Appendix 1

Proposed Actions for Conservation Areas, 2009–2013

Appendix 1
Proposed Actions for Conservation Areas, 2009–2013

Introduction

This appendix includes maps and summary information tables for each of the 30 conservation areas on National Forest System land in the Pacific Northwest Region. On each map, whitebark pine habitat is divided into units. The unit name, number of acres, description and condition, and type of road and trail access are given in the table. These tables summarize the more detailed information presented in appendix 2.

Combining what is known and unknown for each unit led to the assignment of one or more proposed actions, which are described below. Within each conservation area, only two management units were selected as "priority" for action based on additional consideration of the unit's size, risk factors, and accessibility.

Conservation and Restoration Actions

1. **Safeguard habitat**—Conserve/safeguard from fire (both wild and prescribed). These units will be included in fire and land management plan maps. This action was only assigned to wilderness areas, which do not require restoration.
2. **Collect cones**—Collect cones from mature whitebark pine stands with high potential for cone production.
3. **Restore**—Plant seed or seedlings, thin for conifer release, and/or prune. Included in this category are units that have burned or have high mortality due to mountain pine beetle infestation. If a stand represents a unique ecological or aesthetic resource (say, at a popular ski area or campground), then pruning branches with blister rust cankers might be a good tool to retain live trees on the landscape, increase the stand's cone-bearing and regenerative potential, and provide ongoing recruitment of young trees as material for natural selection for blister rust resistance. Pruning may also be beneficial to protect individual high-value trees, such as blister rust resistant candidate trees and trees that are important local seed sources.
4. **Survey – condition**—Survey to determine if whitebark pine is present, to record the general stand condition, and to determine what actions, if any, are needed.
5. **Survey – seed trees—**Survey to determine if cone-bearing trees are present.
6. **No action**—Consider a combination of several factors that would indicate this unit is a low priority compared to the others in the conservation area. For example, units with poor access, marginal habitat, and no need for planting or thinning.

Data Sources

For blister rust values on maps: Primary sources for estimates of infection percentages and mortality were Shoal and Aubry 2006a; Ward et al. 2006b. Our estimates are intended to illustrate the impact of blister rust but they do not attempt to include specific results from all assessments that have been done in Oregon and Washington or from other surveys as cited in appendix 2.

For mountain pine beetle spatial data: Insect and disease aerial surveys conducted annually by the U.S. Department of Agriculture, Forest Service, Pacific Northwest Region, Forest health Protection: http://www.fs.fed.us/r6/nr/fid/data.shtml (accessed 20 May 2008).

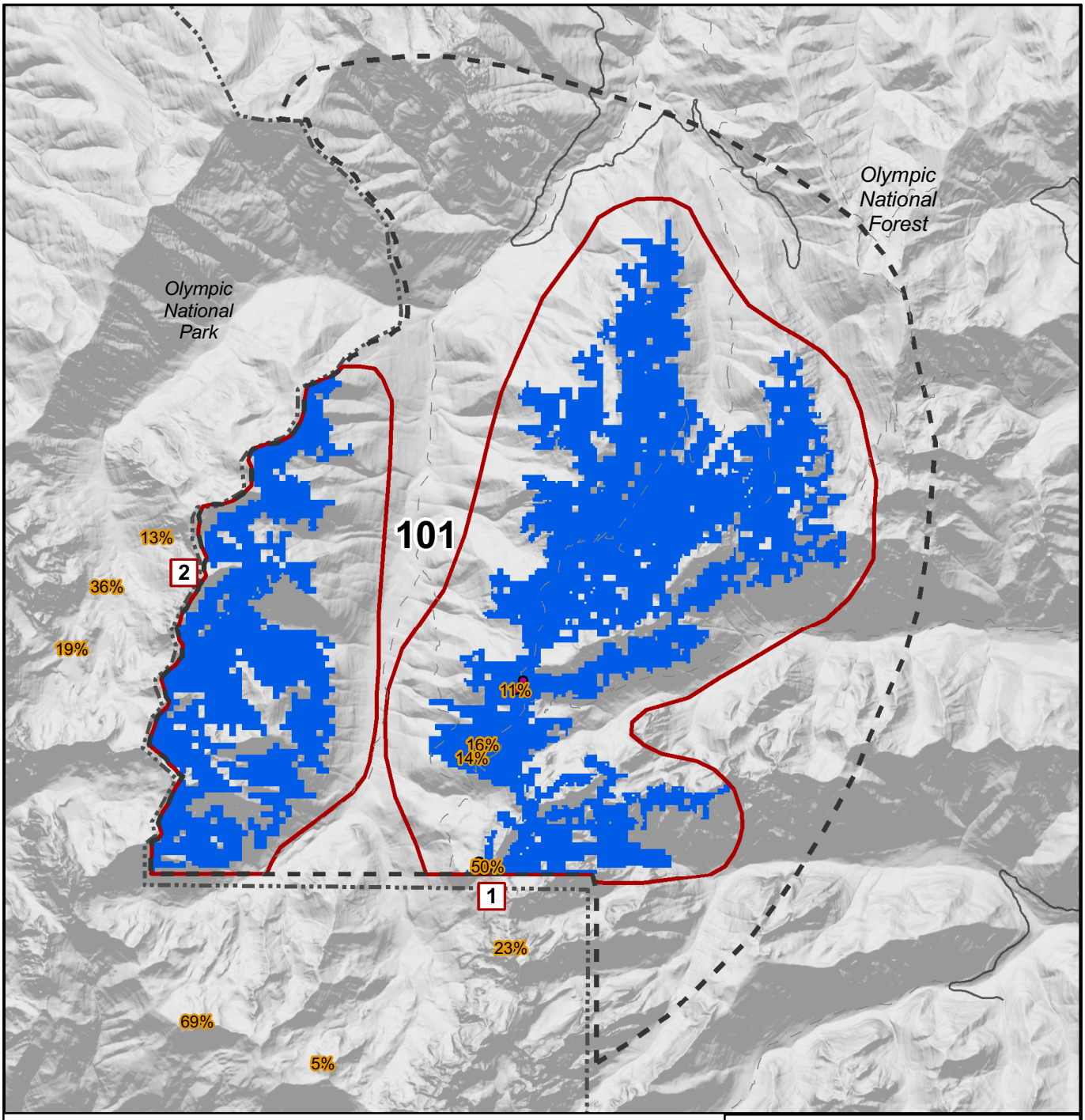
For fire history spatial data: National Interagency Fire Center (NIFC) databases. There is no documentation accompanying the shapefile.

Proposed Action Summary for Conservation Area 101

Olympic National Forest, Washington

Management unit (acres)	Description and condition	Access	Proposed actions 2009–2013*
1 Buckhorn Pass to Charlia Lakes, Buckhorn Wilderness (4,700)	Mixed-age PIAL with very few living large trees. Smaller diameter trees are of cone-bearing age.	Trail access only.	Safeguard habitat. Collect cones.
2 Goat Lake, Buckhorn Wilderness (2,100)	PIAL status basically unknown. Surveys needed.	Trail access only.	Safeguard habitat. Survey – condition.**

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: PIAL=Pinus albicaulis



Conservation Area: 101

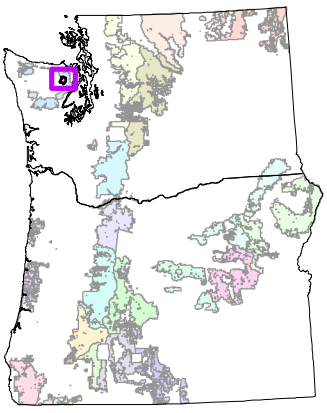
- Whitebark Pine Conservation Areas
- Whitebark Pine Management Unit. Management Unit Number is within the square.

Whitebark Pine Habitat

- PIAL Habitat
- PIAL Habitat Wilderness

- Sites with documented whitebark pine presence.
- 50% Blister Rust in Whitebark Pine % live trees infected
- Highways
- Forest Service Roads
- Forest Service Trails

Miles
0 0.25 0.5 1

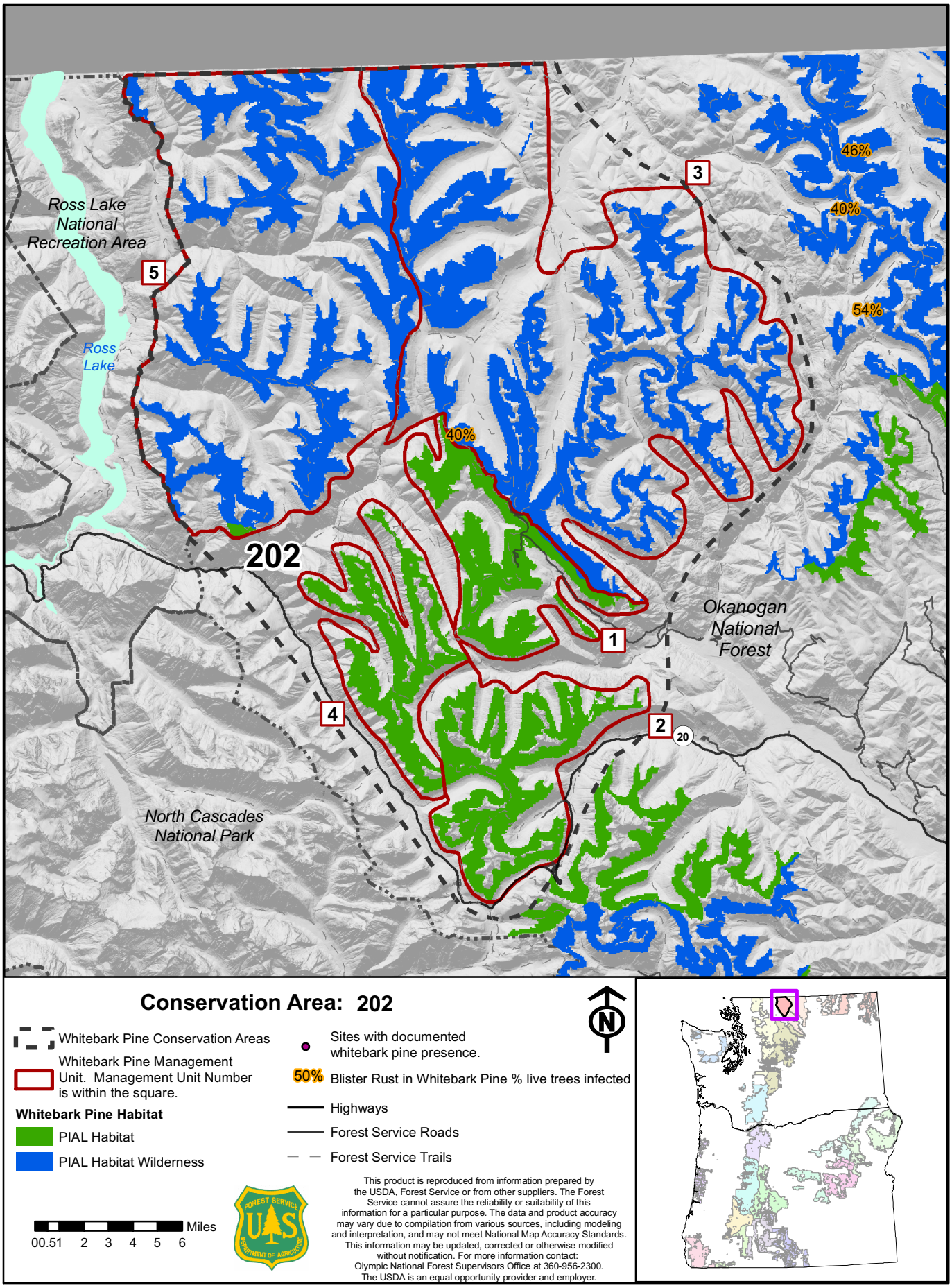


Proposed Action Summary for Conservation Area 202

Okanogan-Wenatchee National Forest, Washington

Management unit (acres)	Description and condition	Access	Proposed actions 2009–2013*
1 Tatie Peak (12,900)	Little known about PIAL status in area but potential is good for collection sites. Some mature mixed PIAL known. 2003 post-fire status unknown. Future planting opportunity. No seed available.	Good road access to Hart's Pass area. Trail and some motorized access otherwise.	Survey – condition.**
2 Golden Horn, North Cascades Scenic Corridor (15,600)	PIAL documented over wide area. Status of PIAL populations unknown. MPB becoming active and spreading. 2003 Needles Fire burned over northern half.	Pacific Crest Trail provides access to some of the area. Most of the area has no road or trail access.	Survey – condition.
3 Lakeview Ridge, East Pasayten Wilderness (52,500)	Large block of habitat. PIAL status largely unknown MPB activity widespread. Possible collection potential in Slate Peak area .	Good Road access to southern edge of unit via Hart's Pass. Otherwise, remote trail only.	Safeguard habitat. Survey – seed trees.
4 East Creek, North Cascade Scenic Corridor (11,500)	PIAL status unknown. Suspect most the mapped habitat is not suitable.	Poor trail access overall. Some motorized access on closed rd to northern end of unit. Helispot off East Creek trail.	No action.
5 Devil's Dome, Pasayten Wilderness (36,800)	Very little is known about PIAL. Heavy maritime influence likely limits/restricts potential habitat to isolated areas.	Very poor access. Boat and trail accessible plus steep rugged terrain makes cross-country travel difficult.	Safeguard habitat.

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: MPB=mountain pine beetle; PIAL=Pinus albicaulis.


Ross Lake National Recreation Area
Ross Lake
North Cascades National Park
Okanogan National Forest
202
1
2
3
4
5
20
46%
40%
54%
40%
Conservation Area: 202
Whitebark Pine Conservation Areas
Whitebark Pine Management Unit. Management Unit Number is within the square.
Whitebark Pine Habitat
PIAL Habitat
PIAL Habitat Wilderness
Sites with documented whitebark pine presence.
50% Blister Rust in Whitebark Pine % live trees infected
Highways
Forest Service Roads
Forest Service Trails
N
Miles
00.51 2 3 4 5 6
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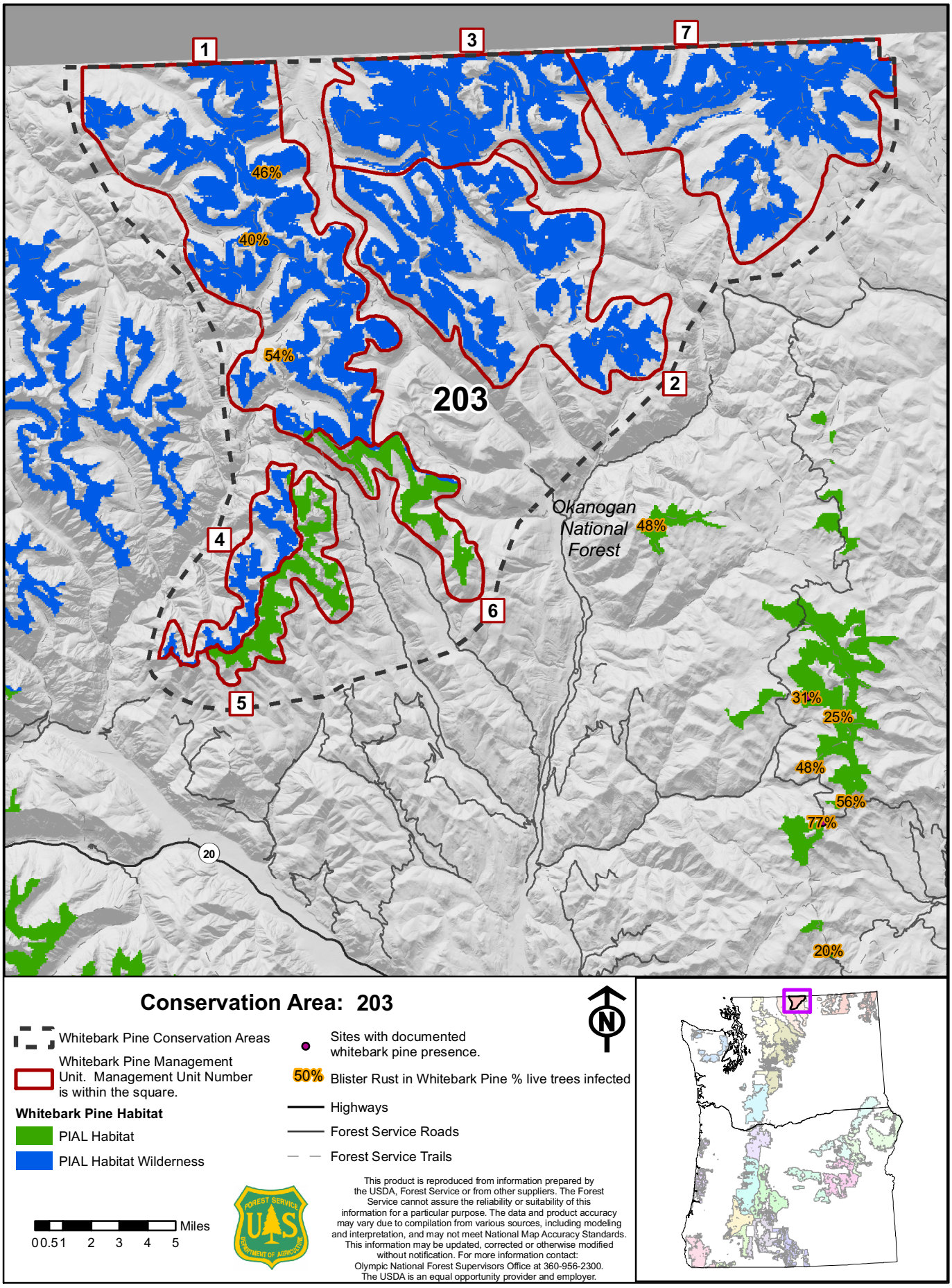
Proposed Action Summary for Conservation Area 203

Okanogan-Wenatchee National Forest, Washington

Management unit (acres)	Description and condition	Access	Proposed actions 2009–2013*
1 Sheep Mt, Pasayten Wilderness (24,100)	Large contiguous area with extensive stands of mature PIAL. Blister rust detected at moderate levels and MPB increasing. This area is the farthest north with known cone collection potential within this seed zone. There have been no seed collections made in this CA. Excellent area for collection.	Poor. Access is via trail only: 25+ miles into center of area. Once there, good foot travel throughout area. Road access on British Columbia side.	Safeguard habitat. Collect cones.
2 Andrews Peak, Pasayten Wilderness (18,400)	Well-documented PIAL in area. Given severity of 2003 fire in Andrews Creek, doubt any PIAL survived. Collection potential possible in unburned areas around Remmel Mt and Andrews Peak. Surveys needed to determine post-fire conditions. Priority area for planting. Seed is needed for restoration.	Access is trail only. Well-maintained for stock use. Partnership with backcountry horseman groups to help with access.	Safeguard habitat. Restore – plant.**
3 Bald Mt, Pasayten Wilderness (14,900)	PIAL known to occur along Border Ridge and south side of Bald Mt. Otherwise, extent of PIAL unknown. PIAL at risk to MPB spread from post-fire area to south.	Access is trail only. Well-maintained for stock use.	Safeguard habitat. Survey – condition.**
4 Setting Sun, Pasayten Wilderness (3,000)	PIAL status unknown in most the area. MPB extensive and very active in area and PIAL mortality is likely high..	Very poor access. No road or trail access.	No action.
5 Copper Glance Lake (4,000)	Very little known about PIAL condition or extent. Copper Glance basin is predominately LALY. MPB is well established and spreading. Suspect most the area is not suitable PIAL habitat.	Poor access. Rd access to edge of habitat at southern end and trail into Copper Glance Lake are only access points.	No action.
6 Birch Mt (3,400)	Unknown extent or condition of PIAL in the area. MPB extensive and well-established. Suspect most the area is not suitable PIAL habitat.	Poor access. Some trail access but it is marginal.	No action.
7 Teapot Dome, Arnold Peak, Windy and Topaz Peaks; Pasayten Wilderness (18,700)	PIAL in area but status unknown. Surveys needed. Important potential collection area. Possible planting opportunities in burned area in southern half. Seed needed before any restoration planting can occur.	Road access to trailheads slow and rough. Trails well-maintained. Stock accessible.	Safeguard habitat. Survey – condition.

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: LALY= Larix lyallii; MPB=mountain pine beetle; PIAL=Pinus albicaulis.


