



Wildlife

Key Points

Northern Spotted Owl:

Between 2006 and 2056:

- Under the No Action Alternative, Alternative 1, and the PRMP, habitat development on BLM-administered lands would contribute sufficiently to the development, distribution and spacing of large blocks of suitable spotted owl habitat, with the exception of spacing between large habitat blocks on either side of the Klamath-Coast Range provincial boundary.
- Under Alternative 2, habitat development on BLM-administered lands would not contribute sufficiently to the distribution and spacing of large habitat blocks.
- Under Alternative 3, habitat development on BLM-administered lands would not contribute sufficiently to the spacing of large habitat blocks.
- Habitat conditions that facilitate spotted owl movement and survival would improve under all alternatives. In parts of the planning area, the distribution of BLM-administered lands is insufficient to achieve adequate dispersal conditions under any alternative.
- The acres of spotted owl suitable habitat in the low and mixed fire severity regimes, and the acres of fire-resilient habitat, would increase under the No Action Alternative, and decrease under Alternatives 1, 2 and 3. Under the PRMP, the acres of spotted owl suitable habitat in the low and mixed fire severity regimes would decrease in the northern portion of the planning area and increase in the southern portion of the planning area; the acres of fire-resilient habitat would increase.
- The number of functional northern spotted owl nest territories would increase from current conditions under all alternatives.

Marbled Murrelet and Other Wildlife:

- Marbled murrelet nesting habitat on BLM-administered lands would increase under all alternatives. Under the PRMP, the quantity of marbled murrelet nesting habitat would increase 60% on BLM-administered lands, compared to the 68 and 93% increases that would occur under Alternative 1 and the No Action alternative.
- The mean patch size of mature & structurally complex forest would increase from 111 acres to 338 acres under the No Action Alternative and to 176 acres under the PRMP in the Coast Range, and from 137 acres to 199 and 152 acres under the No Action Alternative and the PRMP, respectively, in the Klamath Province. The increases in patch size and total nesting habitat would be indicative of an increase in overall marbled murrelet nesting habitat condition.
- The No Action and PRMP would retain 99% of all marbled murrelet nesting habitat greater than 200 years old on BLM-administered lands through 2026.
- Fisher habitat condition would improve under the No Action, Alternative 1, and the PRMP on BLM-administered lands in the Coast Range Province; a result of the increase in the amount of natal habitat coupled with the increase in mean patch size and connectance of mature & structurally complex forests. Similarly, fisher habitat condition would improve on BLM-administered lands in the Western Cascades Province under the No Action Alternative, on BLM-administered lands in the Klamath province under the PRMP and No Action Alternatives, and on BLM-administered lands in the East Cascades Province under the PRMP.
- The BLM-administered lands would continue to provide adequate hiding cover on deer and elk habitat management areas under all alternatives in the Coos Bay and Salem Districts
- The BLM-administered lands would not meet forage requirements of deer and elk under all alternatives in the habitat management areas in the Medford District and Klamath Falls Resource Areas.
- Within westside conifer forests, land bird habitat quantities would surpass Partners-in-Flight recommendations for old-growth and mature forests on BLM-administered lands, though not on the landscape as a whole. For Partners-in-Flight recommendations on young and early-seral forests, they would be surpassed on the landscape as a whole, though they would not on BLM-administered lands alone. Due to the small percentage of the landscape managed by the BLM, these statements apply to all alternatives.
- Westside hardwood and eastside conifer land bird habitat quantities would not meet Partners-in-Flight recommendations under any alternative.
- Eastside ponderosa pine, eastside hardwoods, nonforest, and Eastside Management Lands land bird habitat quantities would meet or surpass Partners-in-Flight recommendations under all alternatives.
- For species dependent on mature and structurally complex forest, the principal determining factors on the condition of the entire forested landscape are the development of the U.S. Forest Service reserves into mature and structurally complex forests under current forest plans, and the continued intensive management of the nonforested forests. These factors are so dominant that BLM has very little ability to influence the outcome to these species one way or the other.



Northern Spotted Owl

This analysis examines how BLM-administered lands in the planning area would contribute to the four conservation needs of the northern spotted owl, which are described in *Chapter 3* (see *Northern Spotted Owl*). To accomplish this, the analysis examines the following:

- development, distribution and spacing of large blocks of suitable spotted owl habitat
- quality and distribution of habitat that supports spotted owl movement and survival through and between habitat blocks, including in areas of concern
- development of spotted owl habitat in the low and mixed fire severity regimes, and with fire resiliency
- development of functional spotted owl nest territories

Although, in most instances, the analysis evaluates habitat changes through the year 2106, it focuses on habitat changes between 2006 and 2056, as this period spans the recovery timeframe suggested by the *Final Recovery Plan for the Northern Spotted Owl* (USFWS 2008a:36).

Under the Northwest Forest Plan (USDA USDI 1994), which would remain in effect on U.S. Forest Service lands, the federal contribution to large blocks of suitable habitat would be provided by the Late-Successional Reserves and managed Late-Successional Areas, including the Riparian Reserves interspersed with those land use allocations. The Northwest Forest Plan established these land use allocations, in association with existing congressionally reserved areas, to support the formation of large blocks of suitable habitat. The analysis assumes that all forest-capable lands in the U.S. Forest Service Late-Successional Reserves, Administratively Withdrawn, and Congressionally Reserved areas would develop through the structural stages over time, as detailed in *Chapter 4* (see *Forest Structure and Spatial Pattern*). The analysis assumes that all other non-BLM-administered lands would maintain their current abundances and spatial patterns of habitat.

The analysis makes frequent comparisons of the habitat development under the alternatives to habitat development under the No Harvest reference analysis. As explained in *Chapter 4 – Introduction*, the reference analysis is not a reasonable alternative, because it would not meet the purpose and need for the action. The reference analysis is included to provide additional information that is useful to understand more fully the effects of the alternatives. Specifically in this analysis, the No Harvest reference analysis helps identify where the contribution of BLM-administered lands to achieving northern spotted owl conservation needs is limited or precluded by the land ownership pattern, regardless of the management of BLM-administered lands under the alternatives.

As explained in *Chapter 3* (see *Forest Structure and Spatial Pattern*), the classification of 2006 structural stage and northern spotted owl habitat conditions differ slightly among the alternatives because of differences in how the inventory information is assembled for modeling under each alternative. The classifications for Alternative 2 and the PRMP for 2006 are largely similar, except that the classification for the PRMP resulted in the shift of acreage from “young with structural legacy” to “stand establishment with structural legacy” in the Medford District and the Klamath Falls Resource Area as a result of new growth curves developed for uneven-aged management. The descriptions of current conditions in *Chapter 3* (see *Forest Structure and Spatial Pattern*) use the 2006 data from Alternative 3. However, this section provides conditions for the year 2006, as described for each alternative in the modeling to accurately depict the relative short-term changes in habitat abundance. Although this variability in starting conditions among the alternatives does not prevent a reasonable comparison of the alternatives, the absolute abundance of habitat may not be precisely compared among alternatives, especially for the years 2006 and 2016.

