) killed many mature PIAL. Evidence of current MPB activity in inventoried stands w/ 3% to 23% mortality in stands.</p>

Data Table for Conservation Area 604 Malheur National Forest				
Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
2 Little Baldy and Lookout Mt (<50)	One known patch (small) on top of Lookout Mountain. The Little Baldy area suspected to contain WBP and the Lookout Mountain area known to contain WBP have been scheduled into the PNW-LaGrande Lab's 2008 Program of work for the Area Entomologist and Pathologist to document the presence/absence of WBP and to assess beetle and blister rust levels. Low incidence of MPB and extensive fires leave this habitat at low to moderate risk of loss.	Can drive to very top of Lookout Mountain. Trail from Lookout Mountain to Little Baldy (easiest) or can drive part-way up north side of Little Baldy and then hike up.	1989 Glacier Fire burned up to top of Little Baldy Mountain, without complete consumption, same fire burned to near top of Lookout Mountain on north side. The 1990 Sheep fire burned nearly to top of Lookout Mountain on east and Southeast side.	Unknown
3 Baldy Mt (<50)	This area is suspected to contain WBP and has been scheduled into the PNW-LaGrande Lab's 2008 Program of work for the Area Entomologist and Pathologist to document the presence/absence of WBP and if present to assess beetle and blister rust levels.	Good road nearly to top, primitive road gets even closer.	Nothing recent in our records.	Unknown
4 Table Rock Monument Rock Wilderness (<50)	Suspect PIAL only occurs as rare individual trees. 1989 fire appears to have burned over most the area. Suspect most open PIAL habitats survived. Beetle activity present but levels unknown. 2006 Inventory of PIAL around the Table Rock lookout found 4 mature PIAL trees, which had escaped the last 2 fire events. No PIAL regeneration. Seen. One of the 4 PIAL had been killed by lightning another had abundant cone crop. All live trees were healthy. Not all potential habitat was inventoried. PICO dominates the site (1989 post-fire regeneration likely).	Road to Lookout tower (Table Rock Lookout.) will get you to center of mapped area.	Monument Rock Fire of 1989, Monument Fire of 2002.	None detected at Table Rock but MPB active in the area.

Prepared by: T. Ohlson and M. Tatum

Data Table for Conservation Area 701
Willamette / Deschutes / Umpqua / Winema National Forests

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
1 Miller Lake (23,400)	Some PIAL documented. No blister rust or MPB detected. PIAL status unknown. Surveys needed to establish presence and condition of PIAL.	Excellent road and trail network throughout habitat	None	None
2 Mt Bailey/ Three Lakes Oregon Cascades Recreation Area (11,400)	Nice block of potential habitat, Only one documented PIAL stand on top of Mt Bailey. PIAL is on top of Mt Bailey and along trail to Mt Bailey (last 1.25 miles or so). PIAL on top of Mt Bailey has white pine blister rust, but rust status of remaining unknown. Mt Bailey area would be high priority for survey/cone assessment although within Oregon Cascades Recreational Area and therefore subject to management discussion.	Road access into portions of habitat and some trails through best section.	None	None
2 West Mt Bailey/ Three Lakes Oregon Cascades Recreation Area	West ½ of mapped suitable habitat was identified by E. Goheen as likely not suitable habitat for PIAL. PIAL is unknown but unlikely in area.	Good Road Access	None	None
3 North of Windigo Pass/Sawtooth Mountain (30,400)	Best PIAL documentation in CA. No MPB or blister rust detected. May be best place to focus seed collection efforts. Cones have been collected here. Snags and unoccupied habitat on Sawtooth Mountain and Cowhorn. High priority for survey/cone assessment. May present good planting opportunities in future. Seed availability unknown.	Good network of trails and roads	Kelsey Fire 2003 opened up the ridgetop. Not PIAL but PIMO present, however may have potential for planting.	None
4 Diamond Peak Wilderness (15,300)	Only 3 areas with known PIAL. Blister rust detected in one area at 43%. Condition and extent of PIAL unknown. Surveys needed.	Trail access only.	None	None
5 Mt Theilsen Wilderness (46,200)	Large contiguous block of suitable habitat within the wilderness. Surveyed along Pacific Crest Trail within wilderness and outside (Unit 7) wilderness (Goheen et al 2002). PIAL present (map should show these documented sites) and with white pine blister rust at 45%. Tipsoo Peak has thriving PIAL population all size classes (blister rust status unknown). Documented cone collection sites. Availability of seed unknown.	Most access is via trail through the center of the unit. Limited road access to wilderness boundary increases trail miles into habitat. Rd 100 to Tipsoo Peak Trail head gets one into Tipsoo Peak easily.	None	None

Data Table for Conservation Area 701
Willamette / Deschutes / Umpqua / Winema National Forests