1
3
7
46%
40%
54%
203
2
Okanogan
National
Forest
48%
4
6
5
31%
25%
48%
56%
77%
20
20%
Conservation Area: 203
Whitebark Pine Conservation Areas
Whitebark Pine Management Unit. Management Unit Number is within the square.
Whitebark Pine Habitat
PIAL Habitat
PIAL Habitat Wilderness
Sites with documented whitebark pine presence.
50% Blister Rust in Whitebark Pine % live trees infected
Highways
Forest Service Roads
Forest Service Trails
Miles
0 0.5 1 2 3 4 5
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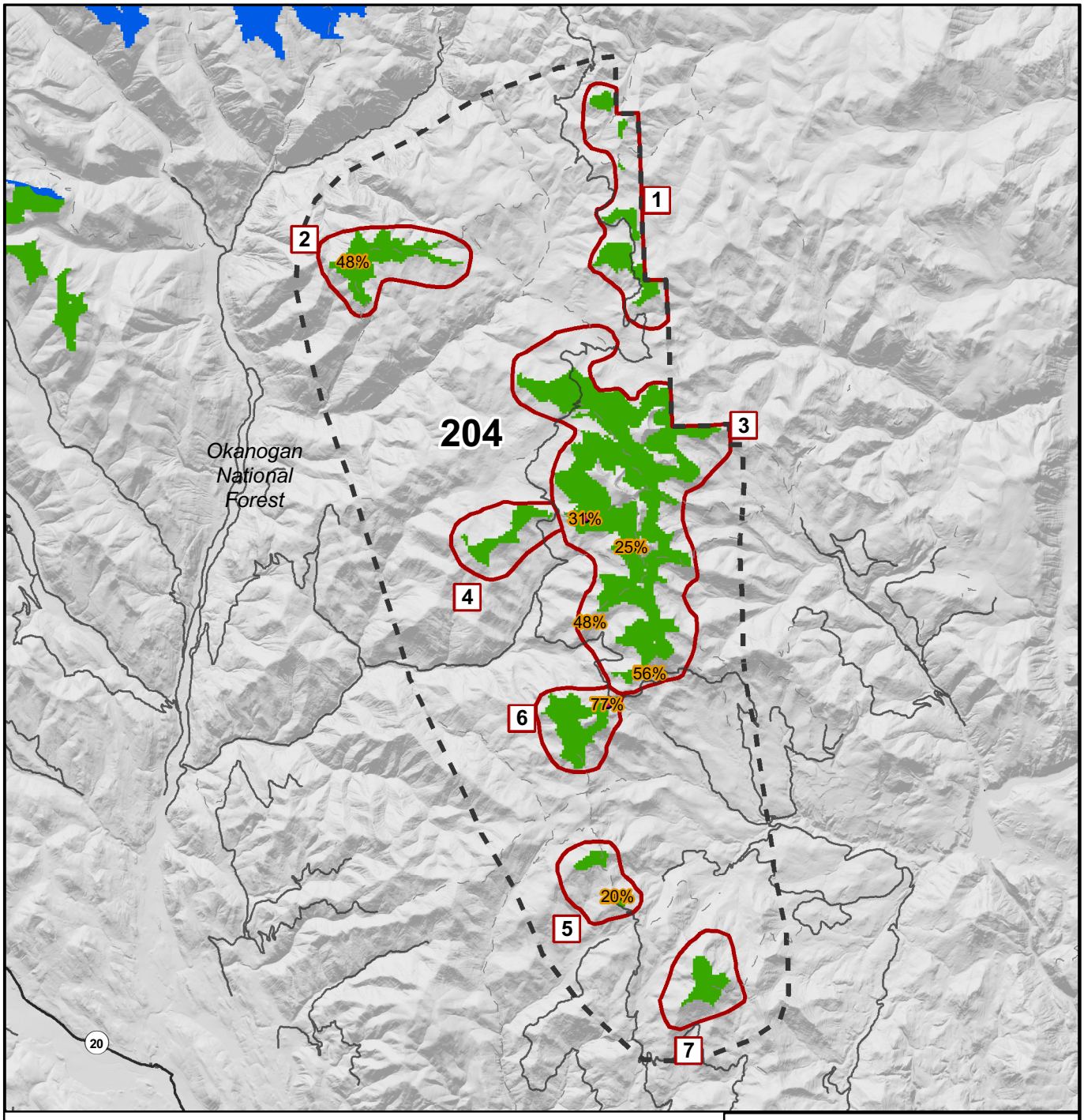
Proposed Action Summary for Conservation Area 204

Okanogan-Wenatchee National Forest, Washington

Management unit (acres)	Description and condition	Access	Proposed actions 2009–2013*
1 Thunder Mt (900)	Unknown PIAL condition or presence. Area burned in 2006 and portions in 1994. No active MPB recently detected but this may have changed due to post-fire conditions.	Good road access with some trail.	Survey – condition.
2 N. 20 Mile Research Natural Area (1,100)	Large mature stand of PIAL. Most did not experience stand-replacing fire in 2006. Moderate blister rust levels and MPB activity increasing. Excellent site for collection and planting opportunities. Seed needed for restoration.	Helicopter access to lookout best. Long, steep trail otherwise.	Collect cones. Restore – plant.
3 Tiffany Mt Research Natural Area and Botanical Area (7,200)	Mature PIAL. Good potential for collection sites in this area. MPB active in PIAL and much of the area burned over in 2006. Unknown condition of residual PIAL post-fire. Area is priority area for collection and restoration planting. MPB mortality increasing in PIAL. No seed available for restoration.	Good road access to 6,000 ft with good trail network.	Collect cones. Restore – plant.
4 Spur Peak (500)	Area burned over in 2006. Much of the PIAL was killed. Suspect some PIAL survived on south side of mountain. Moderate to hot burn throughout area. Possible area for future planting.	Good helispot location central to area. Old unmaintained stock driveway.	Survey – condition.**
5 Starvation Mt (200)	Mature PIAL abundant prior to 2006 fire. Only established collection site in CA. Most of the area burned over with a few residual trees surviving. Extent of PIAL post-fire stand survival unknown. Priority area to continue to collect and for restoration planting. No seed available for restoration work.	Good road and trail access to area.	Collect cones. Restore – plant.**
6 Old Baldy (900)	Unknown condition of PIAL stand. Area burned over in 2006. PIAL mortality likely high due to fire, high blister rust levels, and increased post-fire MPB activity.	Poor access. No trail or road access. Good Helispot potential at old lookout platform.	No action.
7 Granite Mt (500)	Very little known about PIAL. Area burned over in 2006. MPB very active and likely took out any surviving PIAL	Poor access. No road and the trail access is poor.	No action.

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: CA=conservation area; MPB=mountain pine beetle; PIAL=Pinus albicaulis.



Conservation Area: 204

Whitebark Pine Conservation Areas

Whitebark Pine Management Unit. Management Unit Number is within the square.

Whitebark Pine Habitat

PIAL Habitat

PIAL Habitat Wilderness

Sites with documented whitebark pine presence.

50% Blister Rust in Whitebark Pine % live trees infected

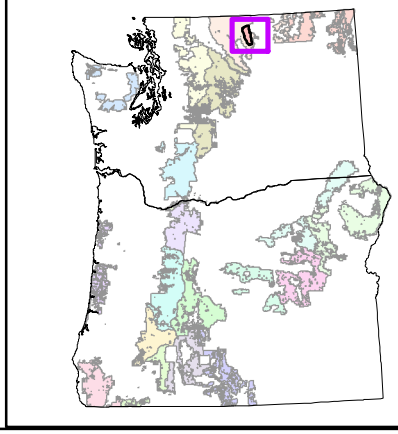
Highways

Forest Service Roads

Forest Service Trails

N

0 0.5 1 2 3 4 Miles

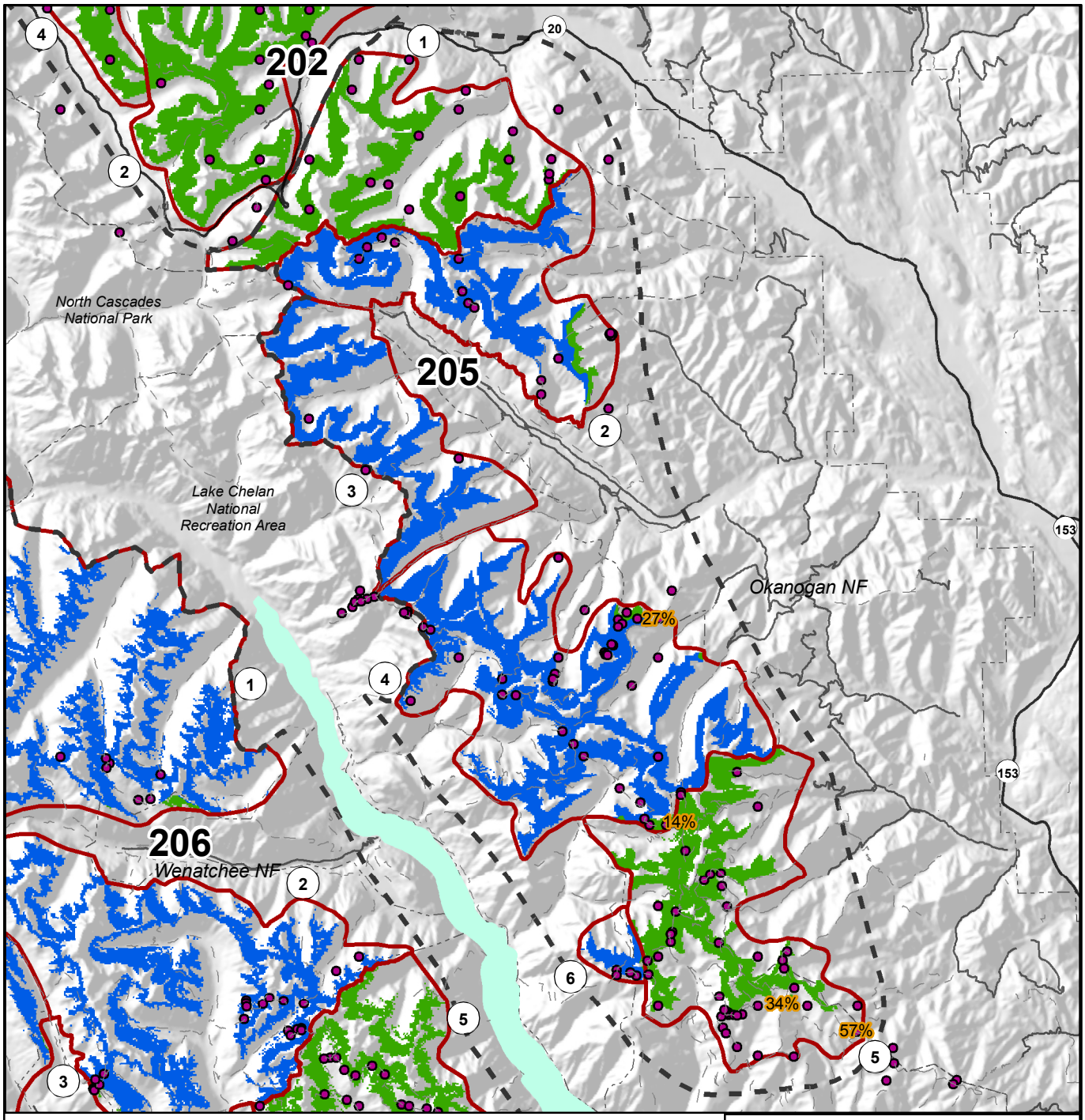


Proposed Action Summary for Conservation Area 205

Okanogan-Wenatchee National Forest, Washington

Management unit (acres)	Description and condition	Access	Proposed actions 2009–2013*
1 Cedar Creek, North Cascades Scenic Hwy (11,000)	PIAL known to occur in a few places, status otherwise unknown. MPB very active within the unit and to the west and south. 2006 Cedar Fire burned through bug-killed suitable habitat. Suspect PIAL habitat is marginal or in isolated pockets.	Access difficult. One trail with marginal stock access.	No action.
2 Wolf Creek, Lake Chelan – Sawtooth Wilderness with small inclusion non-wilderness (10,600)	At least two good areas for potential collection sites. MPB very active in this potential seed collection area. High risk of mortality.	Trail access – short but very steep to best habitat.	Safeguard habitat. Survey – seed trees.
3 Renyolds Creek, Lake Chelan – Sawtooth Wilderness (9,200)	Relatively unknown area. A few documented PIAL stands. Not sure if cone bearing. Rugged terrain limits access to best potential habitat.	Trail access only and not all trails suitable for stock.	Safeguard habitat. Survey – condition.**
4 Buttermilk, Lake Chelan – Sawtooth Wilderness with small inclusion of non-wilderness (21,100)	Good mature stand of PIAL for establishing collection site. Need survey for other potential collection sites in area. MPB activity highest concentration in CA. PIAL mortality likely increasing.	Trail access only. Not all stock accessible.	Safeguard habitat. Collect cones. Survey – seed trees.
5 North Navarre (11,400)	Established cone collection area. Restoration activities on going. Large area to south burned in 2002 leaving good area for planting. MPB widespread in area with increasing mortality in PIAL. Good potential for additional collection and planting opportunities.	Trail access, some motorized some open to stock. Concentrated network of trails increases ease of access.	Collect cones. Restore – plant.**
6 Canoe Creek Lake Chelan – Sawtooth Wilderness (900)	Small area mostly burned over in 2001 Rex Creek Fire. MPB extensive in unburned area outside of PIAL habitat. MPB activity and mortality in PIAL likely increasing. Remote access limits opportunities.	Remote trail access only.	Safeguard habitat.

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: MPB=mountain pine beetle; PIAL=Pinus albicaulis.



Conservation Area: 205

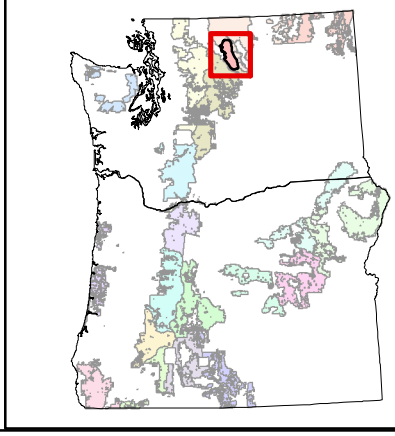
- Sites with documented whitebark pine presence.
- Whitebark Pine Conservation Areas
- Whitebark Pine Management Area. Management Unit Number is within the circle.

Whitebark Pine Habitat

- PIAL Habitat
- PIAL Habitat Wilderness

The percentage within the orange background is the amount of live trees infected with blister rust.

0 1.5 3 6 9 Miles

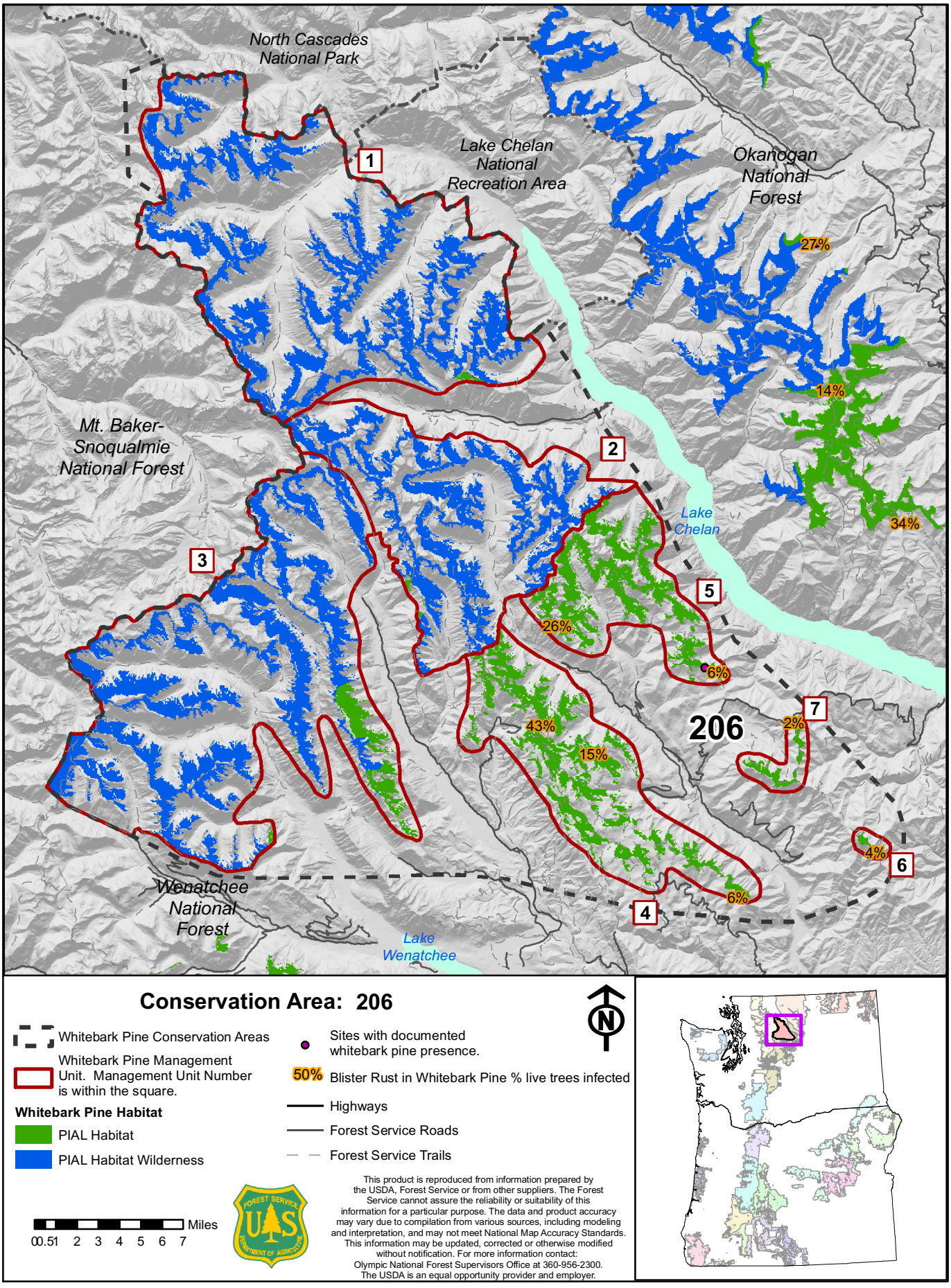


Proposed Action Summary for Conservation Area 206

Okanogan-Wenatchee National Forest, Washington

Management unit (acres)	Description and condition	Access	Proposed actions 2009–2013*
1 Glacier Peak Wilderness North (33,500)	Likely mature PIAL. Very little known about the area. Unknown status.	Very remote. Poor access.	Safeguard habitat.
2 Glacier Peak Wilderness Central (21,200)	Likely mature PIAL. Good central location to establish collections. Potential for post-fire restoration planting. Unknown status for the area. Seed needed for future restoration planting.	Phelps Cr Road access to within 2 miles of habitat. Stock access. Boat access. Helispots in and adjacent to wilderness.	Safeguard habitat. Survey – condition.
3 Glacier Peak Wilderness South with small inclusion of non-wilderness (37,500)	Possible mature PIAL. No MPB known. PIAL status unknown.	Poor access. Trail only.	Safeguard habitat.
4 Entiat South (12,200)	Established cone collection site on Tyee Ridge and good place for planting trials. Areas with blister rust detected at low to moderate levels. MPB well established in northern half.	Good road and trail access. Tyee Lookout has road and helispot access.	Collect cones. Restore – plant.** Survey – seed trees.
5 Entiat North (10,200)	Good place for thinning trials and cone collection. MPB becoming well-established. Blister rust ranges low to moderately low levels.	Good access. Trails are motorbike accessible. Helispots.	Collect cones. Restore – plant. Restore – thin.
6 Stormy Mt (100)	Established collection site. Post-fire habitat available for restoration planting. Additional seed needed for restoration planting.	Good access via road and short trail into area.	Collect cones. Restore – plant.
7 Devil's Backbone (900)	Very large mature PIAL survived 1970 fires along ridge. Unknown if they survived 1994 Tyee fire. Would be exceptional area to establish seed collection from these very old, large trees. Possible post-fire planting restoration opportunity.	Good road access to motorized trails.	Survey – condition.**

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: MPB=mountain pine beetle; PIAL=Pinus albicaulis.


North Cascades National Park
Lake Chelan National Recreation Area
Okanogan National Forest
Mt. Baker-Snoqualmie National Forest
Lake Chelan
Wenatchee National Forest
Lake Wenatchee
1
2
3
4
5
6
7
206
27%
14%
34%
26%
6%
43%
15%
2%
4%
6%
Conservation Area: 206
Whitebark Pine Conservation Areas
Whitebark Pine Management Unit. Management Unit Number is within the square.
Whitebark Pine Habitat
PIAL Habitat
PIAL Habitat Wilderness
Sites with documented whitebark pine presence.
50% Blister Rust in Whitebark Pine % live trees infected
Highways
Forest Service Roads
Forest Service Trails
N
Miles
0 0.5 1 2 3 4 5 6 7
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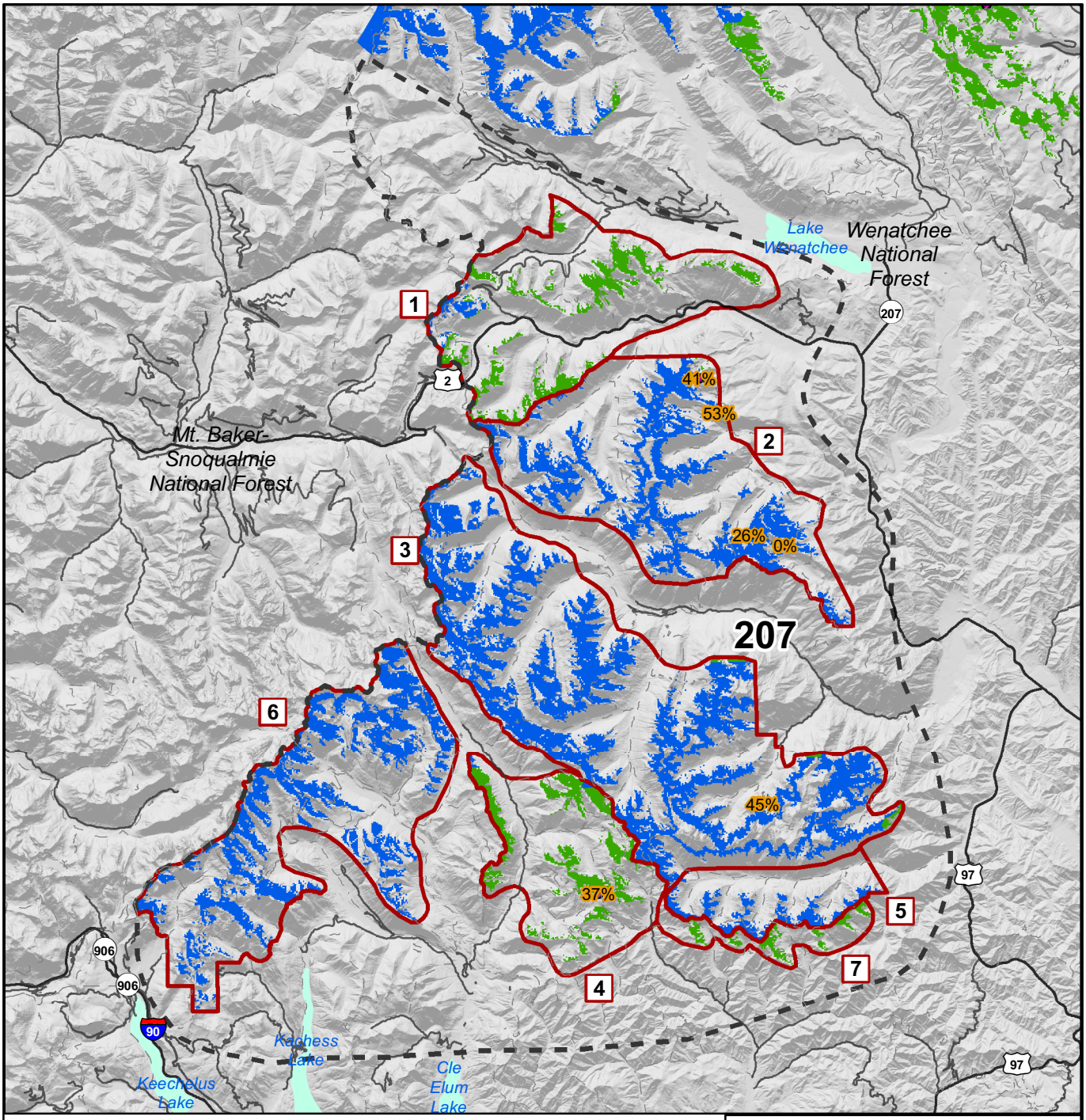
Proposed Action Summary for Conservation Area 207

Okanogan-Wenatchee National Forest, Washington

Management unit (acres)	Description and condition	Access	Proposed actions 2009–2013*
1 Nason Ridge (5,900)	PIAL known to occur along ridgeline adjacent to trail. Good potential collection site at the lookout.	Lookout with helispot access good. About 4 miles in via trail to lookout.	Collect cones.
2 Whitepine, Alpine Lakes Wilderness (14,400)	Target northeast corner for collection where highest levels of blister rust detected and access is easiest. Other areas in southern half of unit may prove good potential for collection. However, access is not as good. MPB well-established.	Trail and some road access to suitable habitat at the edge of wilderness.	Safeguard habitat. Collect cones. Survey – seed trees.
3 Bootjack Mt, Alpine Lakes Wilderness (32,800)	Potential for mature PIAL good. Moderate blister rust and some MPB starting to establish. Possible collection sites in area but surveys needed to determine collection and best access to potential sites.	Trail access only and long distances to any suitable habitat.	Safeguard habitat. Survey – condition.**
4 Esmerelda Basin (4,900)	MPB active in adjacent areas but none detected in basin. Mature stands of PIAL likely good for collections and future restoration potential due to good access.	Great road and trail access.	Collect cones.
5 Ingalls Creek, Alpine Lakes Wilderness (2,300)	PIAL status unknown. MPB active in suitable habitat. High risk of PIAL mortality from MPB.	Good trail but long distances to target areas. Stock accessible.	Safeguard habitat. Survey – condition.
6 Waptus Lake, Alpine Lake Wilderness (15,700)	No PIAL information available in this area. No MPB detected. Future condition surveys are needed.	Remote trail access into much of the area.	Safeguard habitat.
7 Miller Peak (1,100)	Krummholz PIAL in area. Cone-bearing status unknown. Very harsh site. Area is small and additional survey is needed to establish best access.	No good Forest Service road access. Some trail. Possible private road access.	No action.