Analysis of habitat conditions in years 2036 and 2046 is included for Alternative 2, the PRMP, and the No Harvest reference analysis to evaluate modifications made to Alternative 2 (which was identified as



the preferred alternative in the draft EIS) in developing the PRMP. The draft EIS concluded that under Alternative 2, the acreage of suitable habitat outside of large blocks would decrease between 2006 and 2056 and then increase thereafter. The addition of analysis in 2036 and 2046 provides information on the efficacy of the PRMP in modifying the magnitude and timing of the habitat decline that would occur under Alternative 2. Analysis of the No Harvest reference analysis for these years provides context for evaluating the relative difference between habitat development under Alternative 2 and the PRMP. Analyzing the habitat conditions under the No Action Alternative, and Alternatives 1 and 3 for these years would not provide relevant information for evaluating the efficacy of the PRMP in modifying the magnitude and timing of the habitat decline that would occur under Alternative 2.

CONSERVATION NEED 1

The formation of large blocks of suitable habitat that support clusters of reproducing owls are distributed across a variety of ecological conditions and are spaced to facilitate owl movement between the blocks.

Large Block Formation

- *Would habitat development under the alternative, when supported by the Congressionally Reserved lands, and the Late-Successional Reserves and managed Late-Successional Areas on U.S. Forest Service lands, contribute to large blocks of suitable habitat to support clusters of reproducing northern spotted owls?*

Habitat development under all alternatives would contribute to large blocks of suitable habitat during all decades, but the level of those contributions would differ substantially among the alternatives. *Map 3-4* in *Chapter 3* shows current large habitat blocks. *Figures 4-82 – 4-87* compare how large and small habitat blocks would change under the alternatives.

Figure 4-88 shows changes in number of acres contained within large habitat blocks on all land ownerships, under each alternative and according to the No Harvest reference analysis. As discussed in *Chapter 3* (see *Northern Spotted Owl*), not all acres within large habitat blocks support suitable habitat or dispersal habitat. However, each large habitat block contains the minimum quantity and spatial arrangement of suitable habitat needed to support at least 20 breeding pairs of northern spotted owls.

Under the No Action Alternative, the acres contained within large habitat blocks would increase by 9% through 2026, then, at 2056, exceed the current level by 167%. Under Alternative 1, the acres contained within large habitat blocks would increase slightly through 2026, then at 2056 exceed the current level by 147%. Under Alternative 2, the acres contained within large habitat blocks would decline by 16% through 2036, remain relatively stable through 2046 and at 2056 exceed the current level by 133%. Under Alternative 3, the acres contained within large habitat blocks would decline by 11% through 2026, but at 2056 would exceed the current level by 141%. Under the PRMP, the acres contained within large habitat blocks would decline by 9% through 2036, match the current level by 2046, and then at 2056 exceed the current level by 148%. See *Figure 4-88*.

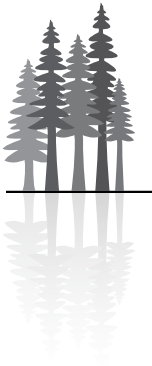


FIGURE 4-82. THE DISTRIBUTION OF LARGE AND SMALL HABITAT BLOCKS AT YEAR 2016 UNDER ALL ALTERNATIVES AND ACCORDING TO THE NO HARVEST REFERENCE ANALYSIS.

(Note: The legend is the same as that shown in Map 3-4 in Chapter 3. As explained in the text, purple and pink lines are used to measure the spacing of habitat blocks.)