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
6 Pothole Butte (14,700)	Only 2 documented populations of PIAL in large block of contiguous habitat. No blister rust or MPB detected. PIAL status unknown. Surveys needed to establish presence and condition of PIAL. Good potential for collection area if PIAL present due to excellent road access.	Excellent road access throughout area	1988 Prophecy ½ on Forest ½ on NP Burned a small area of suitable habitat	None
7 Tipsoo Peak West Oregon Cascade Recreation Area (5,400)	Older harvest units up to/near wilderness boundary where PIAL could be planted west of Tipsoo peak. Good restoration opportunity although within OCRA. Availability of seed unknown for restoration work.	Road and trail access into Tipsoo Peak Trail head. PIAL populations good.	None	None
8 South of Windigo Pass (3,600)	PIAL present at higher points (some confusion with PIMO). White pine blister rust present. May present planting opportunities. Seed availability unknown. Need to survey for cone trees and establish collection sites.	Good from Windigo Pass road and along Pacific Crest Trail	None	None

This Conservation Area has no Mt pine beetle activity detected since 2004. Blister rust is present and greater than 40% where noted. Recent fires to the west provide some fuel break at a landscape scale but the areas of concern have experienced little, if any, fire. This leaves the Conservation Area PIAL habitat at moderate risk of loss to these disturbance elements.

Prepared by: T. Ohlson and E. Goheen

Data Table for Conservation Area 703 Rogue River and Winema National Forests

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
1 Pelican Butte Lookout (7,700)	Inventory at Pelican Butte Lookout shows PIAL with 24% blister rust infection, otherwise, PIAL status basically unknown. Surveys needed to assess condition and extent of PIAL in the area for potential collection opportunities at Pelican Butte and elsewhere. Aside from Pelican Butte, Unit 1 is a larger block of habitat than Unit 2 and has some known PIAL. Access to PIAL is equally as good as in Unit 2.	Good road access to Lookout. No trails.	None	None
2 Rocktop Butte (3,300)	Smaller area than Unit 1. Little information available on PIAL condition, MPB or blister rust. What little PIAL is known to occur has good access. Surveys needed to determine extent, condition, and collection opportunities.	Has great road access. No trails.	None	None
3 Mt McLoughlin Sky Lake Wilderness (47,300)	Long linear piece of habitat (about 28 miles). Known PIAL on top of highest peaks (small island populations.) Known PIAL around entire circumference of Mt McLoughlin (southern end). All size classes of PIAL. No info on white pine blister rust. Collection opportunity at Mt McLoughlin good.	Trails into and along backbone of wilderness. Trail up Mt McLoughlin is about 4 miles.	1992 Unknown fire. Small fire adjacent to wilderness boundary.	None
4 Buck Basin Sky Lake Wilderness w/ non-wilderness inclusion. (1,400)	PIAL presence, extent, or condition unknown. Surveys needed.	Good road and trail access	None	None
5 Brown Mountain (100)	PIAL present at top of Mountain. More abundant on southern side. All size classes. No info on white pine blister rust. May be worth survey/cone assessment.	Access difficult. No real trail to top. About a 2000 ft climb up volcanic boulders and scree to summit and PIAL stand.	None	MPB mortality mapped in 2007

This Conservation Area is just starting to experience MPB activity since 2004 which was detected at Brown Mt in 2007. Blister rust infection levels are not well understood. One stand has a documented 24% infection level. There are no recent fires in this Conservation Area increasing the risk of habitat loss to fire. Over stocked stands may be at risk for rapid spread of MPB now that they have become active in the area further increasing the risk of habitat loss to fire. This leaves the Conservation Area PIAL habitat at moderate risk of loss to these disturbance elements.

Prepared by: T. Ohlson and E. Goheen

Data Table for Conservation Area 704 Rogue River National Forest

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
1 Observation Peak	No known PIAL in area.	PCT comes within ¼ mile of Observation Peak and some road access.	None in habitat. 1988 Deadend and 2001 Quartz fires to north	None
2 Mt Ashland Ashland Watershed (1,200)	PIAL habitat dramatically overstated. Should be confined to uppermost elevations and ridgetops in this unit. PIAL known on Mt Ashland. Population is small but of great interest. Ski area, university, and agency personnel have already gotten together to discuss restoration efforts. Blister rust is present but levels unknown. Cones have been collected (are at Dorena). High priority for work in this CA because of interest. Seed availability for restoration planting unknown.	Access to ski area population is reasonable. Some trail and road access into suitable habitat on ridgetops.	1959 Unknown and 1973 Hillview fires to north	None
<p><i>Several relatively large recent fires to the north of CA provide some break up of landscape fuels. No MBP detected in this CA. Blister rust detected but infection levels are unknown. Habitat loss to fire poses the biggest risk.</i></p>				