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: MPB=mountain pine beetle; PIAL=Pinus albicaulis.



Conservation Area: 207

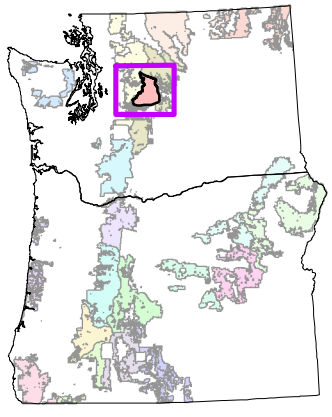
- Whitebark Pine Conservation Areas
- Whitebark Pine Management Unit. Management Unit Number is within the square.

Whitebark Pine Habitat

- PIAL Habitat
- PIAL Habitat Wilderness

- Sites with documented whitebark pine presence.
- 50% Blister Rust in Whitebark Pine % live trees infected
- Highways
- Forest Service Roads
- Forest Service Trails

Miles
0 0.5 1 2 3 4 5 6 7

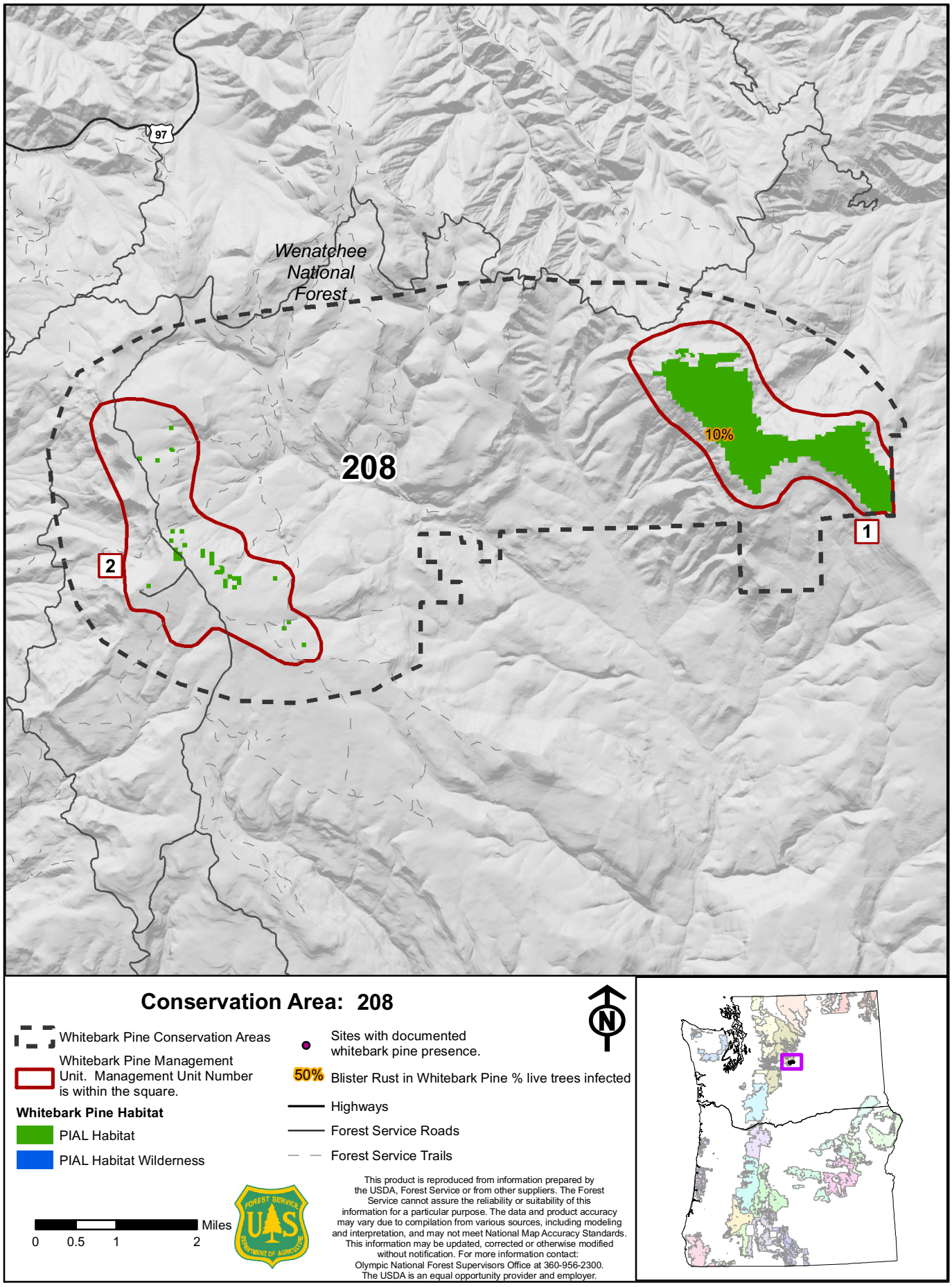


Proposed Action Summary for Conservation Area 208

Okanogan-Wenatchee National Forest, Washington

Management unit (acres)	Description and condition	Access	Proposed actions 2009–2013*
1 Mission Ridge (1,300)	Mission Ridge Ski Area. Established collection site. MPB active and spreading. Isolated population. Possible future opportunity for restoration work associated with MPB activity. Seed needed for restoration work.	Poor road access. ORV or 4-wheel drive only to top of Mission Ridge Ski Area.	Collect cones. Survey – condition.
2 Table Mt (100)	Mature PIAL is present, but status unknown. Suspect it is a good location for collections, and future restoration work. Isolated population.	Very good road access.	Collect cones. Survey – condition.**

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: MPB=mountain pine beetle; PIAL=Pinus albicaulis.


97
Wenatchee
National
Forest
208
10%
1
2
Conservation Area: 208
Whitebark Pine Conservation Areas
Whitebark Pine Management Unit. Management Unit Number is within the square.
Whitebark Pine Habitat
PIAL Habitat
PIAL Habitat Wilderness
Sites with documented whitebark pine presence.
50% Blister Rust in Whitebark Pine % live trees infected
Highways
Forest Service Roads
Forest Service Trails
N
Miles
0 0.5 1 2
FOREST SERVICE
US
DEPARTMENT OF AGRICULTURE
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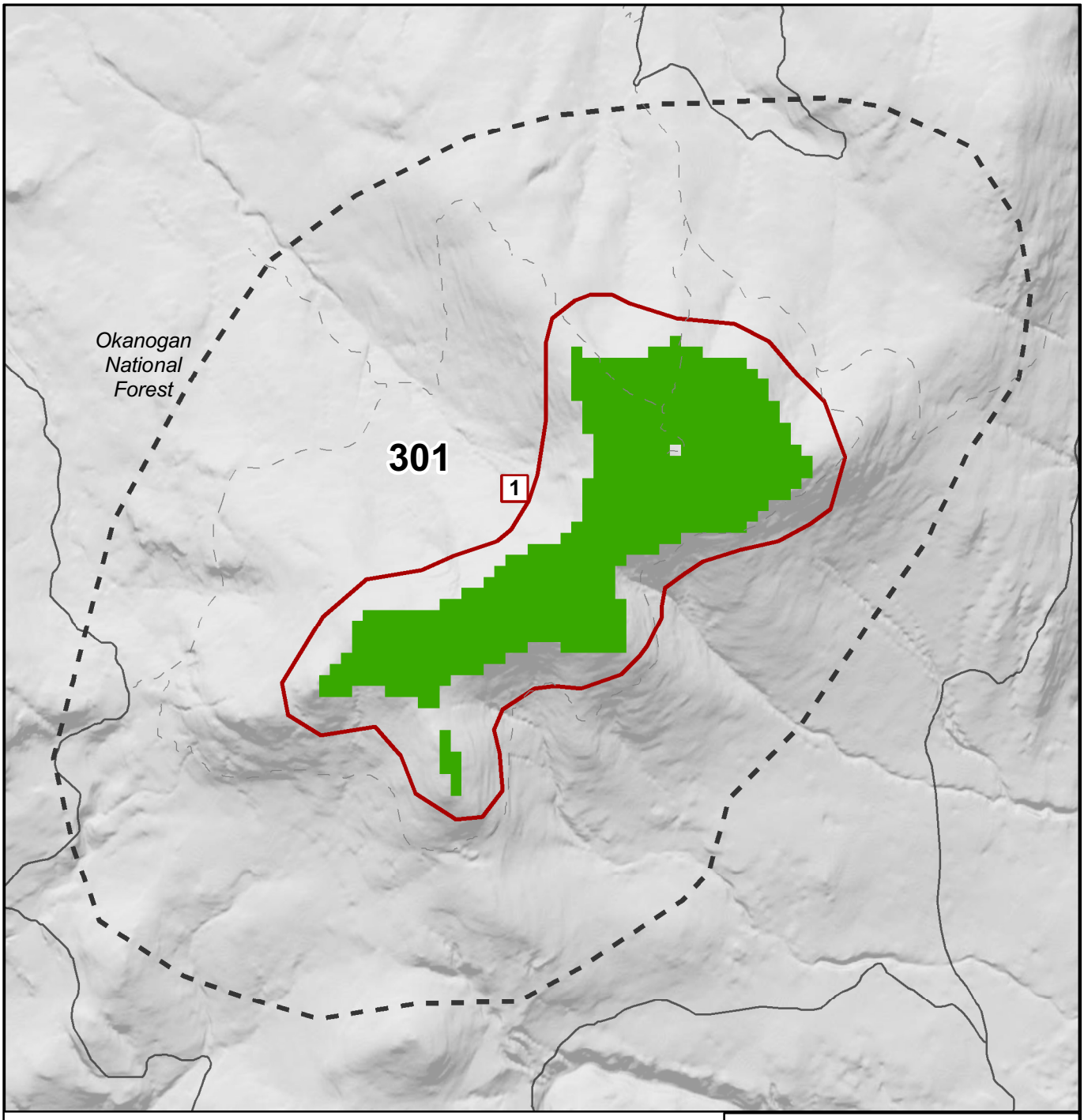
Proposed Action Summary for Conservation Area 301

Okanogan-Wenatchee National Forest, Washington

Management unit (acres)	Description and condition	Access	Proposed actions 2009–2013*
1 Bonaparte Mt (1,100)	PIAL status or habitat extent is unknown. Krummholz trees present at lookout. Isolated population may be genetically unique. Need to determine collection potential and possible future restoration needs.	Excellent access. Short trail to top that is ATV accessibly. Helispot.	Collect cones. Survey – condition.**

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: ATV=all-terrain vehicle; PIAL=Pinus albicaulis.



Conservation Area: 301

Whitebark Pine Conservation Areas

Whitebark Pine Management Unit. Management Unit Number is within the square.

Whitebark Pine Habitat

PIAL Habitat

PIAL Habitat Wilderness

Sites with documented whitebark pine presence.

50% Blister Rust in Whitebark Pine % live trees infected

Highways

Forest Service Roads

Forest Service Trails

0 0.5 1 Mile

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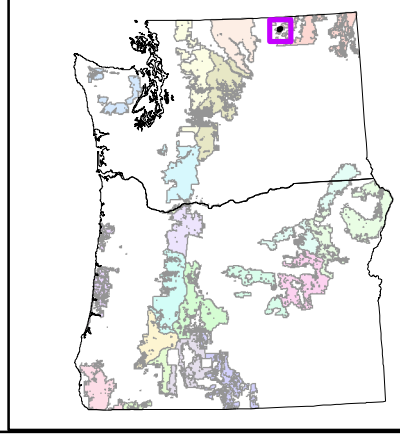
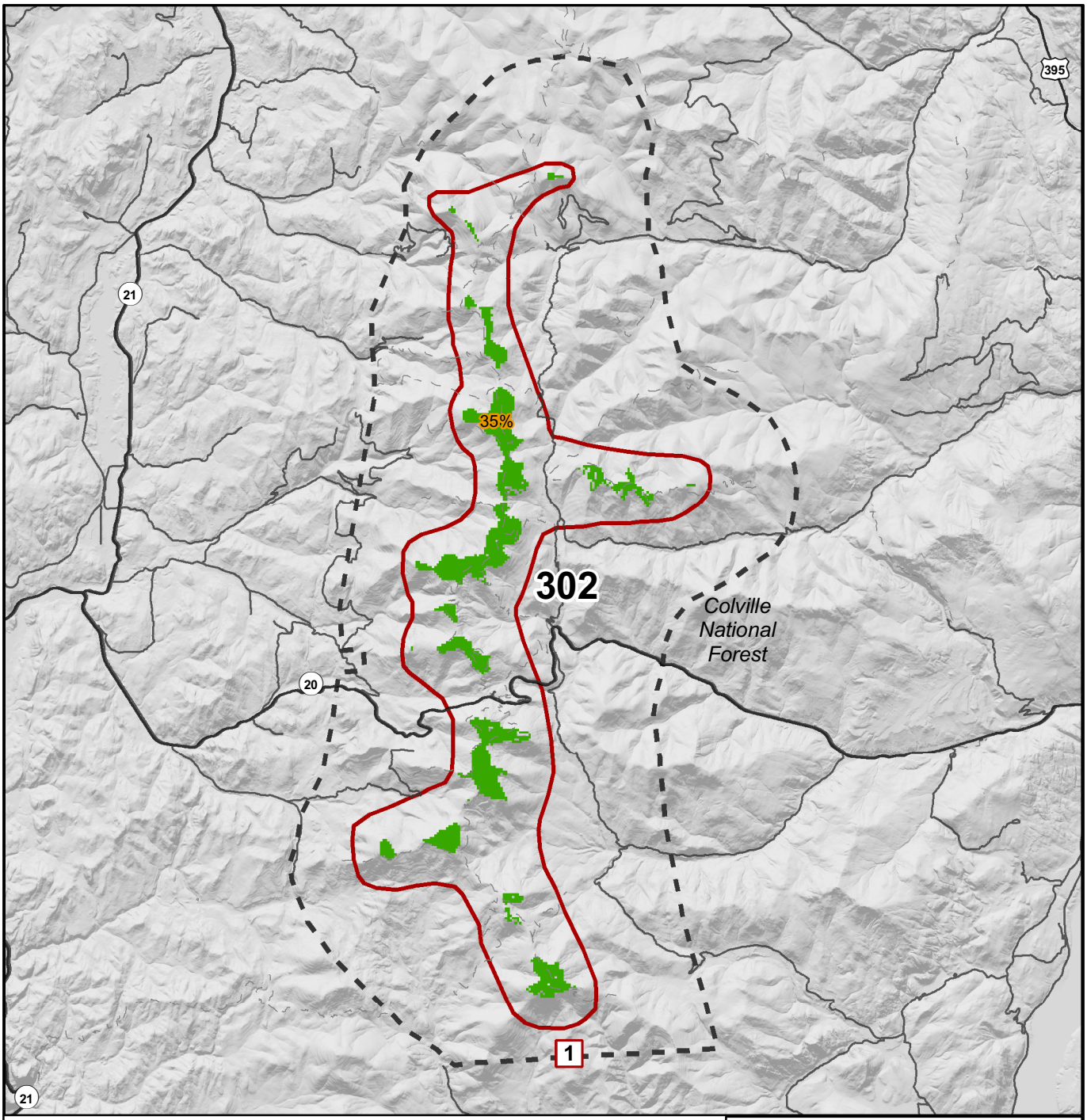


Proposed Action Summary for Conservation Area 302

Colville National Forest, Washington

Management unit (acres)	Description and condition	Access	Proposed actions 2009–2013*
1 Kettle Crest (4,400)	Mature PIAL. Established cone collection sites. Potential for blister rust resistant trees present. About 1/3 of habitat recently burned over. Limited regeneration noted. One post-fire restoration planting in area. Seed needed for any additional restoration work. Blister rust is detected at moderate levels and MPB mortality noted in larger PIAL. Continued collections and restoration plantings needed. Thinning needed to reduce conifer competition and incidence of MPB attacks.	Good trail access and helispots.	Collect cones. Restore – plant.** Restore – thin.

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: MPB=mountain pine beetle; PIAL=Pinus albicaulis.



Conservation Area: 302

Whitebark Pine Conservation Areas

Whitebark Pine Management Unit. Management Unit Number is within the square.

Whitebark Pine Habitat

PIAL Habitat

PIAL Habitat Wilderness

Sites with documented whitebark pine presence.

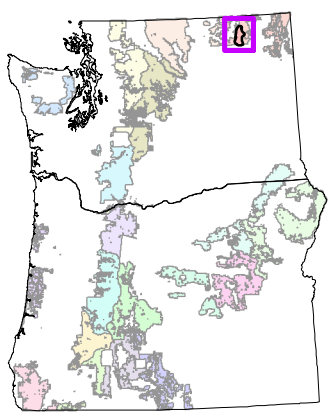
50% Blister Rust in Whitebark Pine % live trees infected

Highways

Forest Service Roads

Forest Service Trails

0 0.5 1 2 3 4 5 M

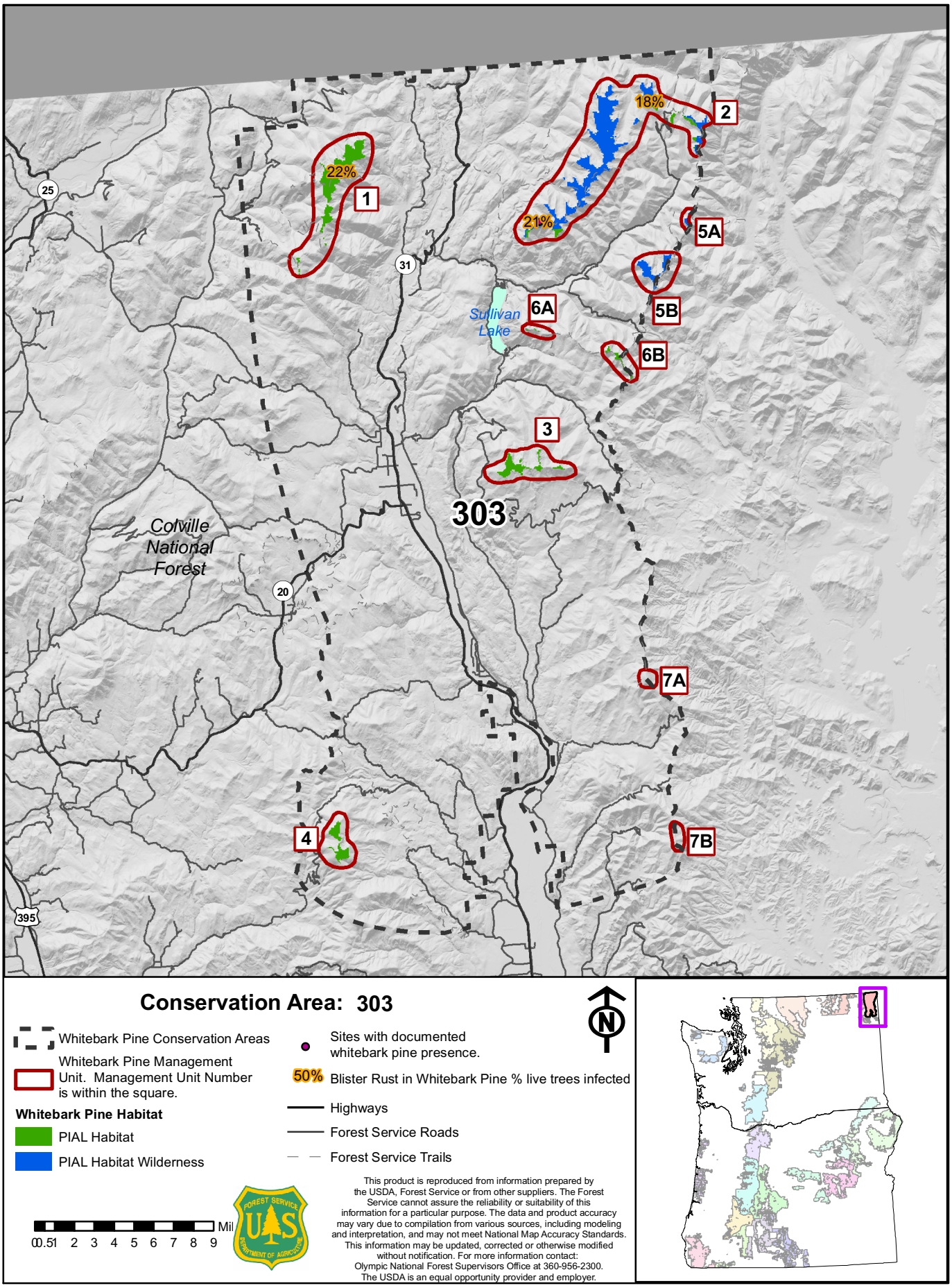


Proposed Action Summary for Conservation Area 303

Colville National Forest, Washington

Management unit (acres)	Description and condition	Access	Proposed actions 2009–2013*
1 Abercrombi-Hooknose (1,800)	Mature stands of PIAL with good collection potential. Small collection site established. Isolated population. Many opportunities for planting. Seed needed. Blister rust at moderately low levels and MPB active in mature PIAL. Thinning needed to reduce competition and MPB.	No road access. Well-maintained trail access and ample opportunity for helispots along ridge.	Collect cones. Restore – plant.** Restore – thin.**
2 Salmo-Priest Wilderness with small inclusion of non-wilderness (4,600)	Mature PIAL. Established cone collection sites. Two locations with tested rust resistant trees. Opportunity to establish new collection and planting sites. One restoration planting below Salmo Mt. Blister rust levels moderate and MPB have been active in PIAL stands. Need to continue collections and conserve rust resistant stands/trees. Conifer competition needs to be treated. Seed needed..	Well-maintained trail access. Road access to Sullivan Mt, Salmo Mt and Salmo Mt Lookout at wilderness boundary.	Safeguard habitat. Collect cones. Restore – plant. Restore – thin.
3 Molybdenite Mt (500)	PIAL is fairly well-represented in area but status is unknown. MPB activity unknown.	Best access to area is unknown. Road access to within 1 mile of site appears possible.	Survey – condition**.
4 Calispell Peak (500)	PIAL occupy very small area but are mature. Most isolated population in CA. Important collection site. Ample area for restoration plantings. MPB activity in PIAL unknown. Seed needed..	Good road access to edge of habitat. No maintained trails.	Collect cones. Restore – plant.
5a and 5b Round Top-Mankato, Salmo-Priest Wilderness (600)	Remnant isolated PIAL stands. Ample areas available for planting. Established cone collection site on Round Top with tested blister rust resistant tree. MPB have killed fire-weakened trees. Seed needed. Thinning needed to reduce conifer competition. Round Top-Mankato is a designated research natural area.	Trail access.	Safeguard habitat. Collect cones. Restore – plant. Restore – thin.
6a and 6b Hall Mountain (250)	Very small areas with mature cone producing trees present. Stands are small and isolated. Ample area for planting. Poor regeneration noted in area. MPB activity in PIAL is unknown. MPB have been active in adjacent PICO prior to 2004.	Trail access. Some road access to area is seasonally closed.	Collect cones. Restore – plant.
7a and 7b North and South Baldy (<50)	Very small stands of mature cone-bearing trees. Isolated populations. Established cone collection site. Seed from North Baldy used in post-fire restoration planting 20 miles to the west of collection area. Good potential for additional planting sites. Low levels of blister rust detected in stand. MPB activity in PIAL unknown but MPB has been active in adjacent PICO prior to 2004.	Good road access.	Collect cones.