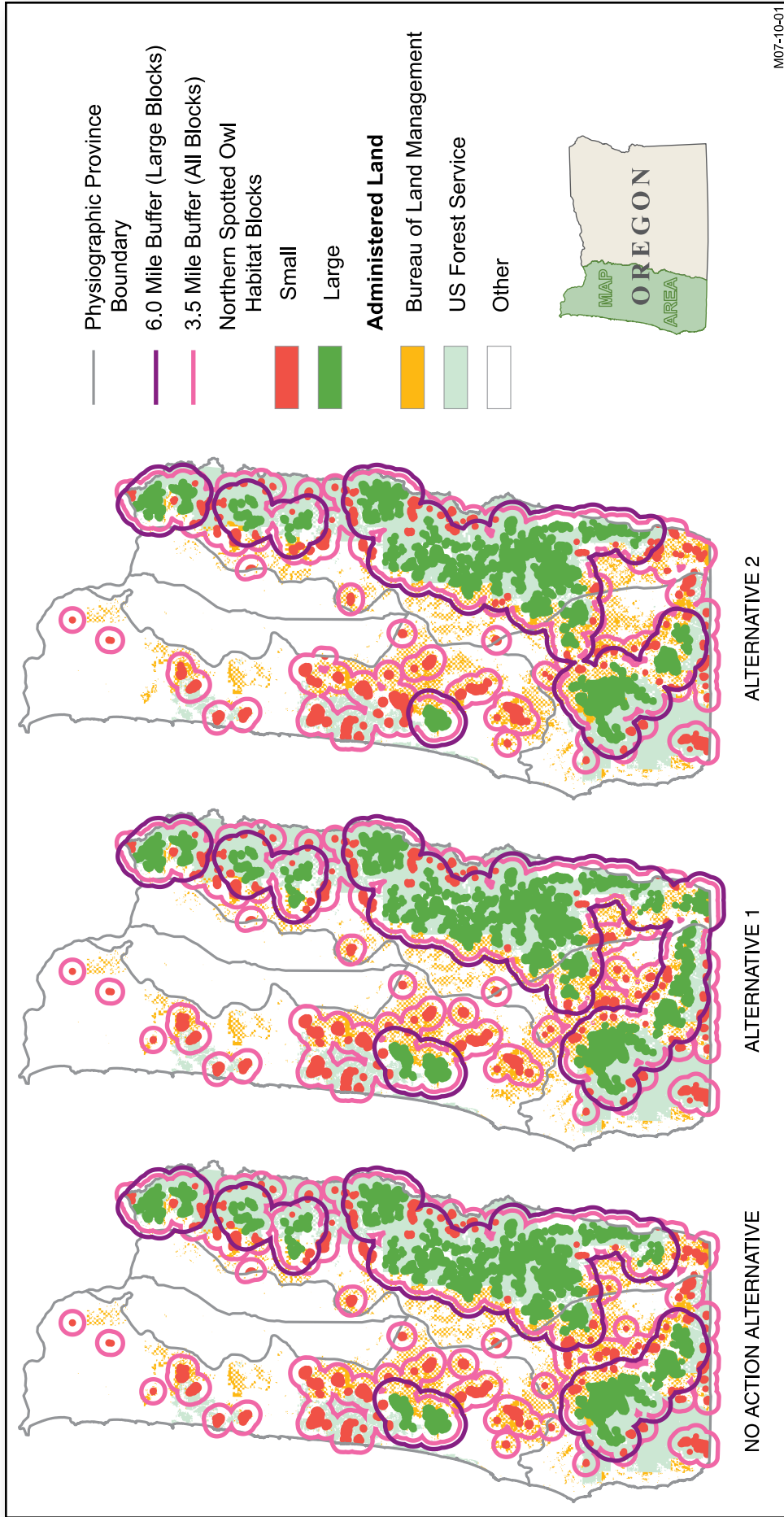
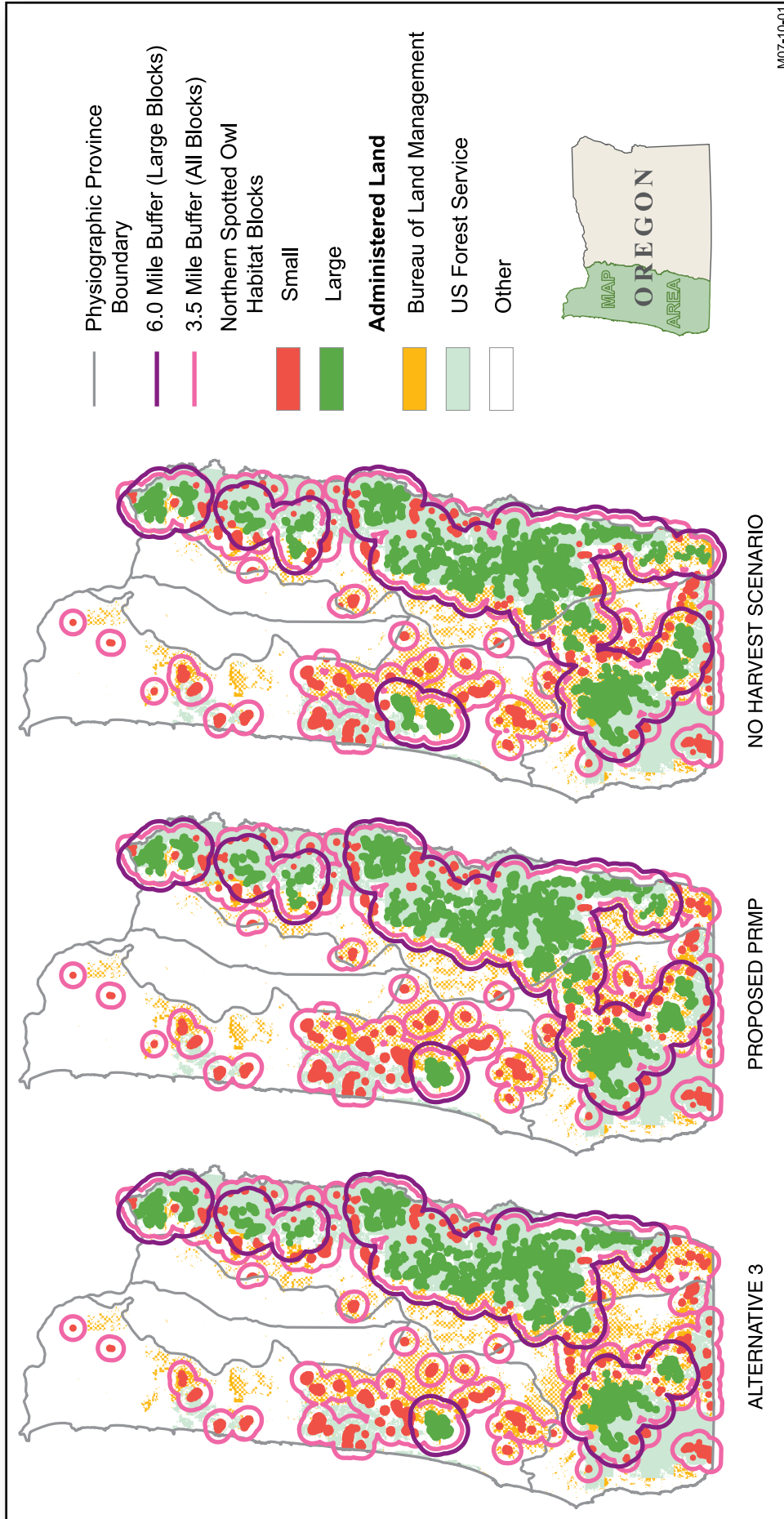


FIGURE 4-82. (CONTINUED)