Prepared by: T. Ohlson and E. Goheen

Data Table for Conservation Area 801 Fremont and Winema National Forests

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
1 Buck Ridge (4,900)	<p>Mature PIAL. Established collection sites. No blister rust in these areas or select trees. One of the few areas in this seed zone where MPB is not actively taking out mature PIAL. This is a Forest priority for Conservation Area 801 to continue seed collections and develop a conservation program for the area.</p> <p>R. Sniezko has seed from this area that has ranked well in early blister rust resistance studies. Seed availability for restoration work is unknown. Collect and conserve/safeguard these populations by thinning and other means to reduce the risk of MPB and possibly stand replacing fire. MPB appears to be the biggest threat at this time to these populations.</p> <p>Lack of recent fire, no blister rust detected and only minor evidence of MPB activity in the area predispose the area to moderate risk of habitat loss due to fire. But epidemic MPB outbreaks in adjacent areas leave this habitat at high risk of habitat loss once MPB become active in the area.</p>	Excellent road access to suitable habitat	None	None
2 Guyer Creek (19,800)	<p>PIAL documented in the most remote sections of this unit. No blister rust found in at least one stand inventoried. 4 PIAL trees selected in 1997, not yet collected from. Pursue collection at this site and expand collection opportunities in the area. Future conservation measures should be taken to reduce the incidence of MPB attacks and possibly stand replacing fire. Lack of recent fire leaves the area vulnerable to loss. MPB is becoming established and given epidemic levels in other portions of the seed zone. The risk of habitat loss is moderate to high.</p>	Road access is good into a portion of the area but at least 2/3 is either no access or trail – Access to the most desirable area is difficult (but the existing select trees can be driven to).	None	One small patch in the unit.
<p><i>Early blister rust testing trials, overseen by Richard Sniezko, have shown collections from select trees ranked well in blister rust resistance tests and the stands, to Donna's knowledge, show no signs of blister rust. Collections have been made from Buck Ridge (CA 801), Green Mt (CA802), North Warner View Point (CA803), Crane Mt (CA 803), and Drake Peak (CA 803). The Forest priority is to preserve these stands. In CA 802 and CA 803 MBP activity is becoming wide spread. In addition, CA 803 is a disjunct population that is literally on the desert fringe of the Great Basin and is very unique in this respect. Other areas on the forest are suffering from EXTREME MBP attacks that have virtually wiped out thousands of acres of PICO and PIAL. PIAL is likely a thing of the past in some areas. This beetle kill has also set the stage for large scale, high severity fires similar to the 175,000 acre, 2007 Tripod fire on the Okanogan-Wenatchee NF. No money is available on forest to deal with this issue. The Forest would like to focus on those areas with the best chance of success.</i></p>				

Prepared by: T. Ohlson and D. Stubbs

Data Table for Conservation Area 802 Fremont National Forest

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
1 Winter Rim (19,200)	Entire area fairly well wiped out by the Winter Rim fire in 2002 or current MPB activity. Many "select" PIAL trees lost to MPB. Just waiting for the inevitable fire to wipe out entire area. Some trees collected from prior to MPB outbreak. Determine status of PIAL for future collection and restoration needs.	Road access is no longer supported or stable in north end of area. High risk snag area with unstable slopes and rolling boulders.	1966 Winter Rim 66, 1969 Punchbowl, 2002 Winter Rim.	Very few areas of trees even alive any more. MPB activity has exploded in 2007.
2 Lee Thomas (19,500)	Entire area fairly well wiped out by the Winter Rim fire in 2002 or current MPB activity. Many "select" PIAL trees lost to MPB. Just waiting for the inevitable fire to wipe out entire area. Some trees collected from prior to MPB outbreak. Determine status of PIAL for future collection and restoration needs.	Road access is relatively good.	2002 Winter Rim	Extensive MPB activity and entire stands of dead PICO and PIAL. MPB activity has exploded in 2007.
3 Green Mt (2,000)	Area collected from in past. R. Sniezko has seed from this area that has ranked well in blister rust resistance studies. Several PIAL in area. Small population mixed in with PICO. 1 st priority for continued collection and restoration thinning to reduce the potential for MBP attacks and stand replacing fire. Risk of habitat loss is high due to increasing MPB activity and lack of recent fire.	Good road access.	None	Not yet.
4 Coleman Ridge (26,400)	Nice large block of habitat. Only one detected PIAL stand from previous inventory. Donna is unaware of many PIAL here at all in the area. Surveys possibly needed to confirm. MPB just becoming established and lack of any large scale fires to break up fuel continuity in surrounding area leaves the habitat at moderate to high risk of loss.	Good road access through at least 2/3 of area but not where PIAL is likely. No access in central portion.	1989 Spring Skyline, 1995 Owen. Only small bits of habitat involved.	MPB activity has expanded greatly into this area.
5 Gearhart Mountain Wilderness (8,400)	Extensive beetle activity throughout area. Only a couple of PIAL stands detected from previous inventory. Status of PIAL is unknown in the area. Possible opportunity for restoration planting and / or collection. Risk of habitat loss due to lack of recent fires and extensive MPB activity is high.	Trail network is sparse through area. Road access to wilderness boundary appears good.	None	Most extensive outbreak in this CA.