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: CA=conservation area; MPB=mountain pine beetle; PIAL=Pinus albicaulis; PICO=Pinus contorta;


22%
1
18%
2
21%
5A
6A
Sullivan Lake
5B
6B
3
303
Colville National Forest
7A
4
7B
25
31
20
395
Conservation Area: 303
Whitebark Pine Conservation Areas
Whitebark Pine Management Unit. Management Unit Number is within the square.
Whitebark Pine Habitat
PIAL Habitat
PIAL Habitat Wilderness
Sites with documented whitebark pine presence.
50% Blister Rust in Whitebark Pine % live trees infected
Highways
Forest Service Roads
Forest Service Trails
N
0 0.5 1 2 3 4 5 6 7 8 9 Mi
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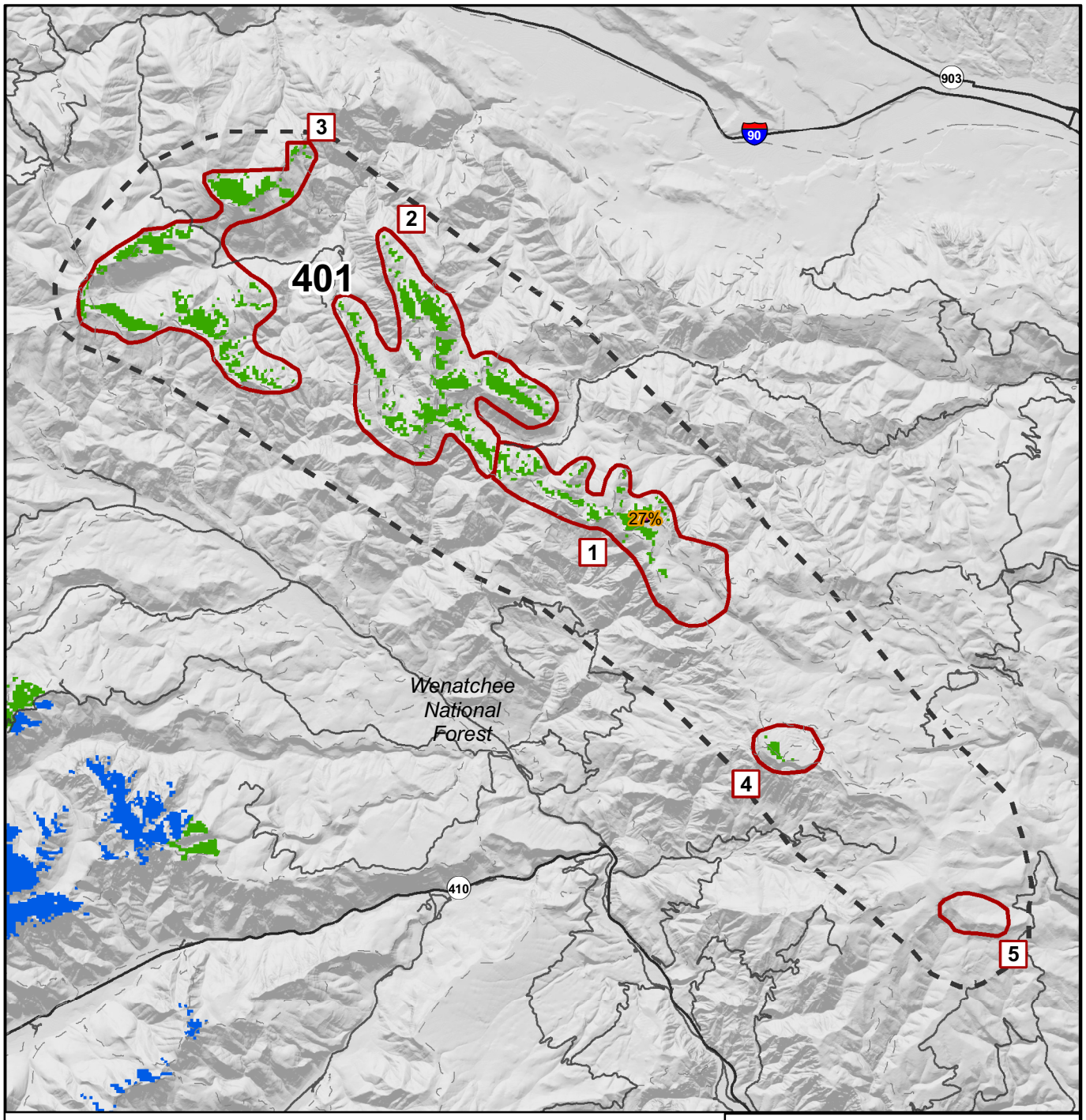
Proposed Action Summary for Conservation Area 401

Okanogan-Wenatchee National Forest, Washington

Management unit (acres)	Description and condition	Access	Proposed actions 2009–2013*
1 Little Naches South (400)	Most documented PIAL in CA in this unit, which is 27 percent blister rust. MPB well-established in adjacent areas and beginning to move into PIAL habitat. Good central location to establish collection sites. Surveys needed to establish collection sites.	Good road and trail access.	Collect cones. Survey – seed trees.
2 Little Naches Central (1,300)	PIAL status unknown. Largest concentration of habitat in CA. No MPB activity detected since 1994.	Trail access only.	Survey – condition.
3 Little Naches North (1,200)	PIAL status unknown. Northern-most habitat in seed zone and CA. Good place to establish collections. No MPB activity detected.	Good road and trail access.	Survey – condition.**
4 Naches Trail 688 (50)	PIAL known to occur in area but status unknown. No MPB activity detected.	Good road and trail access.	Survey – condition.
5 Naches Rd 1701-530 (<50)	PIAL known to occur throughout area. Status is unknown. Isolated small population in southern most portion of CA. Good location to establish collection if cone bearing trees exist. No MPB activity detected.	Good road access.	Collect cones. Survey – condition.

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: CA=conservation area; MPB=mountain pine beetle; PIAL=Pinus albicaulis



Conservation Area: 401

Whitebark Pine Conservation Areas

Whitebark Pine Management Unit. Management Unit Number is within the square.

Whitebark Pine Habitat

PIAL Habitat

PIAL Habitat Wilderness

Sites with documented whitebark pine presence.

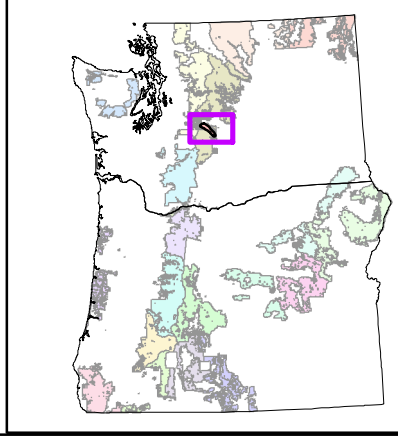
50% Blister Rust in Whitebark Pine % live trees infected

Highways

Forest Service Roads

Forest Service Trails

0 0.5 1 2 3 4 M

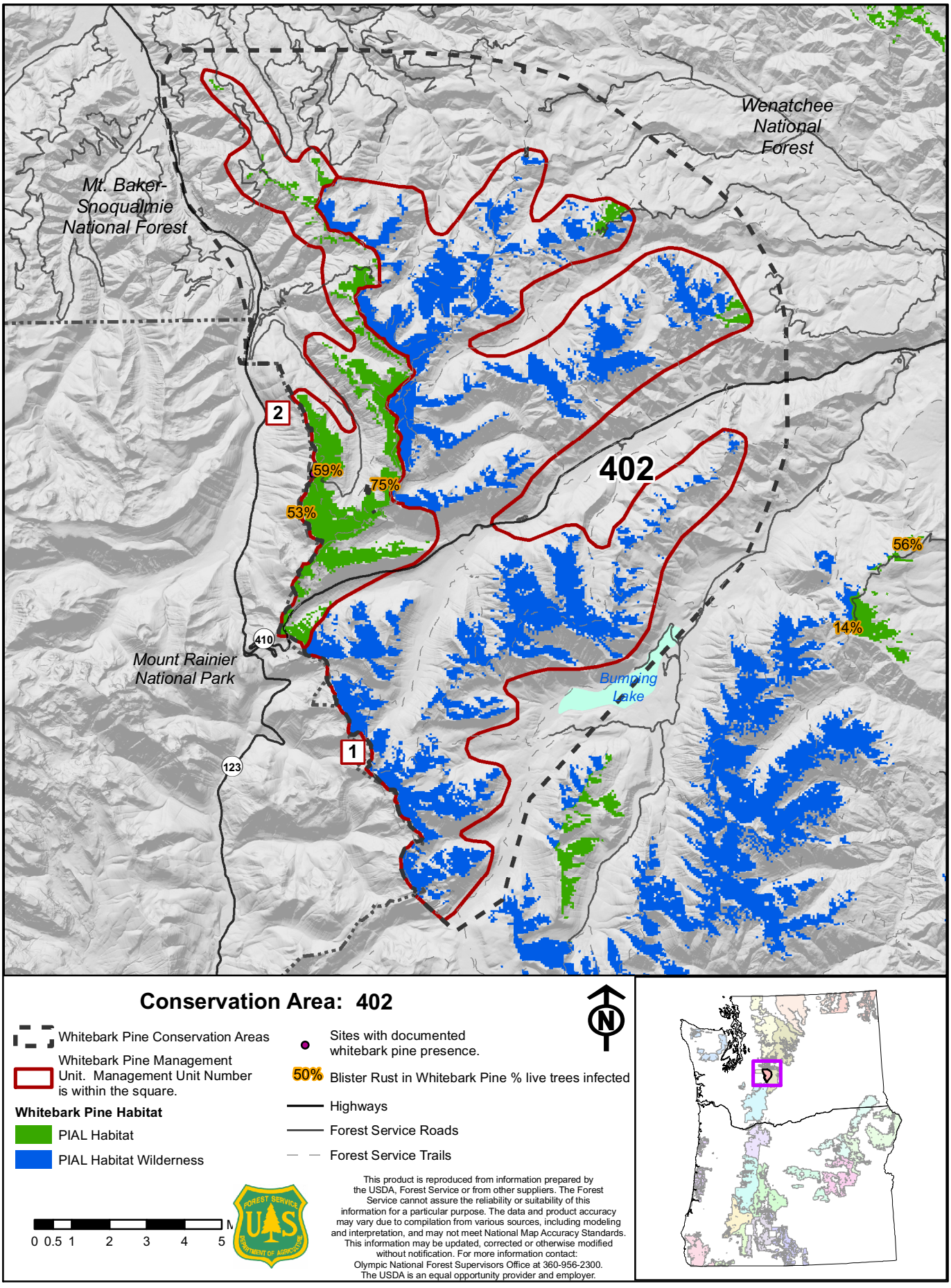


Proposed Action Summary for Conservation Area 402

Okanogan-Wenatchee National Forest, Washington

Management unit (acres)	Description and condition	Access	Proposed actions 2009–2013*
1 Norse Peak, William O. Douglas and Norse Peak Wilderness (19,800)	Well-documented PIAL, but status unknown. MPB becoming widespread and no recent or historical fires detected. MPB mortality in PIAL suspected in southeastern half of unit. Surveys needed to determine condition and possible planting opportunities.	Good trail access. No road access.	Safeguard habitat. Survey – condition.
2 Chinook, northern three-quarters of area on Mt Baker-Snoqualmie National Forest. (5,200)	MPB activity in PIAL unknown. Status of PIAL for collection opportunities is unknown.	Good road and trail access. Helispot access unknown.	Collect cones. Survey – condition.**

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: MPB=mountain pine beetle; PIAL=Pinus albicaulis


Wenatchee National Forest
Mt. Baker-Snoqualmie National Forest
Mount Rainier National Park
Bumping Lake
402
2
1
59%
75%
53%
56%
14%
410
123
Conservation Area: 402
Whitebark Pine Conservation Areas
Whitebark Pine Management Unit. Management Unit Number is within the square.
Whitebark Pine Habitat
PIAL Habitat
PIAL Habitat Wilderness
Sites with documented whitebark pine presence.
50% Blister Rust in Whitebark Pine % live trees infected
Highways
Forest Service Roads
Forest Service Trails
N
0 0.5 1 2 3 4 5
M
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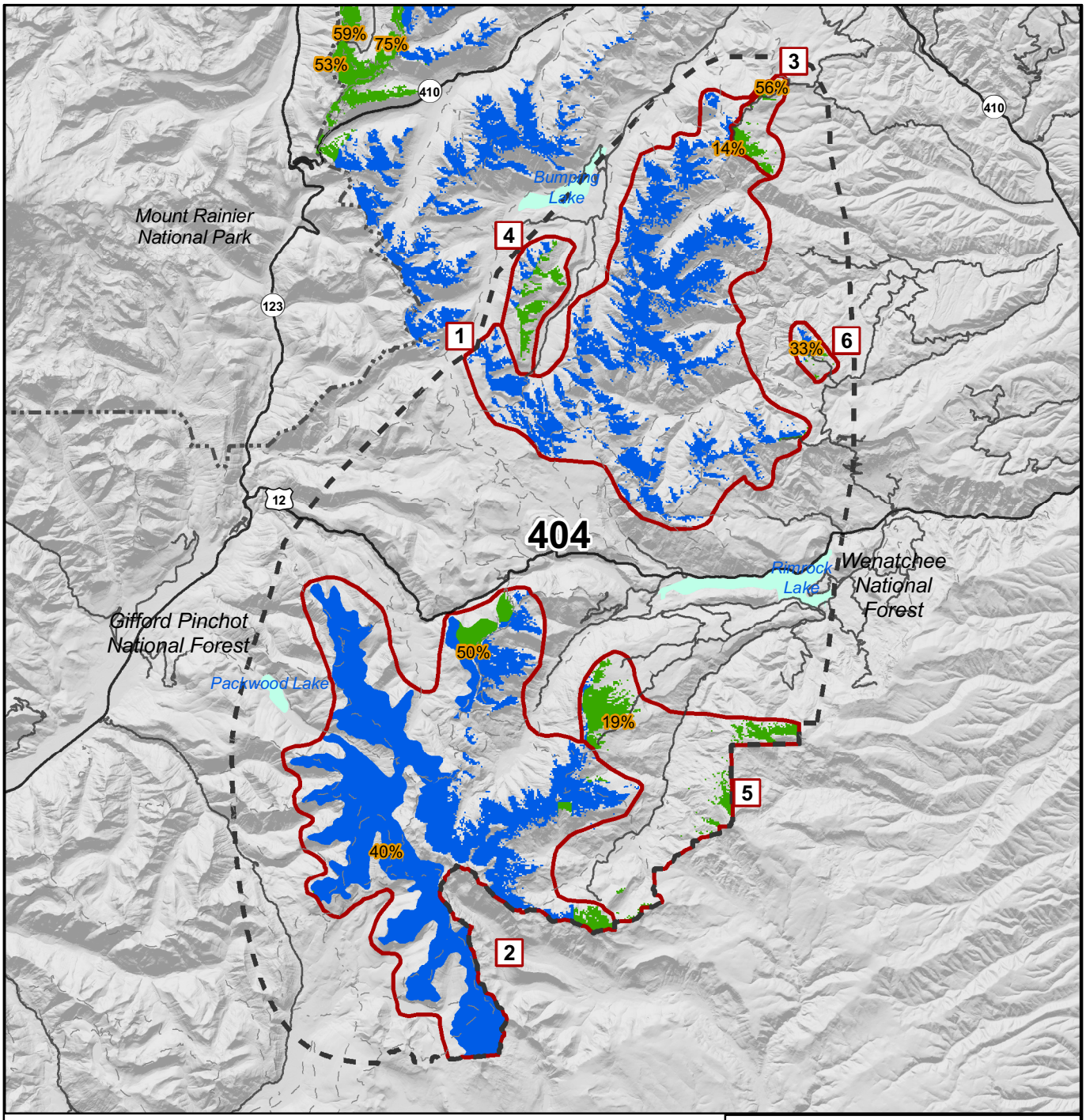
Proposed Action Summary for Conservation Area 404

Okanogan-Wenatchee and Gifford Pinchot National Forests, Washington

Management unit (acres)	Description and condition	Access	Proposed actions 2009–2013*
1 William O. Douglas Wilderness (18,700)	PIAL status largely unknown. MPB currently active in area. Recent fires may have opened up habitat for restoration plantings. Surveys needed to assess, extent, condition, and restoration needs.	Poor road access to trail heads. Trail is the main mode of access and not well-networked.	Safeguard habitat. Survey – condition.
2 Goat Rocks Wilderness and White Pass Ski Area (35,800)	Status of PIAL for potential collections is unknown. MPB activity minor at this time but likely to spread from surrounding areas.	Primitive road access to White Pass Ski area. Otherwise, trail access.	Safeguard habitat. Survey – condition.
3 Clover Springs (700)	Mature PIAL with established collection sites. Suspect that MPB have taken out most of PIAL habitat. Need to continue to collect seed from established site and assess restoration opportunities, particularly planting behind MPB mortality.	Good road access.	Collect cones. Restore – plant.** Survey – condition.**
4 Bumping, eastern half in William O. Douglas Wilderness; western half non-wilderness (12,000	One documented stand of PIAL, but PIAL status unknown. MPB active in area. Surveys needed to confirm PIAL condition and collection/restoration opportunities.	Good road access to center of habitat.	Safeguard habitat. Survey – condition.
5 Section 3 Lake (2,900)	Status of PIAL unknown. Known stands of PIAL with MPB activity. MPB have taken out most of the PIAL habitat. Likely will be good area for restoration planting in the future.	Road access from the west and east, and well-networked through area. All roads require 4X4 vehicles.	Survey – condition.
6 Timberwolf half in William O. Douglas Wilderness, half non-wilderness (200)	Small area with mature cone-bearing PIAL. MPB are active. Need to establish collection sites and survey for restoration needs	Good road access.	Safeguard habitat. Collect cones. Survey – condition.

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: MPB=mountain pine beetle; PIAL=Pinus albicaulis



Conservation Area: 404

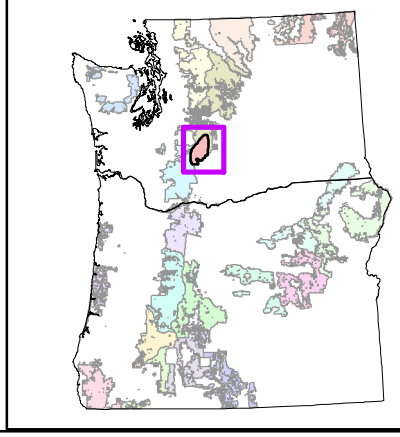
- Whitebark Pine Conservation Areas
- Whitebark Pine Management Unit. Management Unit Number is within the square.