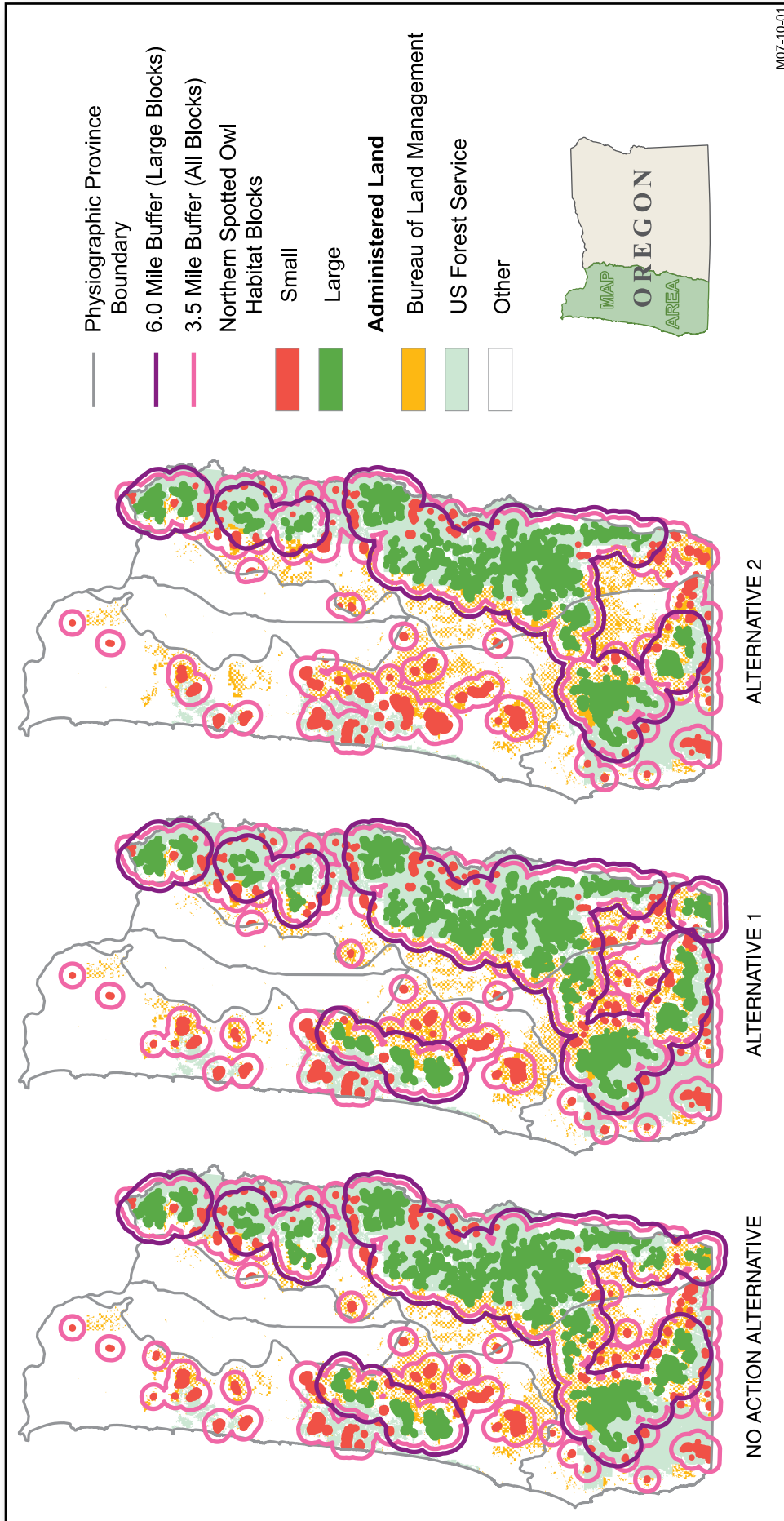
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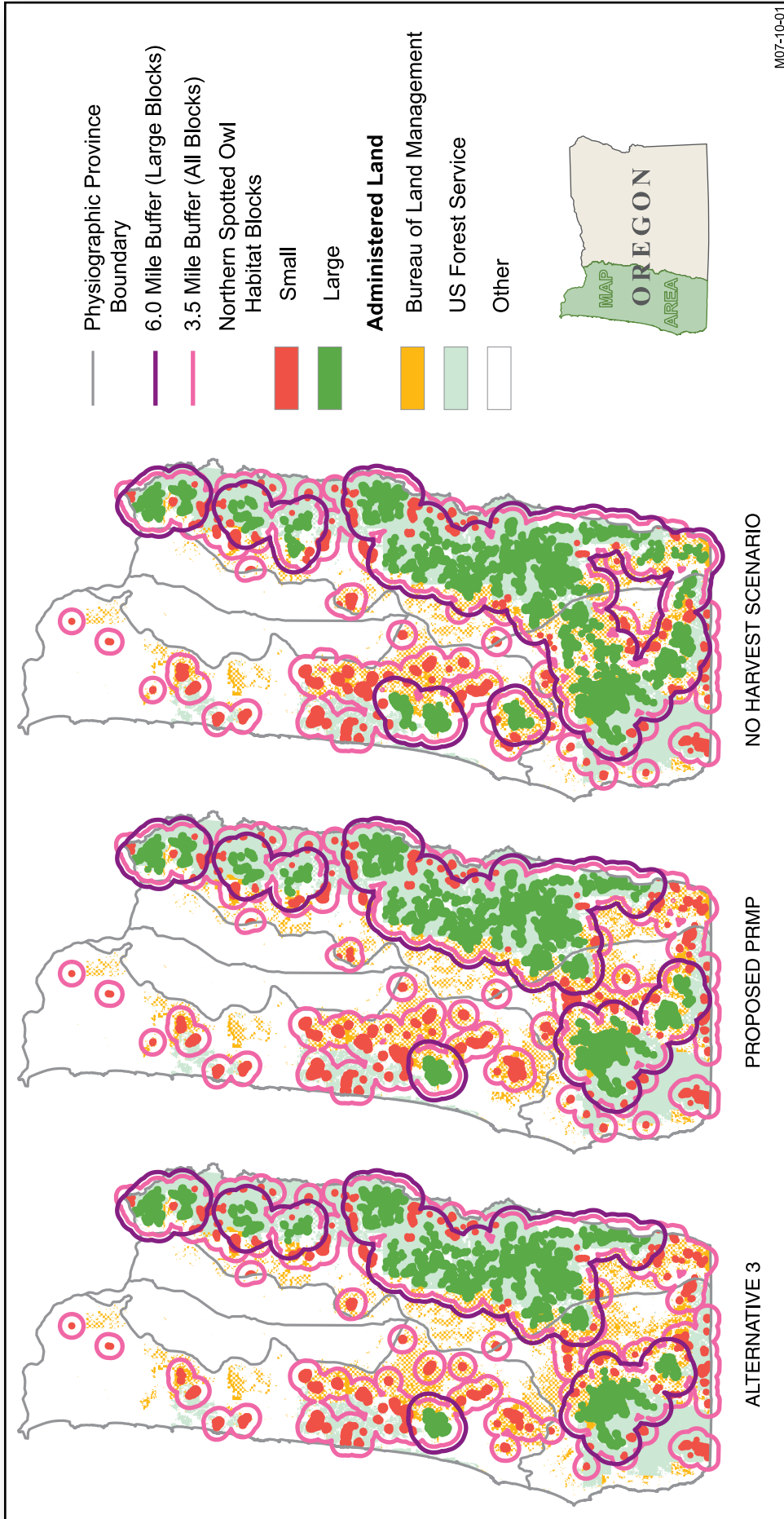
FIGURE 4-83. THE DISTRIBUTION OF LARGE AND SMALL HABITAT BLOCKS AT YEAR 2026 UNDER ALL ALTERNATIVES AND ACCORDING TO THE NO HARVEST REFERENCE ANALYSIS.

(Note: The legend is the same as that shown in Map 3-4 in Chapter 3. As explained in the text, purple and pink lines are used to measure the spacing of habitat blocks.)



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FIGURE 4-83. (CONTINUED)