CA 802 has the highest density of active MPB in the seed zone. She suspects heavy mortality from MPB in this CA. This puts CA 802 at the highest risk of PIAL loss due to MPB attacks. It will be important to determine the status of PIAL for future collection and restoration needs.

Early blister rust testing trials, overseen by Richard Sniezko, have shown collections from select trees ranked well in blister rust resistance tests and the stands, to Donna's knowledge, show no signs of blister rust. Collections have been made from Buck Ridge (CA 801), Green Mt (CA802), North Warner View Point (CA803), Crane Mt (CA 803), and Drake Peak (CA 803). The Forest priority is to preserve these stands. In CA 802 and CA 803 MBP activity is becoming wide spread. In addition, CA 803 is a disjunct population that is literally on the desert fringe of the Great Basin and is very unique in this respect. Other areas on the forest are suffering from EXTREME MBP attacks that have virtually wiped out thousands of acres of PICO and PIAL. PIAL is likely a thing of the past in some areas. This beetle kill has also set the stage for large scale, high severity fires similar to the 175,000 acre, 2007 Tripod fire on the Okanogan-Wenatchee NF. No money is available on forest to deal with this issue. The Forest would like to focus on those areas with the best chance of success.

Data Table for Conservation Area 803 Fremont National Forest

Management Unit (acres)	Stand information	Access	Fire History	Mountain Pine Beetle History
1 North Warner View Point (2,300)	Small cluster of documented PIAL where MPB activity is occurring. Cones have been collected here. R. Sniezko has seed from this area that has ranked well in blister rust resistance studies. Risk of habitat loss is high due to MPB activity in area and aggressive nature of recent MPB in seed zone. No recent fires also increases the risk of habitat loss overall. Continue to collect and identify additional select trees for collection. 3 rd priority for collection and restoration.	Excellent road access, except for the area below the rim where there is no road access and slopes are steep and rocky.	None	Mainly one large block in vicinity of known PIAL.
2 Drake Peak (1,100)	Small area but one that appears to have the greatest number of confirmed PIAL stands. MPB outbreaks over nearly entire area. Several collections have been made, some whitebark planting have occurred. May be too late for thinning to be effective due to MPB mortality in PIAL. Risk of habitat loss is very high in this area due to lack of recent fires to break up fuels across the landscape and the extensive nature of the MPB outbreaks. Top priority for continued cone collection, restoration thinning and planting.	Good road network, but there is a large area of whitebark/ lodgepole pine in a roadless area with steep slopes.	None	Extensive over entire area in lodgepole pine, western white pine and whitebark pine.
3 Crane Mountain (1,600)	Largest concentration of PIAL stands. These stands also show extensive MPB activity. Cones have been collected for genetic sampling and blister rust testing. Potential for more collections. Unlikely candidate for thinning. Stands are sparse already. No recent fires in area along with increasing MPB activity, leaves this habitat at high risk of loss. 2 nd priority collection and restoration.	Road access from the north with good trail through center of habitat. Mostly a hike in operation or very dusty 4 wheel drive venture.	None	One large patch involving known sites of PIAL.

This area shows more mapped MPB activity in PIAL habitat than the other CAs in the seed zone. However, according to Donna, CA 802 is currently swamped with MPB activity and the extent does not show up on the map. This puts CA 802 at the highest risk of PIAL loss due to MPB attacks.

Early blister rust testing trials, overseen by Richard Sniezko, have shown collections from select trees ranked well in blister rust resistance tests and the stands, to Donna's knowledge, show no signs of blister rust. Collections have been made from all three of these areas in CA 803 (North Warner View Point, Crane Mt, and Drake Peak.) The Forest priority is to preserve these stands because of their genetic importance. In CA 802 and CA 803 MBP activity is becoming wide spread. In addition, CA 803 is a disjunct population that is literally on the desert fringe of the Great Basin and is very unique in this respect. Other areas on the forest are suffering from EXTREME MBP attacks that have virtually wiped out thousands of acres of PICO and PIAL. PIAL is likely a thing of the past in some areas. This beetle kill has also set the stage for large scale, high severity fires similar to the 175,000 acre, 2007 Tripod fire on the Okanogan-Wenatchee NF. No money is available on forest to deal with this issue. The Forest would like to focus on those areas with the best chance of success.

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2009–2013



United States
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Region

September 2008