Whitebark Pine Habitat

- PIAL Habitat
- PIAL Habitat Wilderness

- Sites with documented whitebark pine presence.
- 50% Blister Rust in Whitebark Pine % live trees infected
- Highways
- Forest Service Roads
- Forest Service Trails

0 0.5 1 2 3 4 5 6 7 8

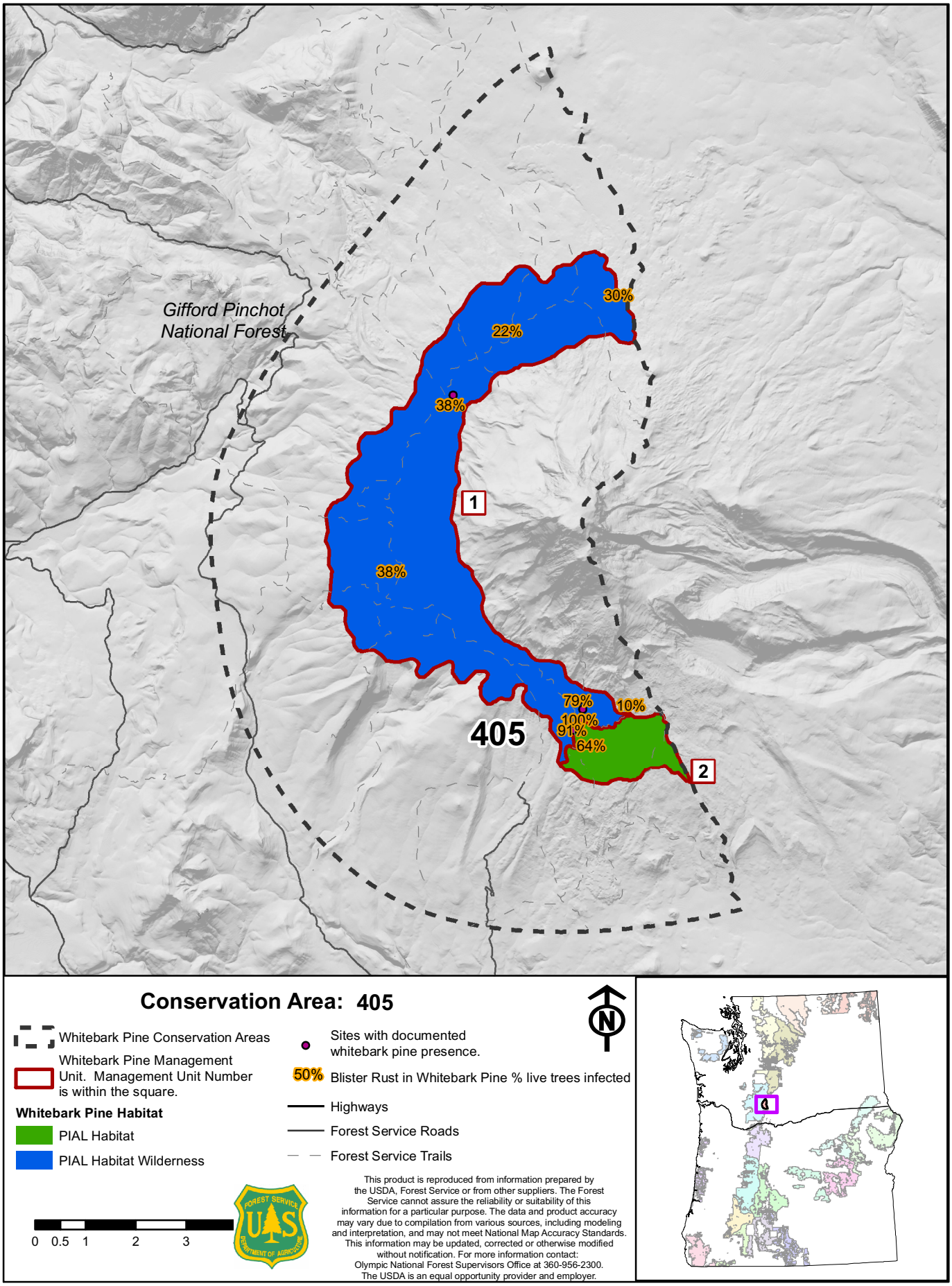


Proposed Action Summary for Conservation Area 405

Gifford Pinchot National Forest, Washington

Management unit (acres)	Description and condition	Access	Proposed actions 2009–2013*
1 Mt Adams Wilderness (14,200)	PIAL status basically unknown.	Easy access by trails.	Safeguard habitat. Survey – condition.
2 Cold Springs (1,500)	PIAL status basically unknown.	Easy access by trails.	Survey – condition.**

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: PIAL=Pinus albicaulis


Gifford Pinchot
National Forest
30%
22%
38%
1
38%
79%
10%
100%
91%
64%
405
2
Conservation Area: 405
Whitebark Pine Conservation Areas
Whitebark Pine Management Unit. Management Unit Number is within the square.
Whitebark Pine Habitat
PIAL Habitat
PIAL Habitat Wilderness
Sites with documented whitebark pine presence.
50% Blister Rust in Whitebark Pine % live trees infected
Highways
Forest Service Roads
Forest Service Trails
N
0 0.5 1 2 3
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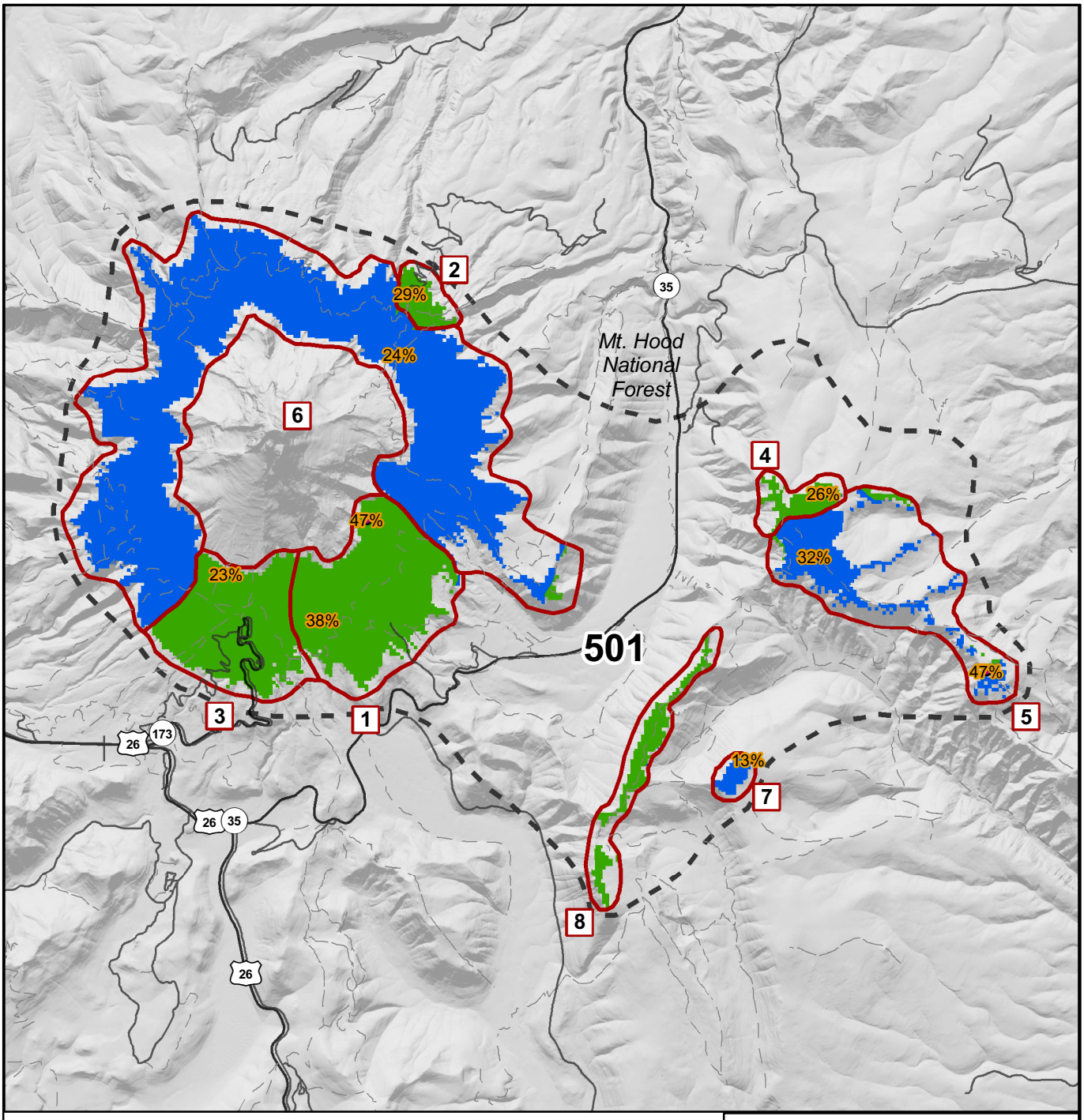
Proposed Action Summary for Conservation Area 501

Mt Hood National Forest, Oregon

Management unit (acres)	Description and condition	Access	Proposed actions 2009–2013*
1 Meadows (2,900)	Mature PIAL with good cone production. High levels of blister rust in mature trees. Epidemic levels of MPB activity in vicinity. Restoration plantings needed. Pruning blister rust infected limbs may improve individual tree survival. Established collection area.	Excellent road access associated with Mt Hood Meadows ski area and good trail access from Timberline.	Collect cones. Restore – plant.** Restore – prune.
2 Cloud Cap, Tilly Jane Historic District (300)	Nearly pure stands of mature and krummholz PIAL are collection target areas. High levels of blister rust detected, and epidemic levels of MPB activity in vicinity. Regeneration poor. Some conifer competition in places. Pruning blister rust infected limbs may improve individual tree survival. Established collection area..	Good road access by long, rough road.	Collect cones. Restore – plant. Restore – prune. Restore – thin.
3 Timberline (2,200)	Mature PIAL. Previous cone collection area. Blister rust at lower levels than other areas. MPB very active in vicinity. Pruning blister rust infected limbs may improve individual tree survival. Opportunity for collection and planting.	Good road and trail access.	Collect cones. Restore – plant. Restore – prune.
4 Dog Springs (300)	Young mixed PIAL stand. Competition thinning needed. Pruning blister rust infected limbs may improve individual tree survival. Regeneration poor. MPB mortality in PIAL increasing. Poor stand vigor. Restoration thinning and pruning is high priority. Cone collection opportunity.	Good road access.	Collect cones. Restore – plant. Restore – prune. Restore – thin.
5 Lookout Mt / Flag Point, Badger Creek Wilderness (1,100)	Relatively young cone-bearing PIAL stand with moderate to high blister rust infection levels. Pruning blister rust infected limbs may benefit long-term stand survival. Mortality from MPB in PIAL and adjacent PICO increasing. Poor PIAL regeneration. Establish collection areas.	Poor road access to trails into PIAL habitat.	Safeguard habitat. Collect cones.
6 Mt Hood Wilderness (9,600)	Pockets of large PIAL with high levels of mortality due to MPB and blister rust. Possible future restoration planting in recent fire area. Collection opportunities.	Poor overall access. Limited roads and trails in area.	Safeguard habitat. Collect cones.
7 Badger Butte, Badger Creek Wilderness (100)	Mature PIAL with abundant regeneration. High levels of blister rust and low cone productivity noted. MPB at epidemic levels in adjacent PICO. Cone collection potential.	Nearby road access but no trails.	Safeguard habitat. Collect cones.
8 Trail 685 (500)	No known PIAL information available along this nearly 4 miles of ridge line. Surveys needed to determine presence, condition, and extent of PIAL.	Good road access to trails from northern and southern end of this habitat.	Survey – condition.**

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: MPB=mountain pine beetle; PIAL=Pinus albicaulis; PICO=Pinus contorta



Conservation Area: 501

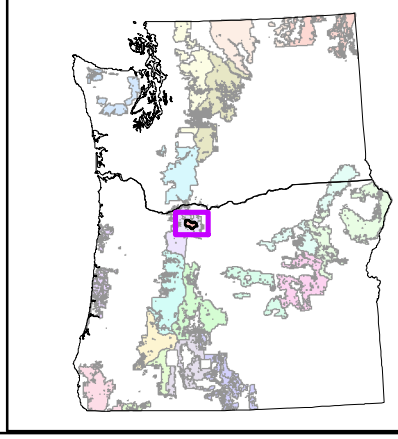
- Whitebark Pine Conservation Areas
- Whitebark Pine Management Unit. Management Unit Number is within the square.

Whitebark Pine Habitat

- PIAL Habitat
- PIAL Habitat Wilderness

- Sites with documented whitebark pine presence.
- 50% Blister Rust in Whitebark Pine % live trees infected
- Highways
- Forest Service Roads
- Forest Service Trails

0 0.5 1 2 3

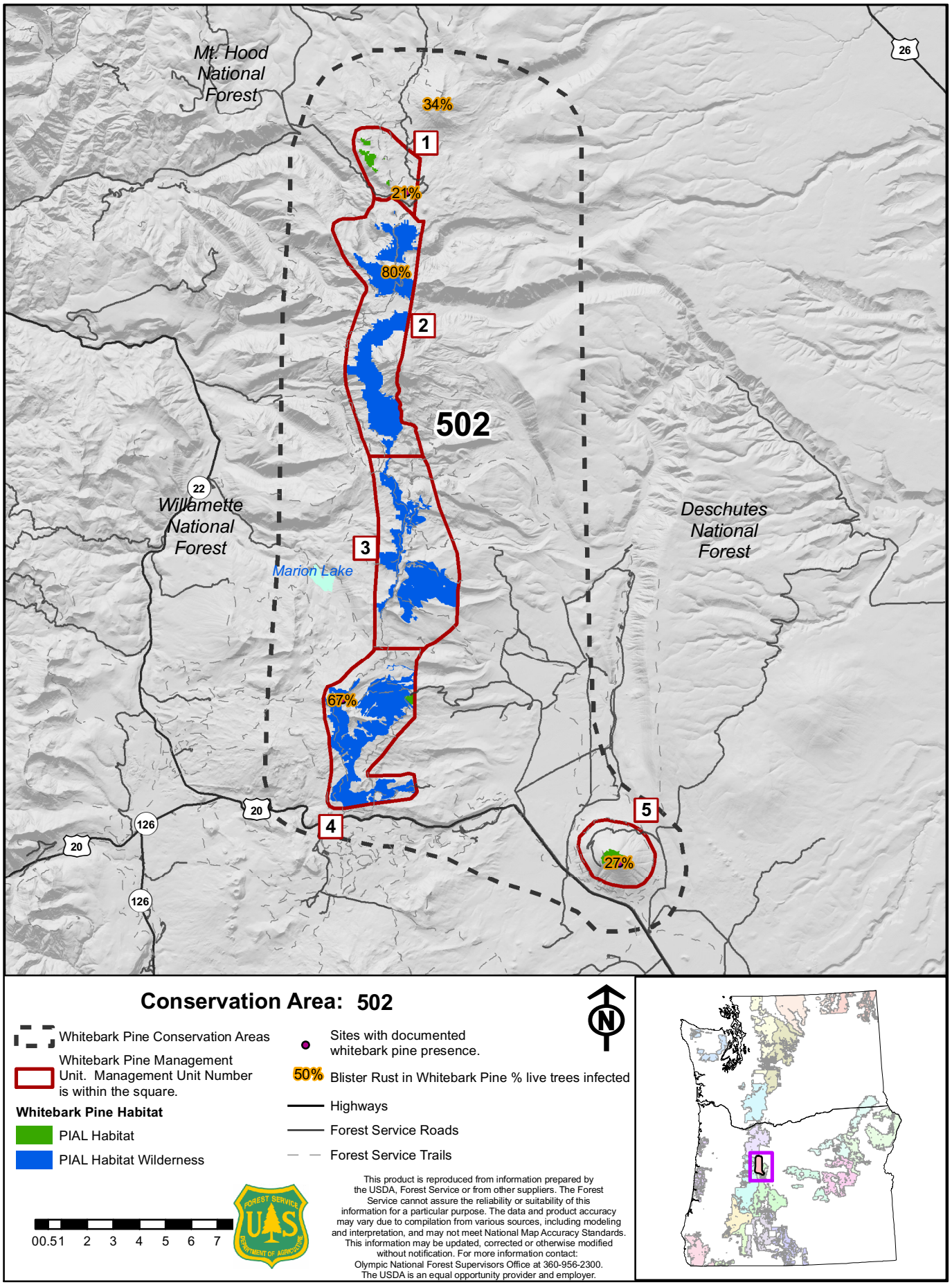


Proposed Action Summary for Conservation Area 502

Mt Hood / Willamette / Deschutes National Forests, Oregon

Management unit (acres)	Description and condition	Access	Proposed actions 2009–2013*
1 Horseshoe Lake, Olallie Lakes Scenic Area (200)	Mature PIAL. Blister rust present but in low levels or stands appear blister rust free. Mortality is low. MPB activity in adjacent PICO. Good potential for collection.	Good access. Road to within 1 mile of habitat and trail access beyond that.	Collect cones.
2 Mt Jefferson Vicinity, Mt Jefferson Wilderness (5,200)	PIAL status basically unknown. One area with 50 percent blister rust. MBP in nearby PICO. Surveys needed.	Trail access only. Stock accessible. No roads to within approximately 1.5 miles of any habitat.	Safeguard habitat. Survey – condition.
3 Central Mt Jefferson Wilderness (3,600)	PIAL status unknown at this time. Most of the suitable habitat burned over in 2003 B & B Fire. Surveys needed to determine collection and future restoration opportunities.	Poor access—remote trail access only, 7+ miles into area (Pacific Coast Trail). Stock accessible.	Safeguard habitat. Survey – condition.**
4 Three Fingered Jack and South Mt Jefferson Wilderness (4,900)	Established stand collection site at Porcupine Rock that escaped 2003 fires. MPB active in PIAL, blister rust at 84 percent in one stand. Collection and conservation important, especially if PIAL survived fire and post-fire MPB attacks. Post-fire planting opportunity.	Poor access. 7+ miles on trail to access area (Pacific Coast Trail). Stock accessible.	Safeguard habitat. Collect cones. Survey – condition.
5 Black Butte Summit (200)	Mature PIAL. Established collection site. Blister rust and MPB active in PIAL. PIAL overall in poor condition.	Good access. Road to within 2 miles of summit and good trail rest of way. Active lookout with helispot opportunities.	Collect cones. Restore – plant.**

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: MPB=mountain pine beetle; PIAL=Pinus albicaulis; PICO=Pinus contorta



Conservation Area: 502

- Whitebark Pine Conservation Areas
- Whitebark Pine Management Unit. Management Unit Number is within the square.

Whitebark Pine Habitat

- PIAL Habitat
- PIAL Habitat Wilderness

- Sites with documented whitebark pine presence.
- 50% Blister Rust in Whitebark Pine % live trees infected
- Highways
- Forest Service Roads
- Forest Service Trails

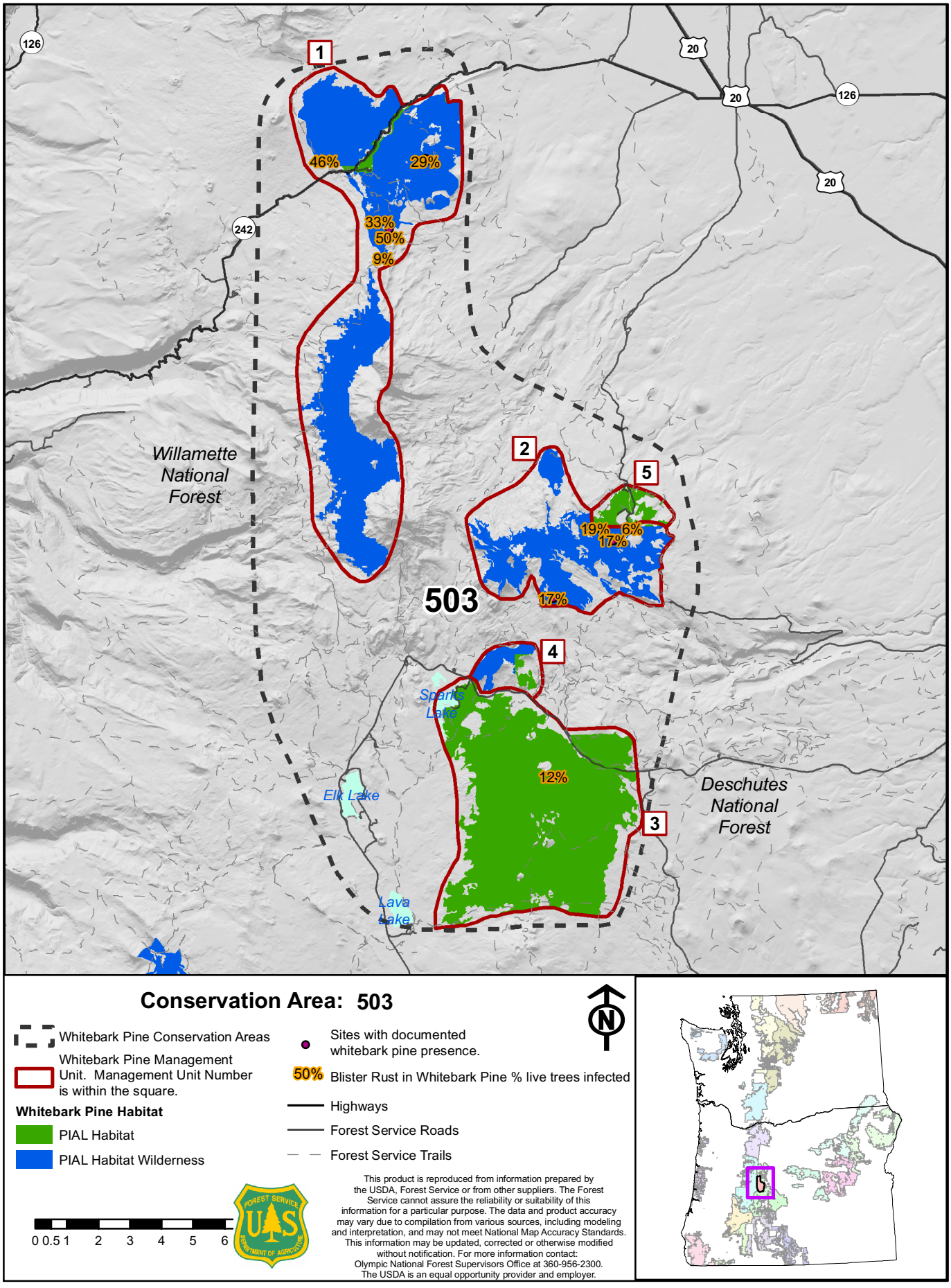
0 0.5 1 2 3 4 5 6 7

Proposed Action Summary for Conservation Area 503

Deschutes and Willamette National Forests, Oregon

Management unit (acres)	Description and condition	Access	Proposed actions 2009–2013*
1 Three Sisters and Mt Washington Wilderness (17,400)	Mature PIAL with established collection site in the northeast. Highest levels of blister rust in CA occur in northern half. MPB also active in PIAL with moderate to heavy mortality. Southern half of area PIAL status is unknown. Surveys needed to determine seed collection sites in central and southern part of wilderness.	Good road and trail access in northern half. Remote trail access to southern half.	Safeguard habitat. Collect cones. Survey – seed trees.**
2 Tam McArthur Rim, Three Sisters Wilderness (6,700)	Mature PIAL habitat with good size class distribution. Moderate to heavy MPB activity / mortality in PIAL and PICO. Blister rust relatively low levels. Conservation of next generation of cone-bearing trees important because of expected loss of older trees to MPB.	Accessible by 2-mile trail. Roads and trails found around perimeter of area.	Collect cones. Safeguard Habitat
3 Bachelor Butte / Tumalo Mt (19,600)	Mature PIAL. Established collection area. Low levels of blister rust and moderate to heavy MPB activity. PIAL seed germination study established in area.	Good road access to Mt Bachelor Ski area. Limited trail access otherwise.	Collect cones.
4 Broken Top, non-wilderness inclusion and Three Sisters Wilderness (900)	Mature PIAL. Established collection areas inside and outside wilderness. Low levels of blister rust. PIAL plantings and restoration work in area. Good potential for additional seed collection and planting.	Good road and trail access around periphery of this small area.	Safeguard habitat. Collect cones. Restore – plant.
5 Three Creeks Basin (900)	Nearly pure stands of mature PIAL; unique to this area. Established collection site in campground. Planting needed around lake and outside wilderness boundary. Heavy mountain pine beetle activity. Verbenone application area.	Excellent road and trail access.	Collect cones. Restore – plant.**

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: CA=conservation area; MPB=mountain pine beetle; PIAL=Pinus albicaulis; PICO=Pinus contorta