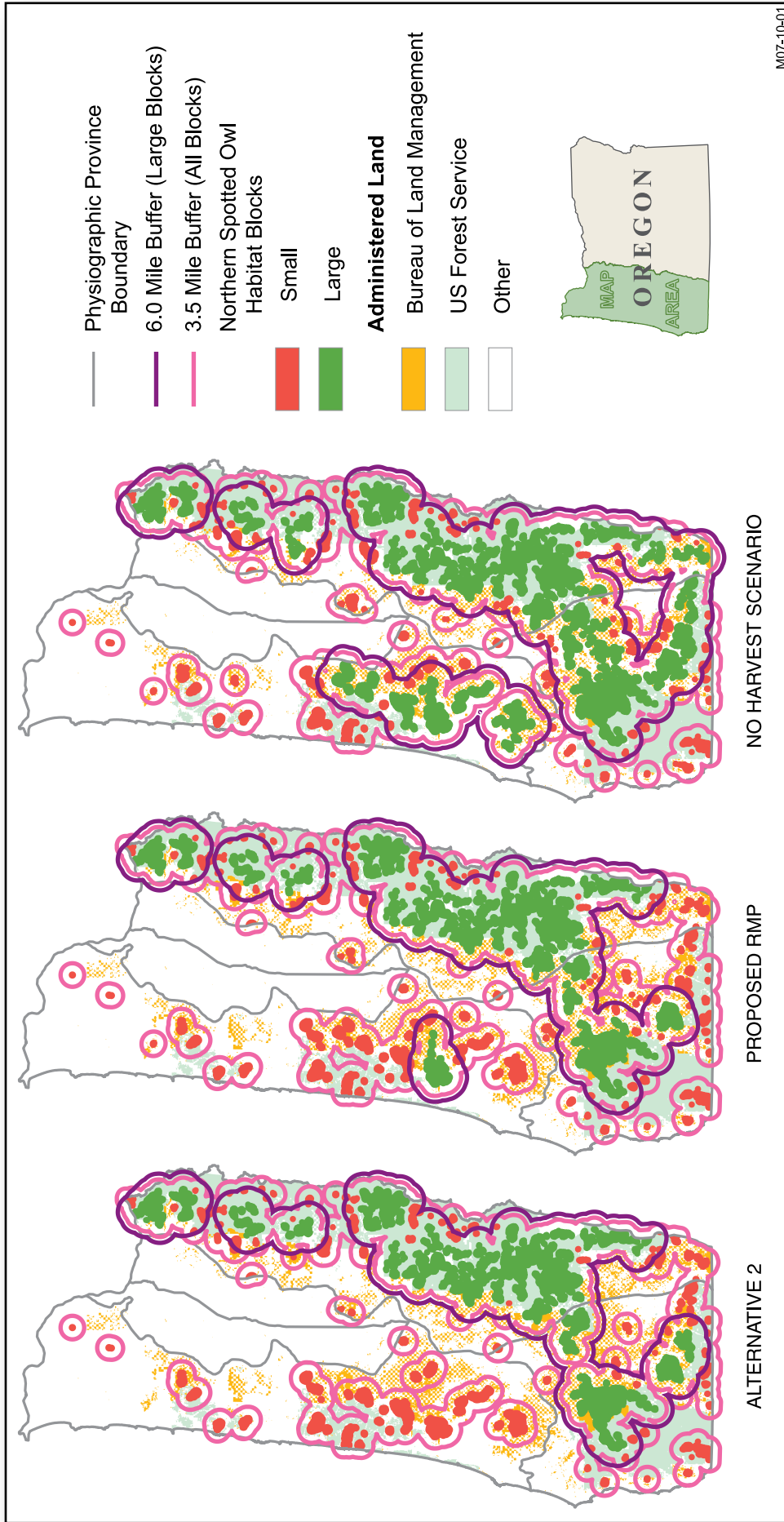
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FIGURE 4-84. THE DISTRIBUTION OF LARGE AND SMALL HABITAT BLOCKS AT YEAR 2036 UNDER ALTERNATIVE 2, THE PRMP, AND ACCORDING TO THE NO HARVEST REFERENCE ANALYSIS.

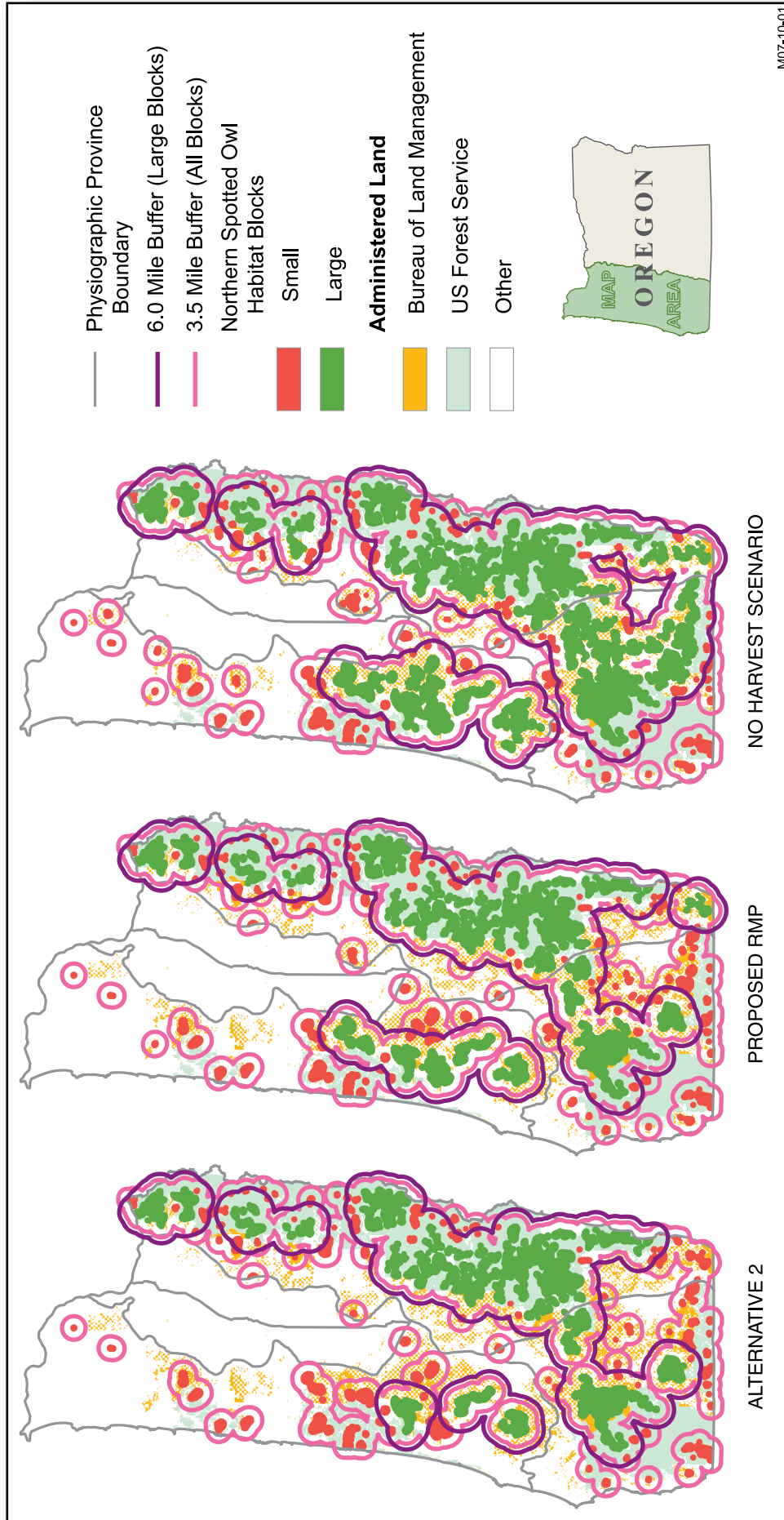
(Note: The legend is the same as that shown in Map 3-4 in Chapter 3. As explained in the text, purple and pink lines are used to measure the spacing of habitat blocks.)



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FIGURE 4-85. THE DISTRIBUTION OF LARGE AND SMALL HABITAT BLOCKS AT YEAR 2046 UNDER ALTERNATIVE 2, THE PRMP, AND ACCORDING TO THE NO HARVEST REFERENCE ANALYSIS.

(Note: The legend is the same as that shown in Map 3-4 in Chapter 3. As explained in the text, purple and pink lines are used to measure the spacing of habitat blocks.)



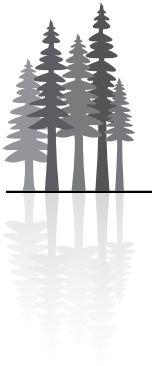
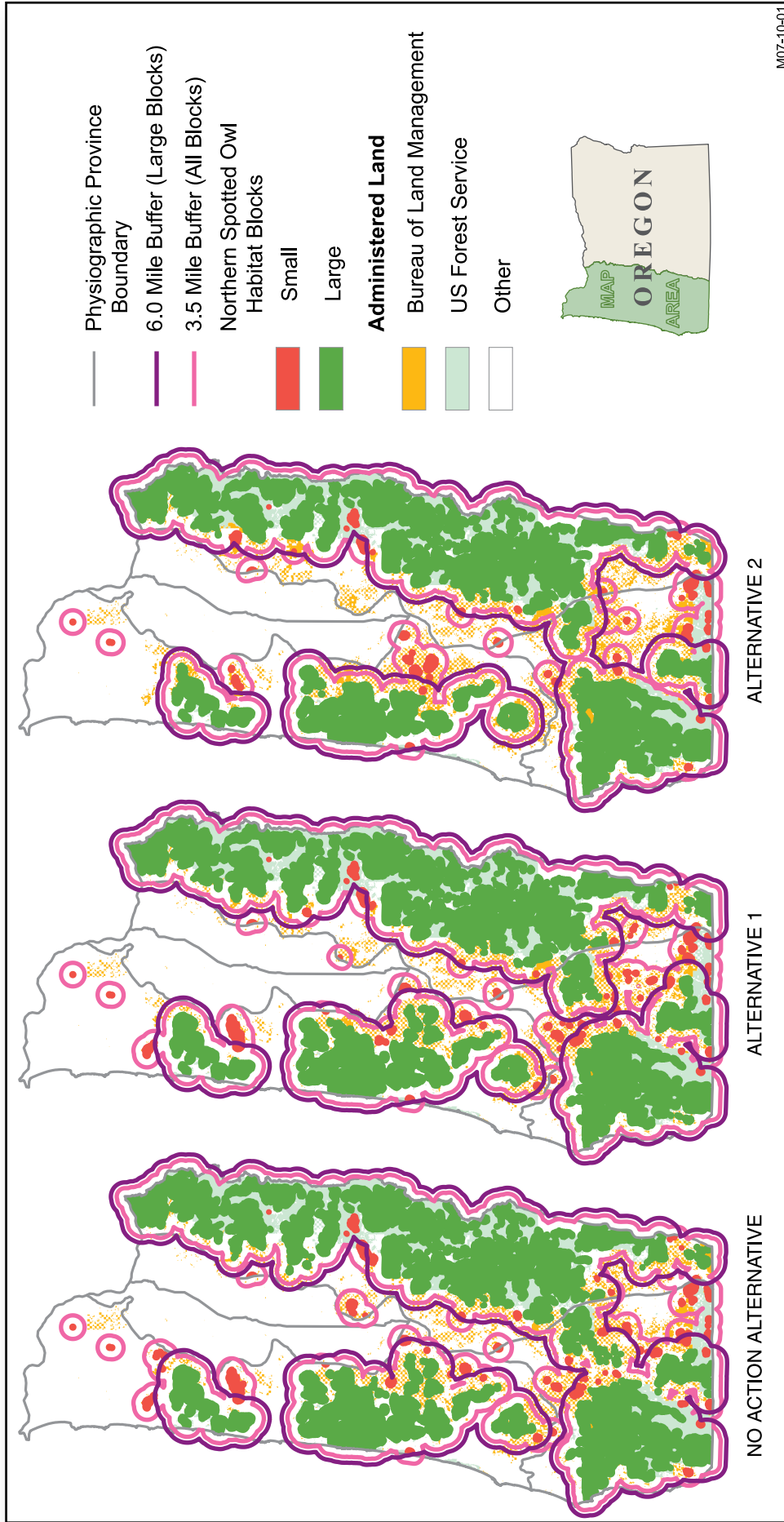


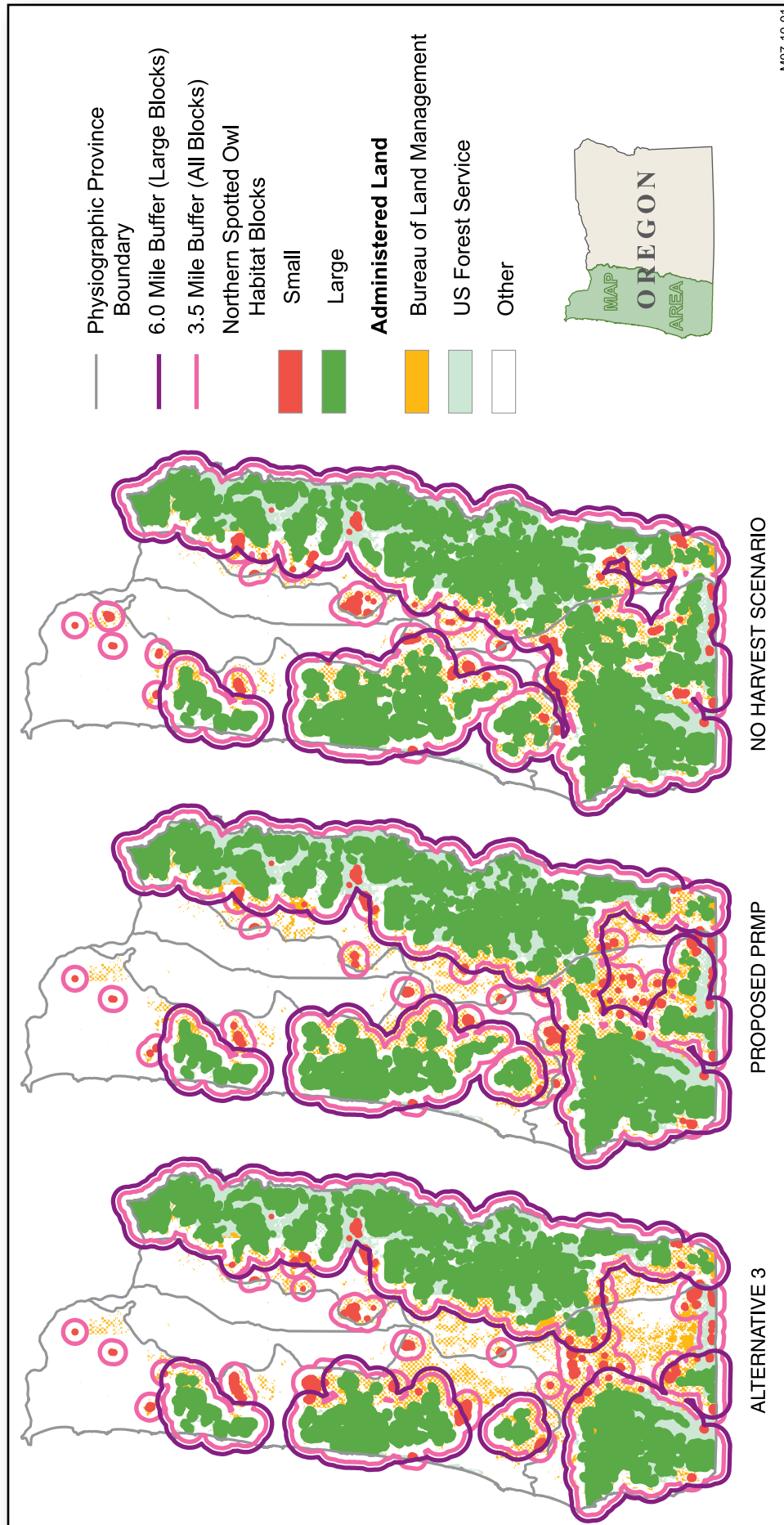
FIGURE 4-86. THE DISTRIBUTION OF LARGE AND SMALL HABITAT BLOCKS AT YEAR 2056 UNDER ALL ALTERNATIVES AND ACCORDING TO THE NO HARVEST REFERENCE ANALYSIS.