126
20
20
126
20
242
1
46%
29%
33%
50%
9%
2
5
19%
6%
17%
17%
503
4
Sparks Lake
12%
3
Elk Lake
Lava Lake
Willamette National Forest
Deschutes National Forest
Conservation Area: 503
Whitebark Pine Conservation Areas
Whitebark Pine Management Unit. Management Unit Number is within the square.
Whitebark Pine Habitat
PIAL Habitat
PIAL Habitat Wilderness
Sites with documented whitebark pine presence.
50% Blister Rust in Whitebark Pine % live trees infected
Highways
Forest Service Roads
Forest Service Trails
N
0 0.5 1 2 3 4 5 6
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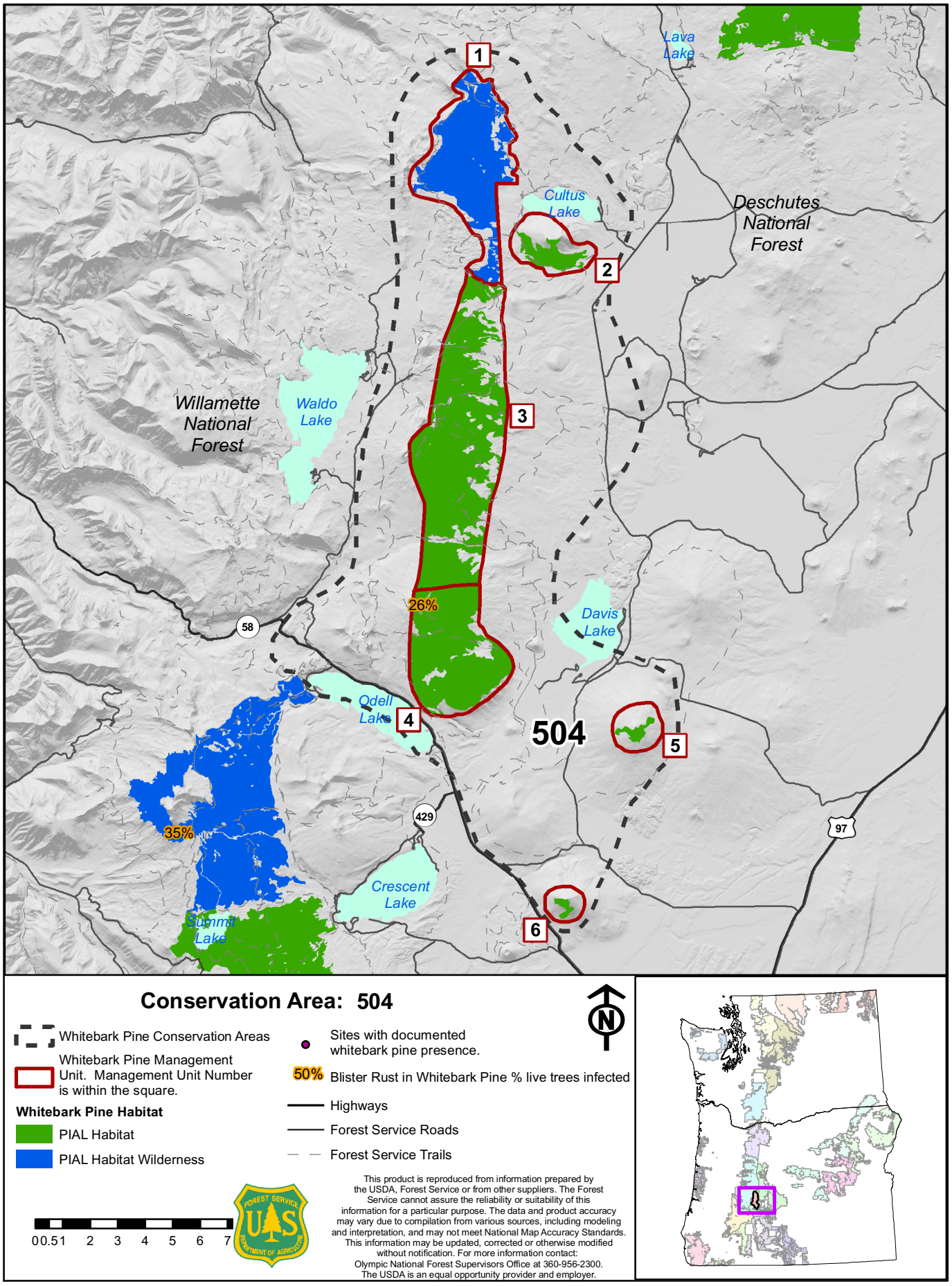
Proposed Action Summary for Conservation Area 504

Deschutes and Willamette National Forests, Oregon

Management unit (acres)	Description and condition	Access	Proposed actions 2009–2013*
1 Packsaddle Mt, Three Sisters Wilderness (7,400)	Limited habitat for PIAL. Mixed conifer forests dominate. MPB active in area. PIAL status unknown.	Trail access only. Long and difficult trails.	Safeguard habitat. Survey – condition.
2 Cultus Mt (1,000)	Mature, mixed PIAL community. Established cone collection area. Blister rust well-established and MPB active in area. Conifer competition with PIAL. Low-elevation habitat for PIAL.	Road access. Rough road goes to old lookout.	Collect cones. Restore – thin.
3 The Twins (13,300)	PIAL suspected to occur. Composition of PIAL in these commonly closed canopy stands unknown. Surveys needed to determine status.	Difficult trail access to the higher peaks.	Survey – condition.
4 Maiden Peak and Maklaks Mt (7,500)	Nearly pure stand of PIAL on upper portion of Maiden Peak; condition unknown. PIAL presence on Maklaks Mt unknown. MPB in area, extent unknown. Priority for establishing cone collection area.	Maiden Peak is accessible by trail (approximately 5 miles in). Maklaks Mt has no road or trail access.	Collect cones. Survey – seed trees.
5 Hamner Butte (300)	Entire area burned in 2003. Unknown if PIAL was present prior to fire. Needs surveys to determine post-fire status and future planting needs..	Good road access to summit. Gated and closed to public.	Survey – condition**.
6 Odell Butte (200)	Mountain top population of PIAL of all age and size classes including a small stand of old growth. Established collection site. Active lookout on summit. Isolated PIAL. Established collection site.	Good road access to butte off the hwy.	Collect cones. Restore – plant.**

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: MPB=mountain pine beetle; PIAL=Pinus albicaulis


Lava Lake
1
Cultus Lake
2
Deschutes National Forest
Willamette National Forest
Waldo Lake
3
26%
58
Davis Lake
Odell Lake
4
504
5
429
97
35%
Crescent Lake
Summit Lake
6
Conservation Area: 504
Whitebark Pine Conservation Areas
Whitebark Pine Management Unit. Management Unit Number is within the square.
Whitebark Pine Habitat
PIAL Habitat
PIAL Habitat Wilderness
Sites with documented whitebark pine presence.
50% Blister Rust in Whitebark Pine % live trees infected
Highways
Forest Service Roads
Forest Service Trails
N
0 0.5 1 2 3 4 5 6 7
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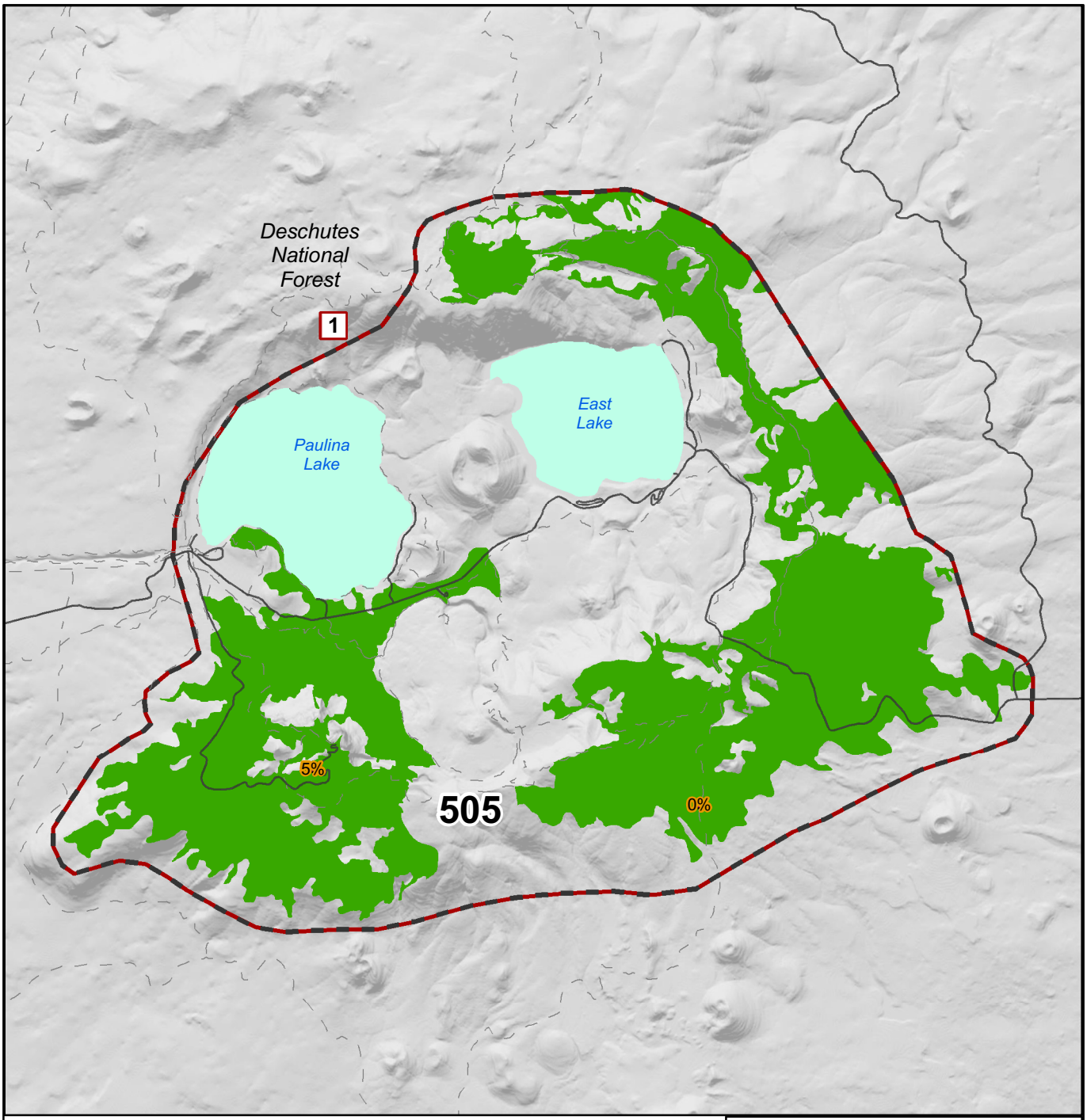
Proposed Action Summary for Conservation Area 505

Deschutes National Forest, Oregon

Management unit (acres)	Description and condition	Access	Proposed actions 2009–2013*
1 Newberry National Volcanic Monument (7,300)	Excellent stands of Mature PIAL. Low levels of blister rust and MBP. Mistletoe in PIAL noted. Established seed collection site. Established restoration planting and seed germination studies. More opportunities available for collections and planting.	Good road and trail access. Seasonal road closure to Paulina summit.	Collect cones. Restore – plant.**

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: MPB=mountain pine beetle; PIAL=Pinus albicaulis



Conservation Area: 505

Whitebark Pine Conservation Areas

Whitebark Pine Management Unit. Management Unit Number is within the square.

Whitebark Pine Habitat

PIAL Habitat

PIAL Habitat Wilderness

Sites with documented whitebark pine presence.

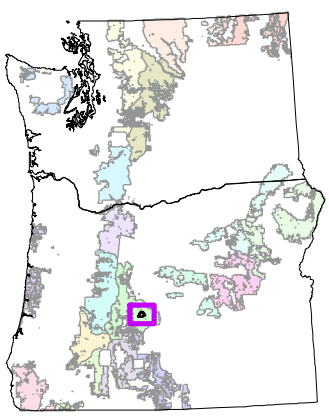
50% Blister Rust in Whitebark Pine % live trees infected

Highways

Forest Service Roads

Forest Service Trails

Miles
0 0.5 1

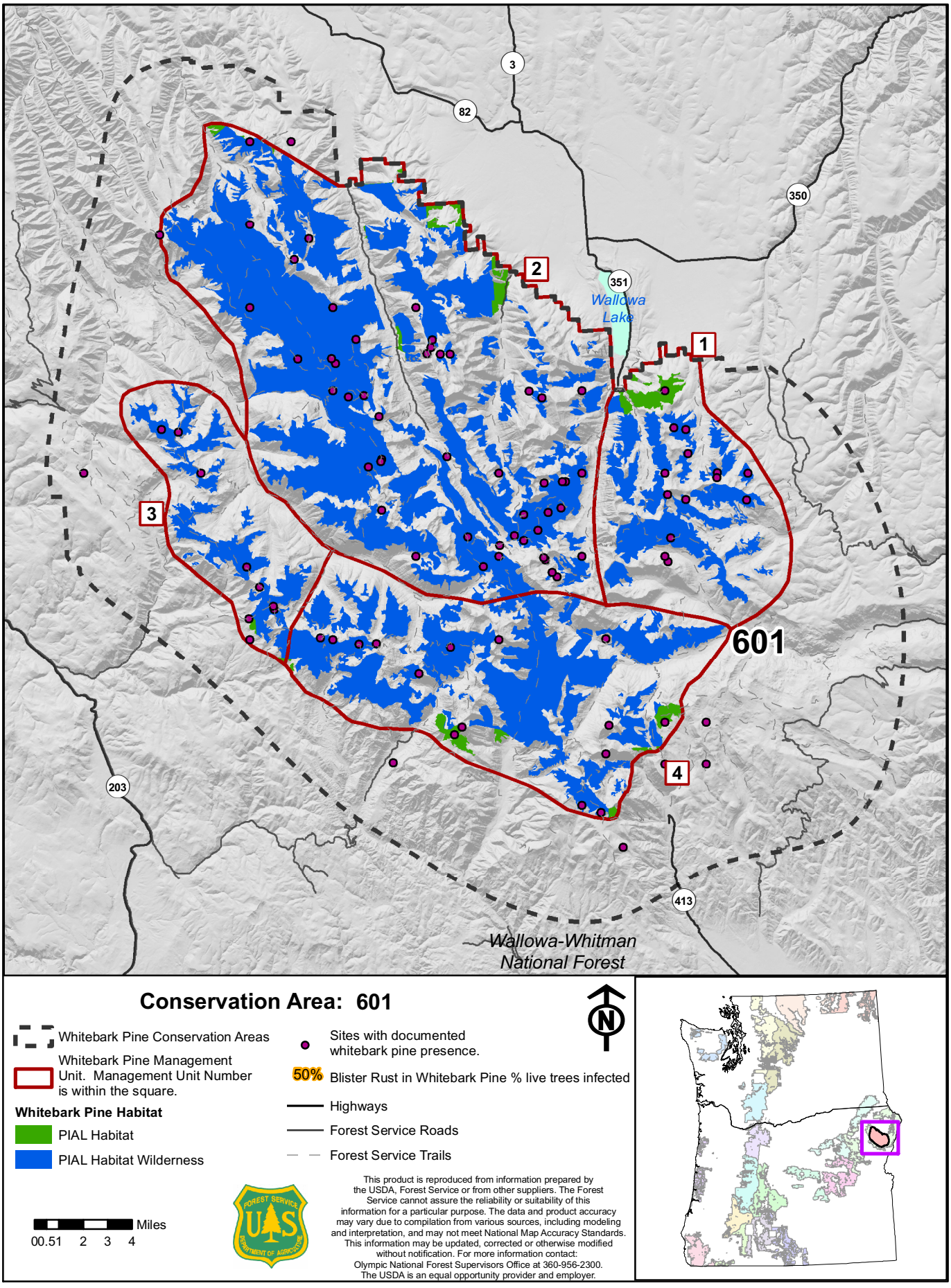


Proposed Action Summary for Conservation Area 601

Wallowa-Whitman National Forest, Oregon

Management unit (acres)	Description and condition	Access	Proposed actions 2009–2013*
1 Mt Howard/ Big Sheep Basin, Eagle Cap Wilderness with small non-wilderness inclusion (13,300)	Mature PIAL. Established collection sites. Seed needed for restoration. MBP mortality has been significant in PIAL. Future restoration opportunities behind past and current MPB-caused mortality and past fire.	Mt Howard gondola and trails. No road access into center of unit. Trails stock accessible.	Safeguard habitat. Collect cones.
2 Lostine, Eagle Cap Wilderness (69,400)	Mature PIAL likely cone-bearing. Significant recent MPB mortality in larger PIAL. Good natural regeneration occurring in northern portion only. Established collection areas.	Access is via trail. Good road access to trailheads near suitable habitat along north boundary. Trails are stock accessible.	Safeguard habitat. Collect cones.
3 West Eagle/ Buck Creek, Eagle Cap Wilderness (8,100)	A few mature PIAL likely cone-bearing. MPB activity increasing. Need to establish collection sites, determine post-fire PIAL status, and future planting opportunities.	Some road access to trailheads within 1 mile of habitat in northwestern half. Rest of the trailheads are considerable distance from suitable habitat. Trails stock accessible.	Safeguard habitat. Collect cones. Survey – condition.
4 Summit Point/ South Fork Imnaha River, Eagle Cap Wilderness (31,200)	Some mature PIAL. Good representation of all size classes in PIAL stands. Significant recent MPB mortality in PIAL; otherwise, MPB activity is less prevalent than in rest of the CA. Future planting opportunities in recent fire areas.	Road access to trailheads in close proximity to suitable habitat along south boundary. Trail access into core habitat only. Stock-accessible trails.	Safeguard habitat. Collect cones. Survey – condition.**

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: MPB=mountain pine beetle; PIAL=Pinus albicaulis


3
82
350
2
351
Wallowa Lake
1
3
601
4
203
413
Wallowa-Whitman National Forest
Conservation Area: 601
Whitebark Pine Conservation Areas
Whitebark Pine Management Unit. Management Unit Number is within the square.
Whitebark Pine Habitat
PIAL Habitat
PIAL Habitat Wilderness
Sites with documented whitebark pine presence.
50% Blister Rust in Whitebark Pine % live trees infected
Highways
Forest Service Roads
Forest Service Trails
N
Miles
00.51 2 3 4
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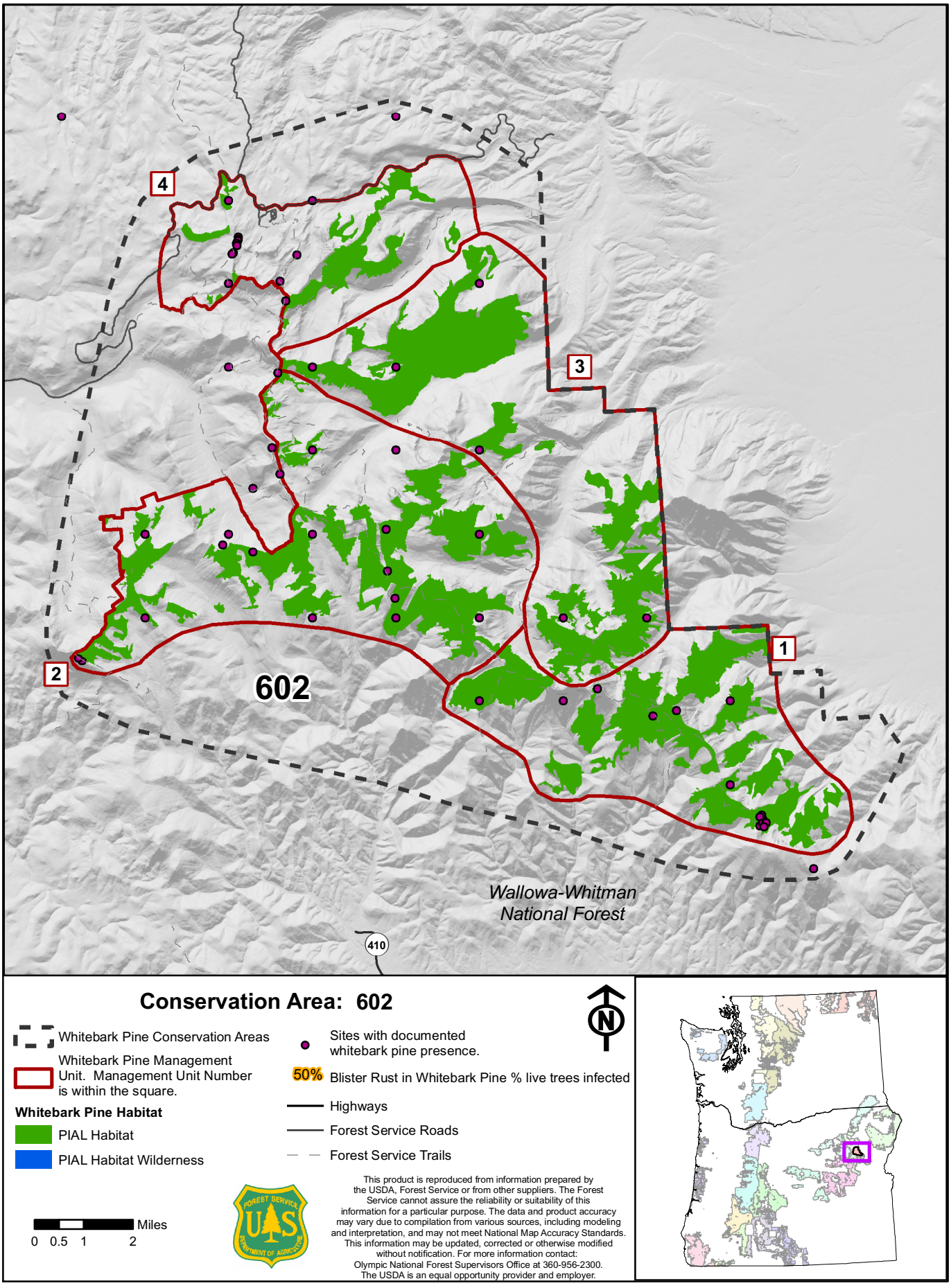
Proposed Action Summary for Conservation Area 602

Wallowa-Whitman National Forest, Oregon

Management unit (acres)	Description and condition	Access	Proposed actions 2009–2013*
1 Marble Creek Pass / Baker City Watershed (5,500)	Healthiest PIAL found in this unit; however, most larger trees are dead from past rust and MPB attacks. Low levels of blister rust in these stands. MPB are still active in PIAL. Established cone collection and restoration sites. Need to continue and expand collection, thinning, planting and pruning. About 1 lb seed in storage.	Good road access in to portions. Limited motorized access into watershed. Access mostly via trail. Trails are stock accessible	Collect cones. Restore – thin.** Restore – plant.** Restore – prune.**
2 Crater Creek / Mt Ireland with small inclusion of the North Fork John Day Wilderness (6,500)	Some mature PIAL. Most of the larger trees have died from past/current MPB and blister rust. MPB most active in this unit.	Good road access into most of the unit with trails. Trails are stock accessible	Collect cones. Restore – plant.
3 Elkhorn Face (6,600)	Status of PIAL unknown.	Limited road access (rough and impassible much of the time) with some trail. Most area is without roads or trails.	Survey – condition.**
4 Anthony Lakes / Crawfish Basin (1,400)	Mature PIAL with established cone collection sites. 11 lbs of seed in storage. Most of the larger trees have died from past and current MPB outbreaks and blister rust.	Ski area provides good road access and ties into adjacent trails. Otherwise, trail access and trails area stock accessible.	Collect cones. Restore – plant.