(Note: The legend is the same as that shown in Map 3-4 in Chapter 3. As explained in the text, purple and pink lines are used to measure the spacing of habitat blocks.)



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FIGURE 4-86. (CONTINUED)



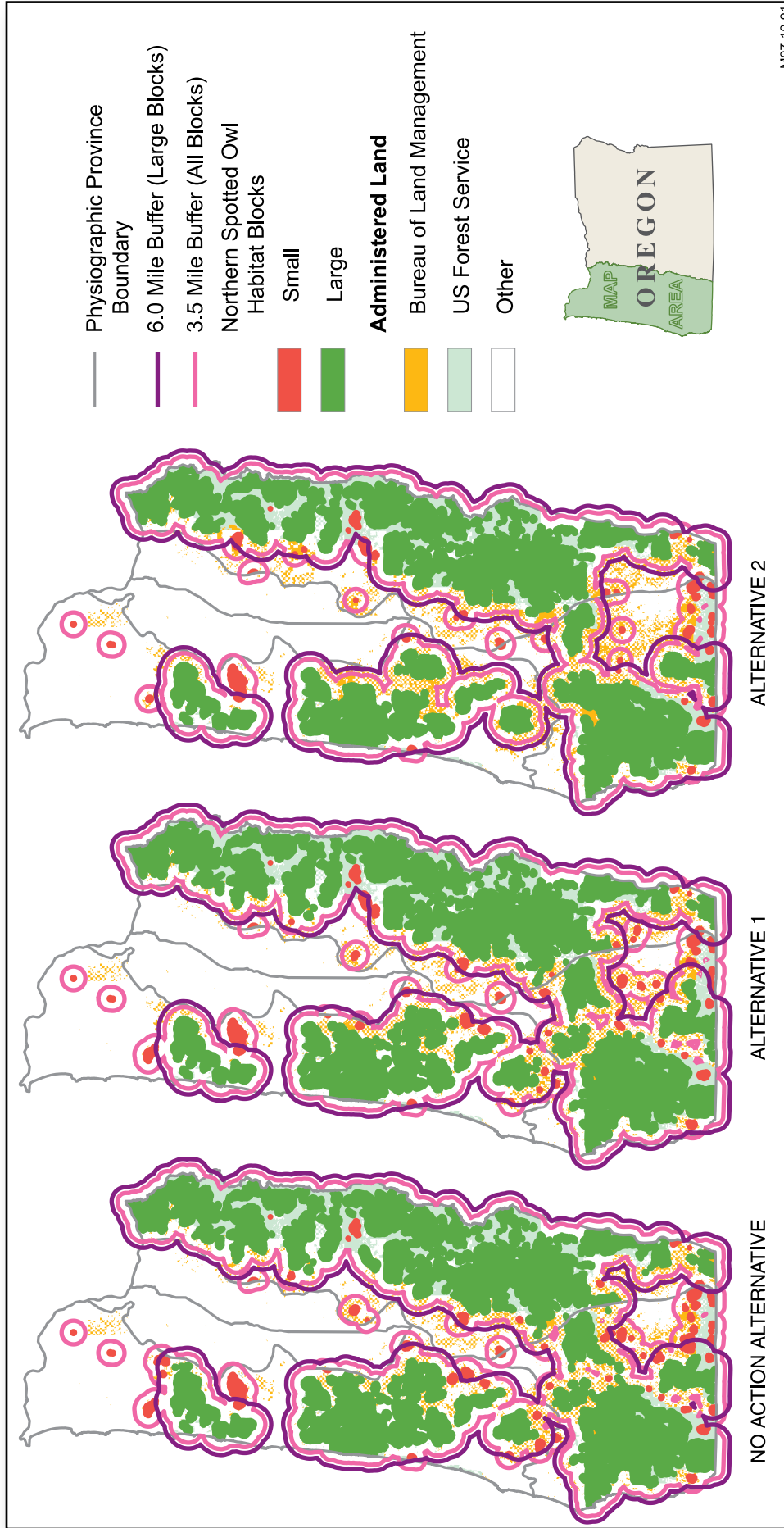
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FIGURE 4-87. THE DISTRIBUTION OF LARGE AND SMALL HABITAT BLOCKS AT YEAR 2106 UNDER ALL ALTERNATIVES AND ACCORDING TO THE NO HARVEST REFERENCE ANALYSIS.

(Note: The legend is the same as that shown in Map 3-4 in Chapter 3. As explained in the text, purple and pink lines are used to measure the spacing of habitat blocks.)



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FIGURE 4-87. (CONTINUED)