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: MPB=mountain pine beetle; PIAL=Pinus albicaulis


4
3
2
1
602
Wallowa-Whitman
National Forest
410
Conservation Area: 602
Whitebark Pine Conservation Areas
Whitebark Pine Management Unit. Management Unit Number is within the square.
Whitebark Pine Habitat
PIAL Habitat
PIAL Habitat Wilderness
Sites with documented whitebark pine presence.
50% Blister Rust in Whitebark Pine % live trees infected
Highways
Forest Service Roads
Forest Service Trails
N
Miles
0 0.5 1 2
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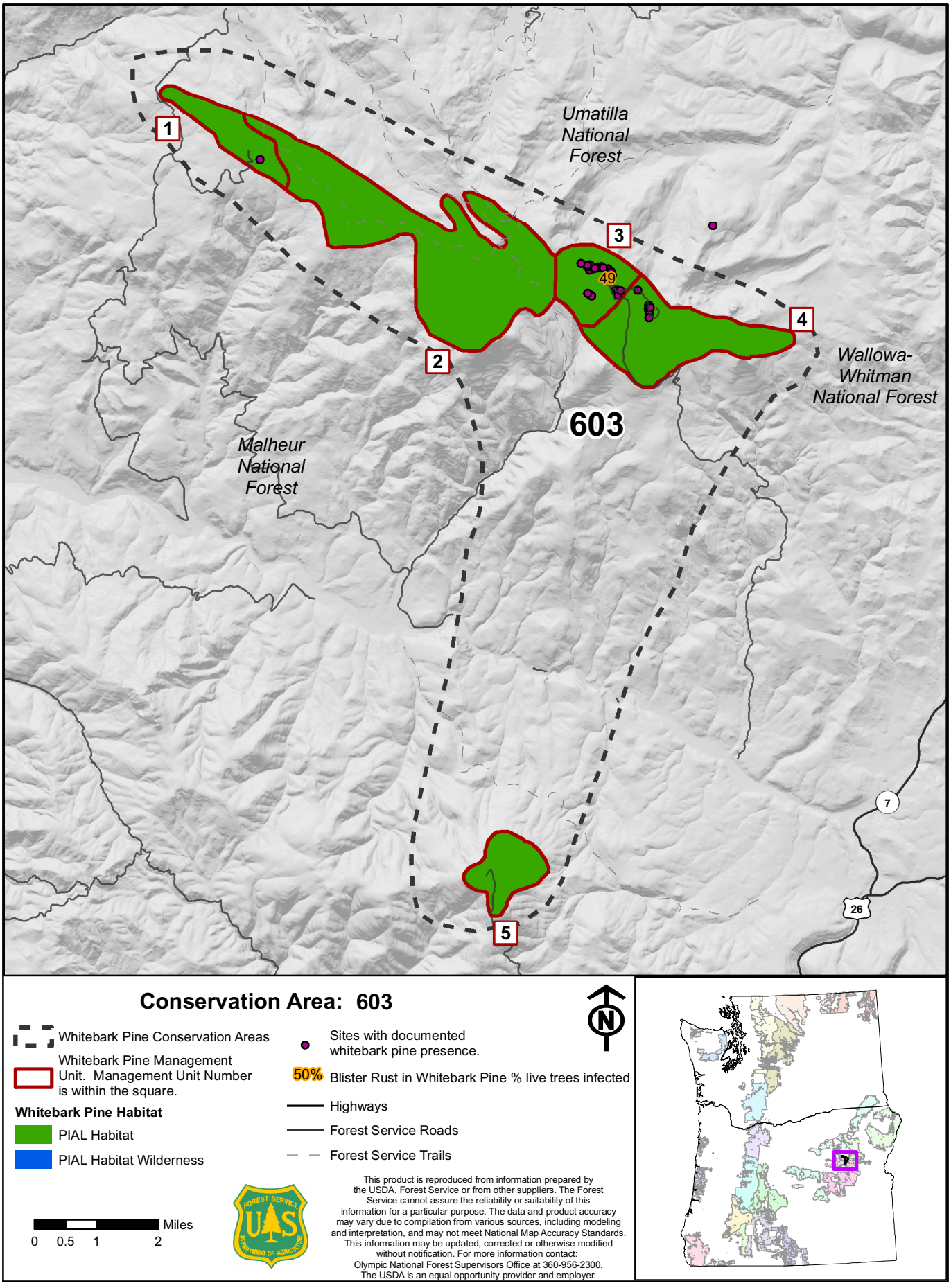
Proposed Action Summary for Conservation Area 603

Malheur and Umatilla National Forests, Oregon

Management unit (acres)	Description and condition	Access	Proposed actions 2009–2013*
1 Indian Rock Malheur (200)	Few individuals known to occur at the summit. Status of PIAL otherwise unknown. MPB active in area. Entire unit burned over in 1994 and 1996 fires. Post-fire PIAL status and restoration opportunities need to be determined.	Good road access to Indian Rock Lookout. Helispots likely established throughout fire area that could be available.	Collect cones. Survey – condition.
2 Malheur North (<50)	No information available on PIAL status.	No road access near this area; good trail access. 1 trail runs through the middle of the area and is accessed from the Umatilla side.	Collect cones. Survey – condition.
3 Vinegar Hill Umatilla (500)	Large mature PIAL stand. Active restoration and cone collection area. Moderate blister rust infection and MPB mortality in PIAL likely occurring. Need to expand collection, thinning of competing conifer species, and planting.	Good road access from north and south with minimal (approximately 1 mile) trail into heart of the conservation area.	Collect cones. Restore – plant.** Restore – thin.**
4 Vinegar Hill Malheur (400)	Status of PIAL unknown. Suspect mature cone bearing trees at Vinegar Hill. Moderate blister rust levels. Mature PICO forests prime for MPB spread to the south. Possible future PIAL competition thinning opportunity.	Good road access to Vinegar Hill. No trail access.	Collect cones. Survey – condition.**
5 Dixie Mountain Lookout, proposed research natural area (<50)	Mature PIAL scattered in mixed stands. Research natural area establishment record indicates blister rust levels very high in pole-size trees and nearly half the older trees have been killed by past/present MPB activity. Need to establish a collection site and thin competing conifer from stands. Good opportunity for future restoration plantings when seed becomes available.	Good road access to the top of Dixie Mountain Lookout. No trails in area.	Collect cones.

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: MPB=mountain pine beetle; PIAL=Pinus albicaulis; PICO=Pinus contorta



Conservation Area: 603

Whitebark Pine Conservation Areas

Whitebark Pine Management Unit. Management Unit Number is within the square.

Whitebark Pine Habitat

PIAL Habitat

PIAL Habitat Wilderness

Sites with documented whitebark pine presence.

50% Blister Rust in Whitebark Pine % live trees infected

Highways

Forest Service Roads

Forest Service Trails

N

Miles

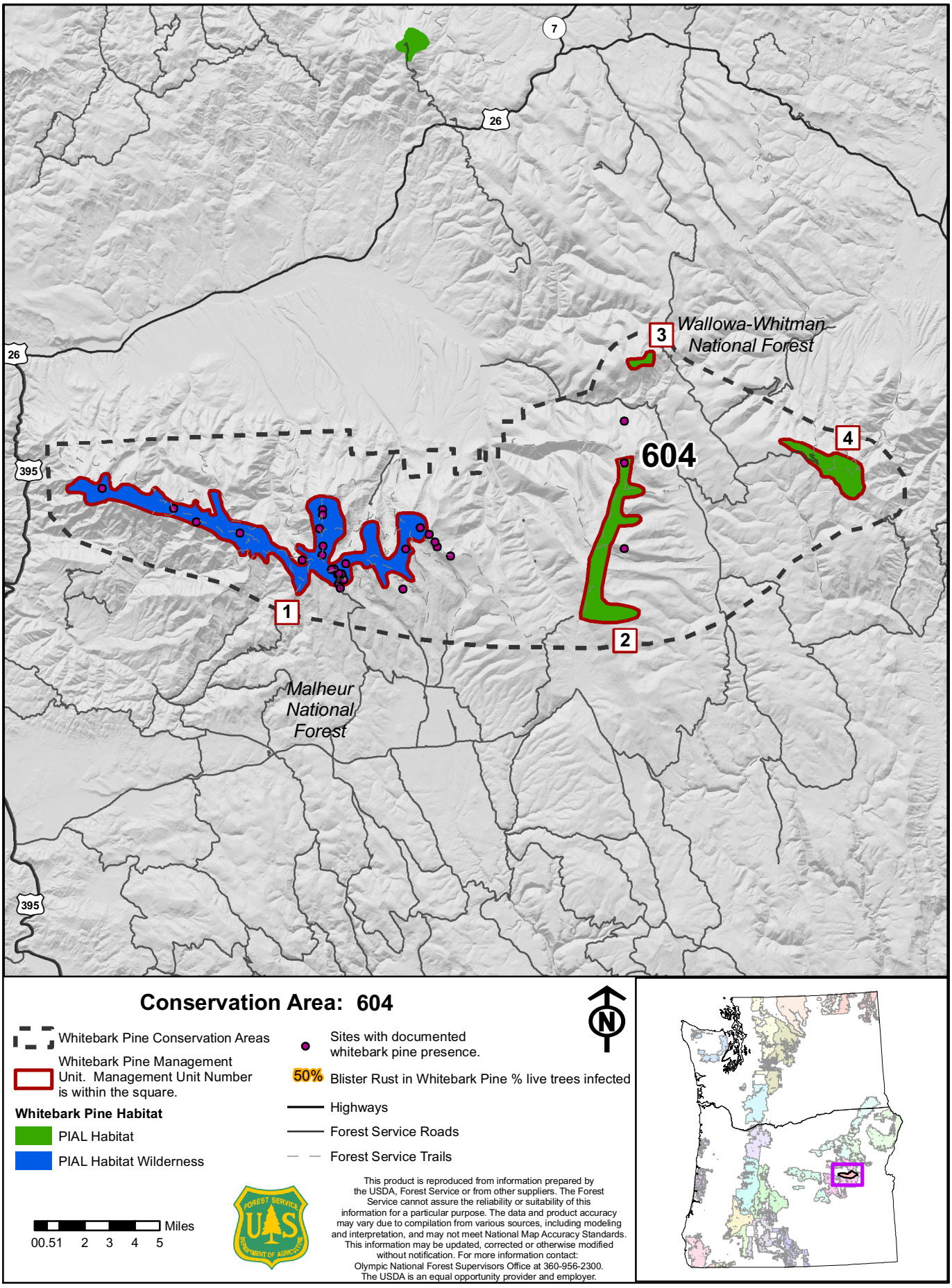
0 0.5 1 2

Proposed Action Summary for Conservation Area 604

Malheur National Forest, Oregon

Management unit (acres)	Description and condition	Access	Proposed actions 2009–2013*
1 Strawberry Mountain Wilderness with small inclusion of non-wilderness (3,200)	Mature PIAL. Established collection site. Availability of seed for restoration needs is unknown. At least four other areas of high potential for seed collection. Good reproduction noted in eastern portion, but conifer competition is high. Blister rust infection variable. One area has exceptional potential for collection, restoration thinning, and planting due to ease of access. Future thinning needed to reduce conifer competition throughout wilderness area.	Limited road access to trail heads near suitable habitat. Best habitat has easy access.	Safeguard habitat. Collect cones.
2 Little Baldy and Lookout Mt (<50)	Small patch of PIAL on Lookout Mt Extent and status of PIAL unknown. Recent fires have burned over entire area. Survey needed to determine post-fire PIAL survival and restoration needs. Given extensive PICO in adjacent area MPB activity will likely increase in near future. No known MPB activity in the area currently.	Road access to Look out Mt and trail access to rest of area.	Collect cones. Survey – condition.**
3 Baldy Mt (<50)	PIAL status unknown.	Good road access.	Collect cones. Survey – condition.
4 Table Rock Monument Rock Wilderness (<50)	Mature PIAL in good reproductive health at Table Rock Lookout. Currently no MPB activity in unit. Incomplete inventory of suitable habitat. Likely good opportunity for collection sites.	Good road access to look out.	Safeguard habitat. Collect.

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: MPB=mountain pine beetle; PIAL=Pinus albicaulis; PICO=Pinus contorta


7
26
26
395
395
3
Wallowa-Whitman
National Forest
4
604
1
2
Malheur
National
Forest
Conservation Area: 604
Whitebark Pine Conservation Areas
Whitebark Pine Management Unit. Management Unit Number is within the square.
Whitebark Pine Habitat
PIAL Habitat
PIAL Habitat Wilderness
Sites with documented whitebark pine presence.
50% Blister Rust in Whitebark Pine % live trees infected
Highways
Forest Service Roads
Forest Service Trails
N
Miles
00.51 2 3 4 5
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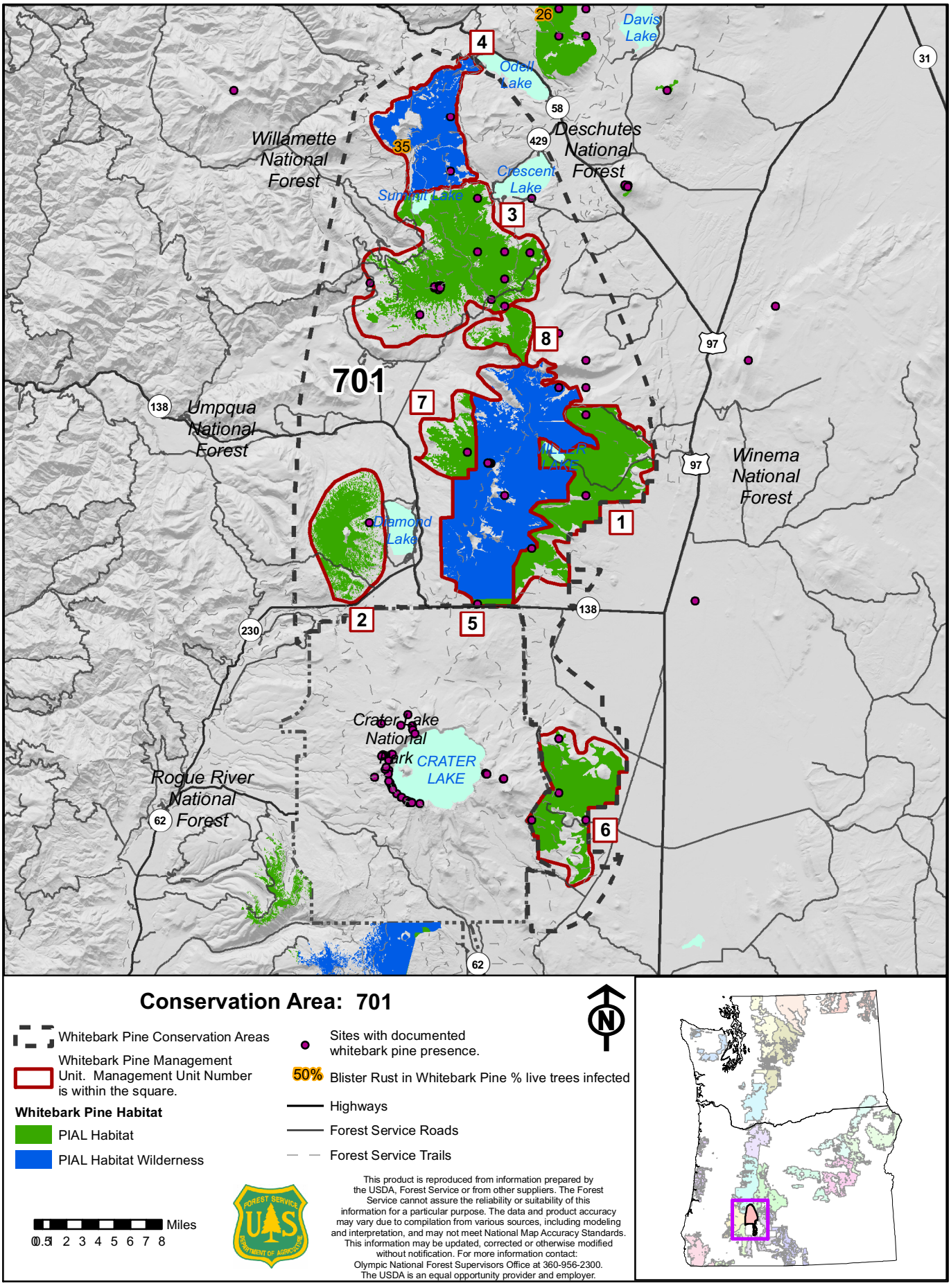
Proposed Action Summary for Conservation Area 701

Willamette / Deschutes / Umpqua / Winema National Forests, Oregon

Management units (acres)	Description and condition	Access	Proposed actions 2009–2013*
1 Miller Lake (23,400)	PIAL present, but status unknown. No MBP activity detected.	Good road and trail network.	Survey – condition.
2 Mt Bailey/Three Lakes, Oregon Cascades Recreation Area (11,400)	PIAL present on top of and along trail to Mt Bailey. Blister rust detected. No MBP activity detected. High priority for establishing cone collection site.	Some road and mostly trail access.	Collect cones. Survey – seed trees.
3 North of Windigo Pass/Sawtooth Mountain (30,400)	Most known PIAL in this unit. Survey needed to determine seed production potential. May present good planting opportunities in the future.	Good network of trails to known PIAL sites and some roads.	Collect cones. Survey – seed trees.
4 Diamond Peak Wilderness (15,300)	Condition and extent of PIAL unknown.	Trail access only.	Safeguard habitat. Survey – condition.
5 Mt Theilsen Wilderness (46,200)	Surveys completed in area. Blister rust levels at 45 percent. Tipsoo Peak excellent stand of PIAL. Seed collection area.	Good road and trail to Tipsoo Peak; otherwise, limited road and trail access.	Safeguard habitat. Collect cones.
6 Pothole Butte (14,700)	PIAL condition and extent unknown. Would provide good collection opportunities because of excellent road access.	Excellent road access throughout area.	Survey – condition**.
7 Tipsoo Peak West, Oregon Cascade Recreation Area (5,400)	Post-harvest restoration opportunities adjacent to Wilderness boundary. Stands of PIAL in area for collection. Seed collections made on Tipsoo Peak.	Road and trail access good into PIAL populations.	Collect cones. Restore – plant.**
8 South of Windigo Pass (3,600)	PIAL known on highest points. Blister rust present. Need to survey for seed trees and to establish seed collection sites. Future planting opportunities may exist.	Good road and trail access.	Survey – seed trees. Collect cones.

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: MPB=mountain pine beetle; PIAL=Pinus albicaulis


Conservation Area: 701
701
Willamette National Forest
Deschutes National Forest
Umpqua National Forest
Winema National Forest
Rogue River National Forest
Crater Lake National Park
CRATER LAKE
Davis Lake
Odell Lake
Crescent Lake
Summit Lake
Diamond Lake
1
2
3
4
5
6
7
8
Whitebark Pine Conservation Areas
Whitebark Pine Management Unit. Management Unit Number is within the square.
Whitebark Pine Habitat
PIAL Habitat
PIAL Habitat Wilderness
Sites with documented whitebark pine presence.
50% Blister Rust in Whitebark Pine % live trees infected
Highways
Forest Service Roads
Forest Service Trails
Miles
0 0.5 1 2 3 4 5 6 7 8
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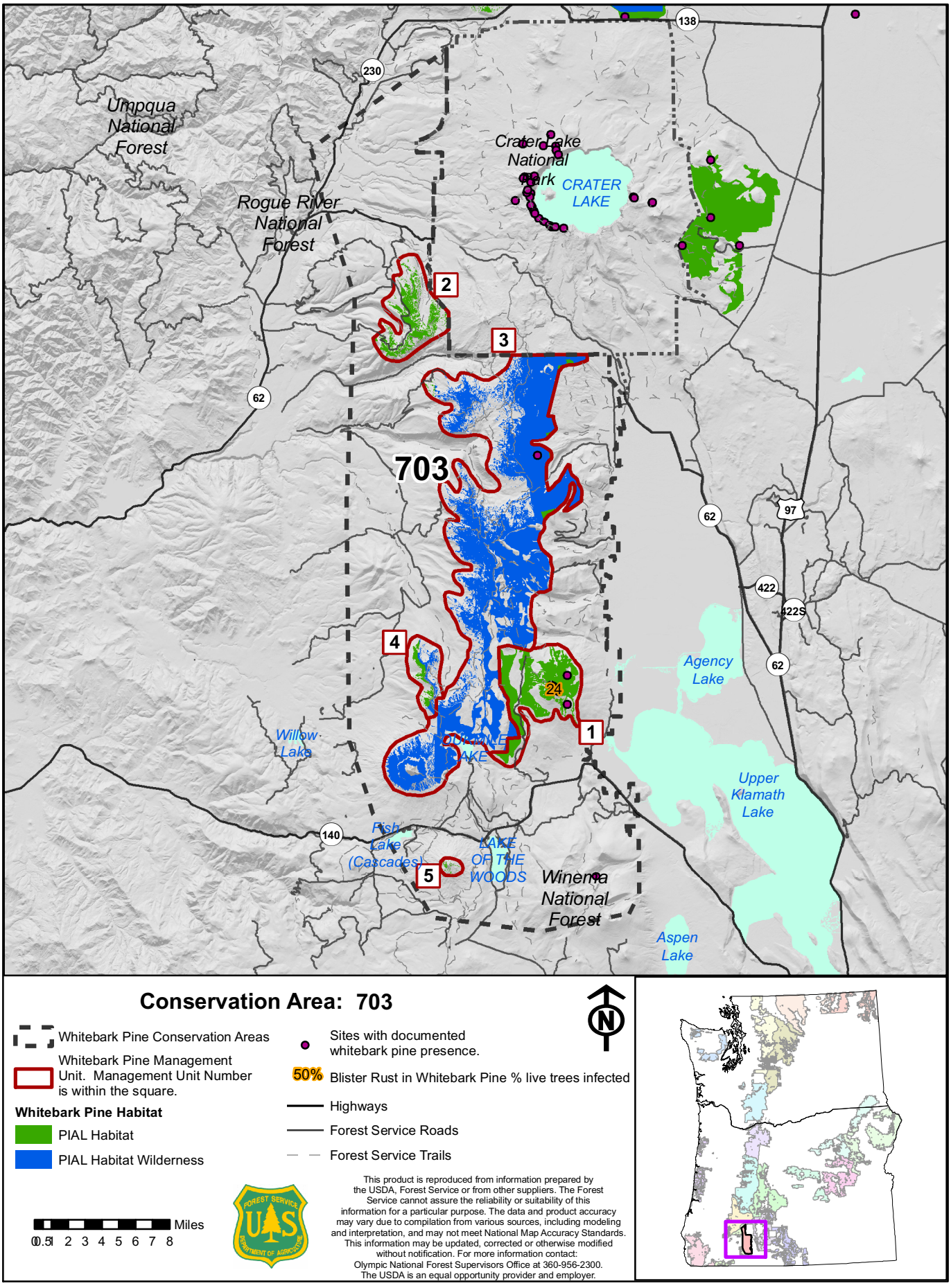
Proposed Action Summary for Conservation Area 703

Rogue River and Winema National Forests, Oregon

Management unit (acres)	Description and condition	Access	Proposed actions 2009–2013*
1 Pelican Butte Lookout (7,700)	PIAL at lookout. Likely good potential for collection site. Elsewhere, PIAL status unknown. Need to assess potential stand conditions and collection opportunities.	Good road access to lookout. No trails elsewhere.	Survey – condition.**
2 Rocktop Butte (3,300)	Some known PIAL. Condition and extent unknown. If mature PIAL present, would provide good opportunity for collections due to access.	Great road access.	Survey – condition.
3 Mt McLoughlin, Sky Lake Wilderness (47,300)	PIAL on highest peaks. Mt McLoughlin provides best opportunity for collection.	Good trail access.	Safeguard habitat. Collect cones.
4 Buck Basin, Sky Lake Wilderness with non-wilderness inclusion (1,400)	PIAL presence, condition, or extent unknown.	Good road and trail.	Survey – condition.
5 Brown Mountain (100)	PIAL exists on mountain top. Condition unknown. Surveys needed to determine stand condition and future collection potential. Only unit with noted MPB mortality in CA.	Access difficult. Pacific Crest Trail comes within a mile of the summit. Hard scramble to summit.	Survey – condition.

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: MPB=mountain pine beetle; PIAL=Pinus albicaulis



Conservation Area: 703

- Whitebark Pine Conservation Areas
- Whitebark Pine Management Unit. Management Unit Number is within the square.

Whitebark Pine Habitat

- PIAL Habitat
- PIAL Habitat Wilderness

- Sites with documented whitebark pine presence.
- 50% Blister Rust in Whitebark Pine % live trees infected
- Highways
- Forest Service Roads
- Forest Service Trails

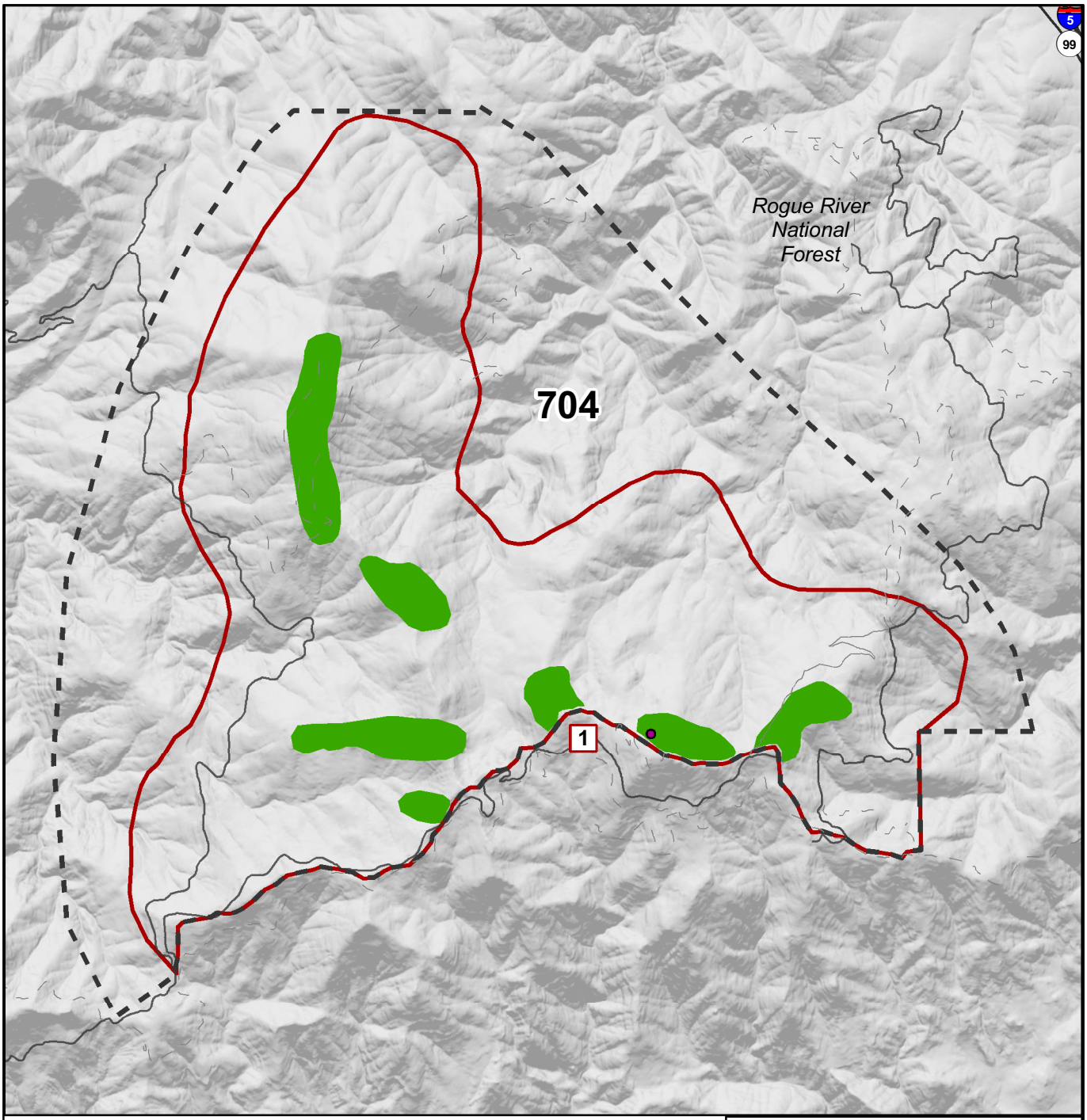
Miles
0 0.5 1 2 3 4 5 6 7 8

Proposed Action Summary for Conservation Area 704

Rogue River National Forest, Oregon

Management unit (acres)	Description and condition	Access	Proposed actions 2009–2013*
2 Mt Ashland, Ashland Watershed (1,200)	Established collection site on Mt Ashland. High visibility and interest in population at Mt Ashland from others. Scattered, small isolated populations within unit.	Good road access to Mt Ashland. Some road and trail elsewhere.	Collect cones. Survey – condition.**

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*



Conservation Area: 704

Whitebark Pine Conservation Areas

Whitebark Pine Management Unit. Management Unit Number is within the square.

Whitebark Pine Habitat

PIAL Habitat

PIAL Habitat Wilderness

Sites with documented whitebark pine presence.

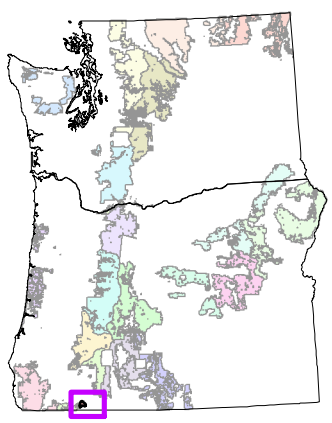
50% Blister Rust in Whitebark Pine % live trees infected

Highways

Forest Service Roads

Forest Service Trails

Miles
0 0.5 1

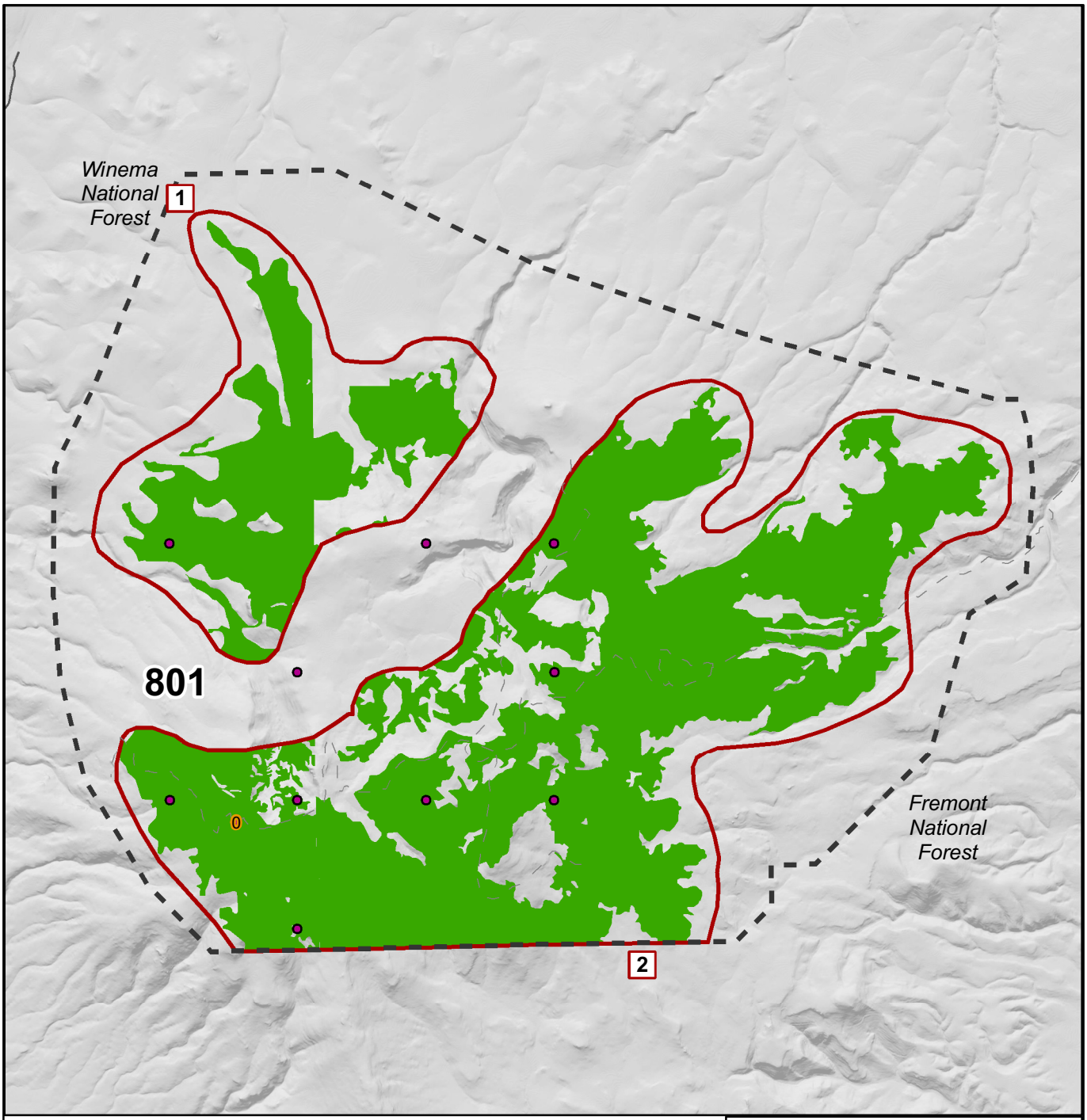


Proposed Action Summary for Conservation Area 801

Fremont and Winema National Forests, Oregon

Management unit (acres)	Description and condition	Access	Proposed actions 2009–2013*
1 Buck Ridge (4,900)	Mature PIAL present. No MPB activity detected. Established collection site with proven blister rust resistance. Thinning needed to reduce potential for stand-replacing fire and MPB attacks given epidemic MPB levels occurring in other conservation areas in this seed zone.	Excellent road access to suitable habitat.	Collect cones. Restore – thin.**
2 Guyer Creek (19,800)	Mature PIAL selected for collection but collections have not yet taken place. Blister rust levels are very low if any in the area. MPB beginning to show up in suitable habitat. Establish and expand collection opportunities. Thinning needed to reduce potential for stand replacing fire and MPB attacks given epidemic MPB levels occurring in other conservation areas in this seed zone.	Road access is good to select tree collection site. Beyond that, at least two thirds of the area is remote with limited trail access.	Collect cones. Restore – thin.

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: MPB=mountain pine beetle; PIAL=Pinus albicaulis



Conservation Area: 801

Whitebark Pine Conservation Areas

Whitebark Pine Management Unit. Management Unit Number is within the square.

Whitebark Pine Habitat

PIAL Habitat

PIAL Habitat Wilderness

Sites with documented whitebark pine presence.

50% Blister Rust in Whitebark Pine % live trees infected

Highways

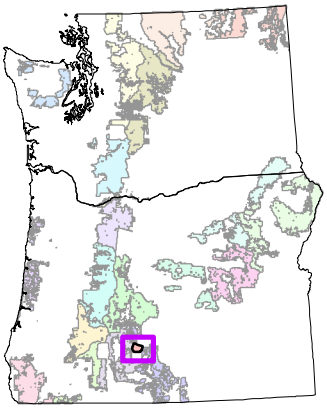
Forest Service Roads

Forest Service Trails

N

Miles

0 0.5 1 2

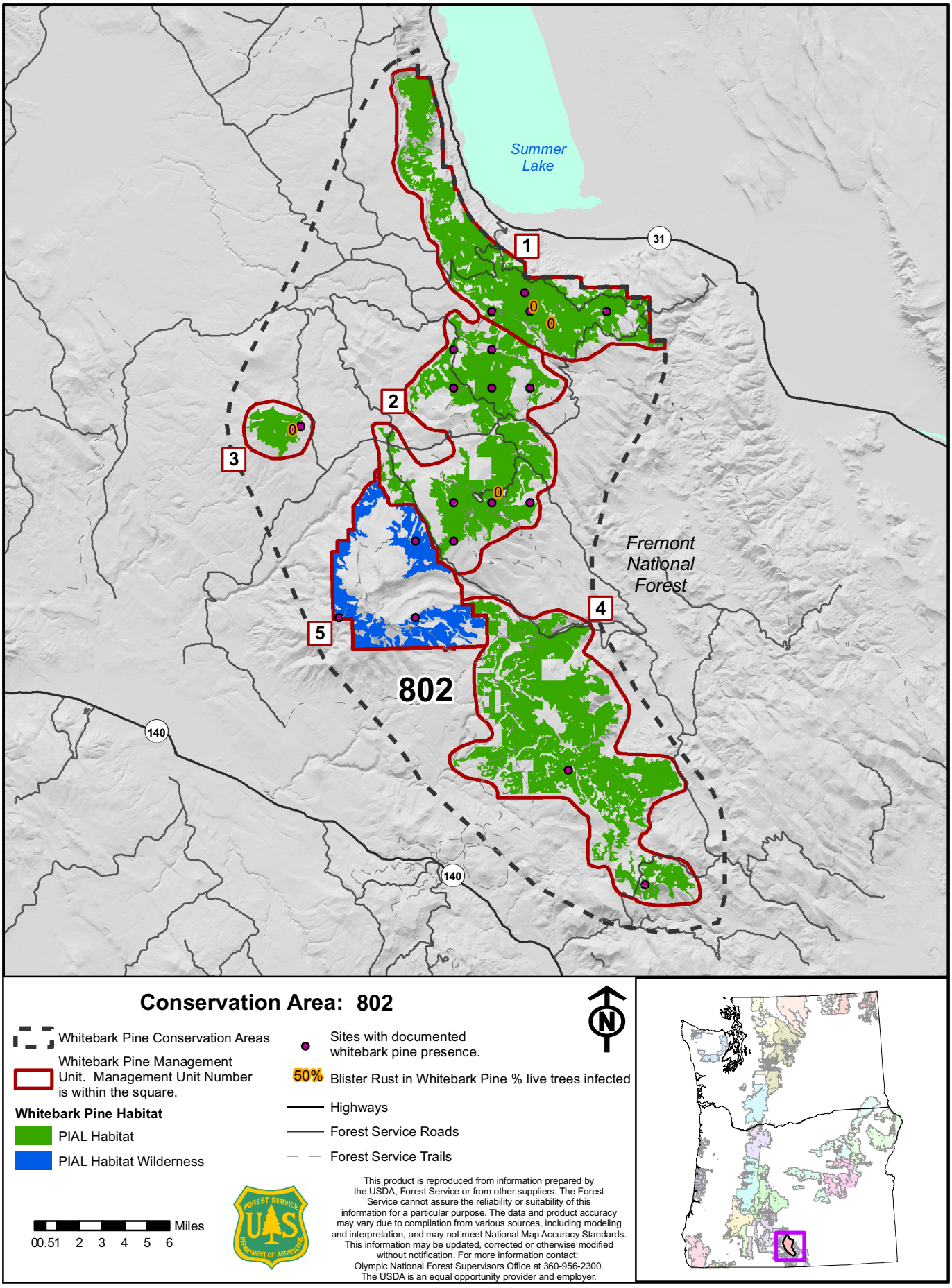


Proposed Action Summary for Conservation Area 802

Fremont National Forest, Oregon

Management unit (acres)	Description and condition	Access	Proposed actions 2009–2013*
1 Winter Rim (19,200)	Habitat loss due to 2002 fire is very high when combined with MPB mortality in PIAL. Surveys needed to determine post-fire survival of select trees and restoration planting needs.	Poor road access. No trails.	Collect cones. Restore – plant. Survey – condition.
2 Lee Thomas (19,500)	Select trees targeted for collection may have been lost in 2002 fire and/or MPB. Some cone collections made prior to fire. However, not enough seed available for restoration needs. Loss of PIAL habitat is very high because of recent fires and increased MPB activity. This area is a good target for restoration. Surveys needed to determine post-fire PIAL survival and restoration planting needs.	Good road access.	Collect cones. Restore – plant.** Survey – condition.**
3 Green Mt (2,000)	Mature PIAL. Established collection site. Seed from these trees have confirmed blister rust resistance. No seed is available for restoration needs. Competing PICO need thinning to reduce MPB and stand replacing fire.	Good road access.	Collect cones. Restore – thin.
4 Coleman Ridge (26,400)	PIAL thought to be uncommon.	Poor access (no trail or road) to most suitable PIAL habitat. Some road and no trails.	No action.
5 Gearhart Mountain Wilderness (8,400)	PIAL status unknown. MPB most active in this portion of CA. Surveys needed to determine PIAL status for future collections and restoration planting.	Trail network is sparse through area. Road access to wilderness boundary appears good.	Safeguard habitat. Survey – condition.

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: CA=conservation area; MPB=mountain pine beetle; PIAL=Pinus albicaulis


Summer Lake
31
1
2
3
4
5
0
0
0
0
Fremont National Forest
802
140
140
Conservation Area: 802
Whitebark Pine Conservation Areas
Whitebark Pine Management Unit. Management Unit Number is within the square.
Whitebark Pine Habitat
PIAL Habitat
PIAL Habitat Wilderness
Sites with documented whitebark pine presence.
50% Blister Rust in Whitebark Pine % live trees infected
Highways
Forest Service Roads
Forest Service Trails
N
Miles
0 0.5 1 2 3 4 5 6
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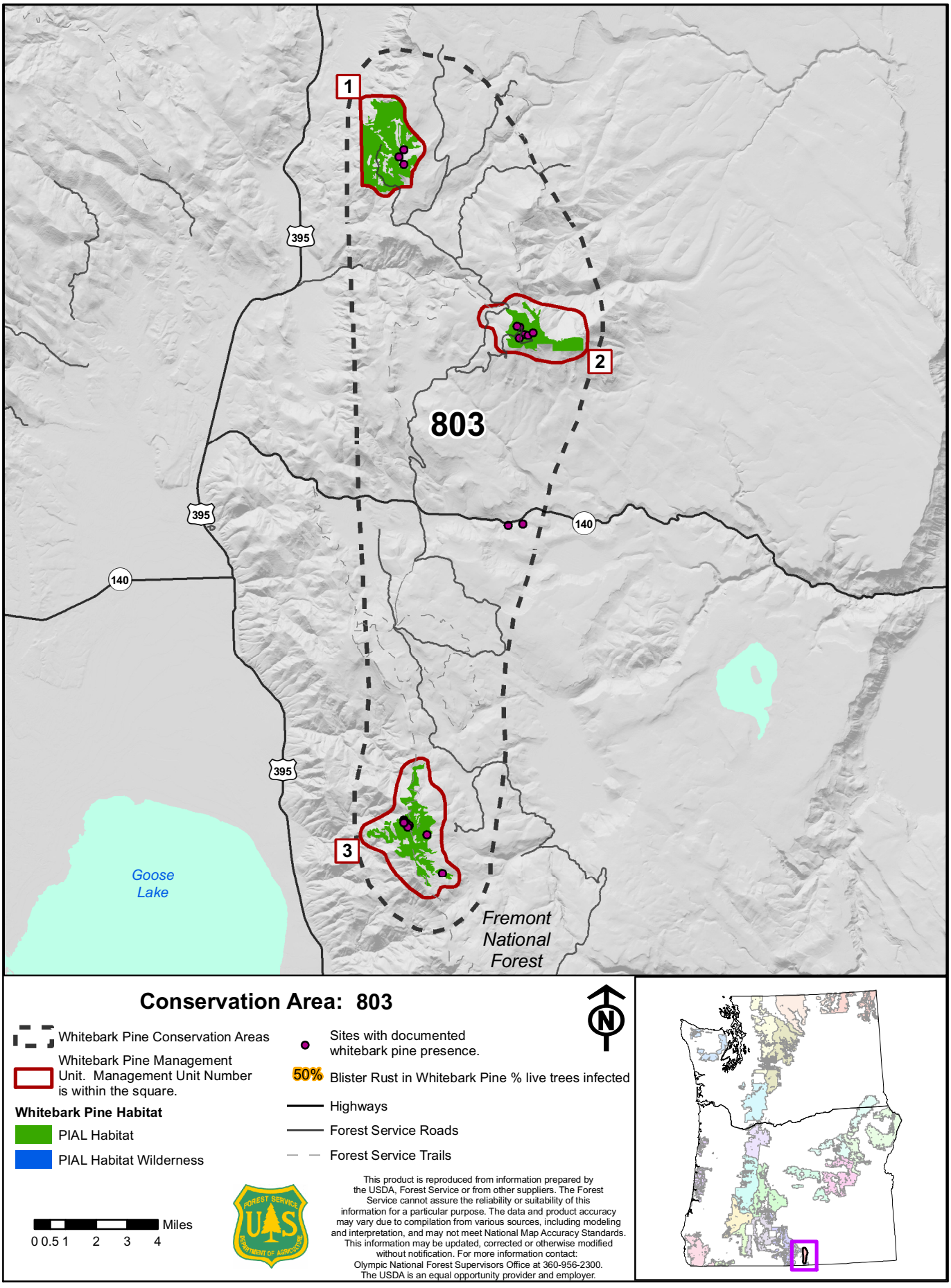
Proposed Action Summary for Conservation Area 803

Fremont National Forest, Oregon

Management Unit (acres)	Description and Condition	Access	Proposed Actions 2009–2013*
1 North Warner View Point (2,300)	Mature PIAL. Established collection site. Seed with proven blister rust traits. MPB activity mainly in vicinity of PIAL. Plant behind MPB mortality.	Excellent road access.	Collect cones. Restore – plant.
2 Drake Peak (1,100)	Most documented mature PIAL. Established collection site with blister rust resistance traits. Restoration plantings in area. MPB extensive throughout PIAL. Need to plant following MPB mortality.	Good road access.	Collect cones. Restore – plant.**
3 Crane Mountain (1,600)	Southern-most extent of PIAL in seed zone. Large concentration of mature PIAL, sparsely scattered. MPB active in the area and PIAL mortality in area. Plant behind MPB mortality. Established collection site. Select trees with proven blister rust resistance.	Road access from north with good trail access to center of habitat. Trail open to motorized vehicles.	Collect cones. Restore – plant.

** For explanation of proposed actions, see the introduction to this appendix.*
***Priority action for this conservation area.*
Abbreviations used in this table: MPB=mountain pine beetle; PIAL=Pinus albicaulis


1
2
3
803
395
395
395
140
140
Goose Lake
Fremont National Forest
Conservation Area: 803
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