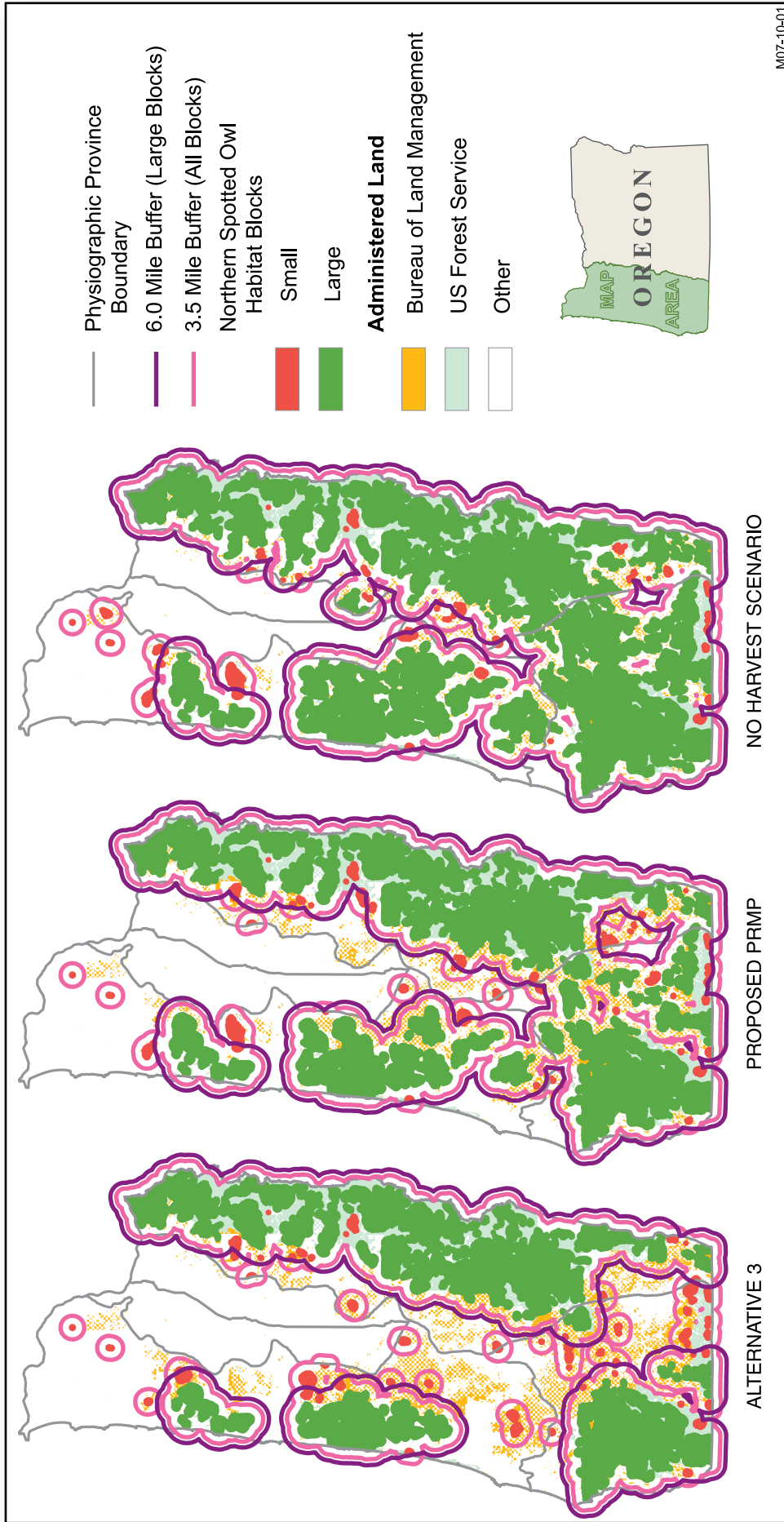
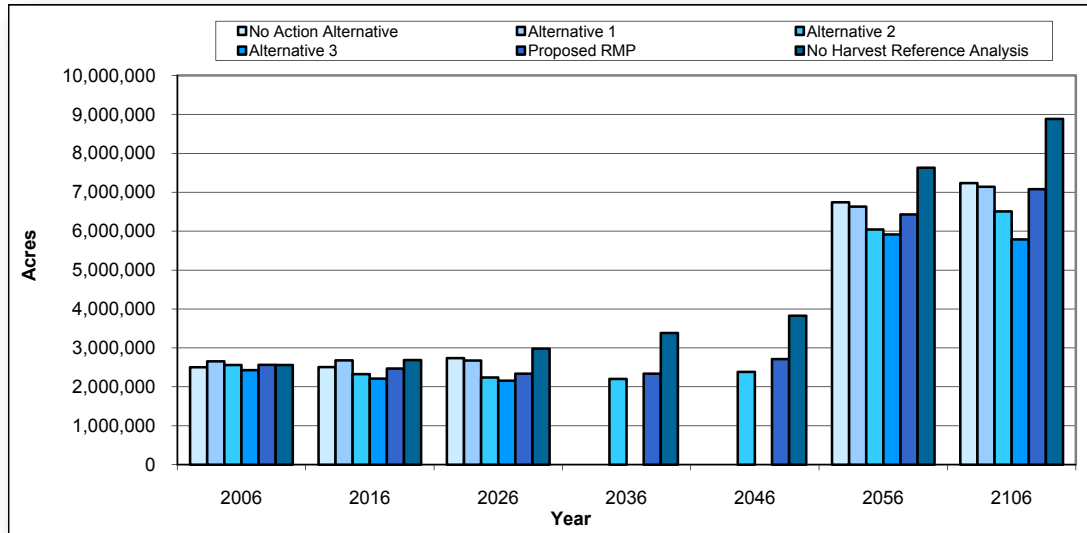




FIGURE 4-88. CHANGES IN THE NUMBER OF ACRES CONTAINED WITHIN ALL LARGE HABITAT BLOCKS, ON ALL LAND OWNERSHIPS, UNDER THE ALTERNATIVES AND ACCORDING TO THE NO HARVEST REFERENCE ANALYSIS.

(Note: For the years 2036 and 2046, data are not included for the No Action Alternative or Alternatives 1 and 3.)



Large Block Distribution

- *Would habitat development under the alternative, when supported by the congressionally reserve lands, and the late-successional reserves and managed late-successional areas on U.S. Forest Service lands, contribute to large blocks of suitable habitat in each physiographic province¹⁰ of the planning area?*

Habitat development under all alternatives except Alternative 2 would contribute to a landscape that supports large habitat blocks distributed across a variety of ecological conditions. As described in *Chapter 3 - Northern Spotted Owl*, large habitat blocks are distributed sufficiently when they occur in all physiographic provinces during all decades.

Although the landscape would support large habitat blocks in all provinces in all decades under the PRMP, No Action Alternative, and Alternatives 1 and 3, there would be differences among these alternatives in the number of large habitat blocks in each province at various times. There would be more large habitat blocks in the Coast Range Province, where large habitat blocks are most limited, between 2006 and 2026 under the No Action Alternative and Alternative 1 than under the other alternatives (*Figures 4-82 and 4-83*). Through 2056, there would be fewer large habitat blocks in the Coast Range Province under Alternative 3 than under the No Action Alternative and Alternative 1, and fewer large habitat blocks in the Klamath Province than under the PRMP, No Action Alternative, and Alternative 1 (*Figures 4-82, 4-83 and 4-86*). Although, through year 2026, there would be more large habitat blocks in the Coast Range Province under the No Action Alternative and Alternative 1 than under the PRMP (*Figures 4-82 and 4-83*), by year 2056, there would be as many large blocks in the Coast Range Province under the PRMP as under these alternatives, and more large blocks in the Klamath Province with the formation of an additional large block (*Figure 4-86*).

¹⁰The Willamette Valley Physiographic Province is not capable of supporting habitat blocks under any alternative (Lint 2005:Figure 3-7).



Under Alternative 2, all large habitat blocks in the Coast Range Province would disappear by 2026 (*Figures 4-83 and 4-84*). By 2046, habitat development under Alternative 2 again would provide sufficient contribution to achieve large habitat blocks in all provinces (*Figure 4-85*). However, large blocks of suitable habitat are needed to maintain clusters of reproducing spotted owls — a criterion of population stability. Therefore, the multi-year loss of large habitat blocks in the Coast Range Province almost certainly would cause a provincial population decline, and possibly local extirpations, that would negatively affect spotted owl colonization of the large habitat blocks that would later form in this province. Thus, the contribution of habitat development under Alternative 2 to the development of large habitat blocks would be insufficient to meet Conservation Need 1.

Large Block Spacing

- *Would habitat development under the alternative, when supported by the congressionally reserved areas, and the late-successional reserves and managed late-successional areas on U.S. Forest Service lands, contribute to large blocks of suitable habitat spaced no more than 12 miles apart and small blocks of suitable habitat spaced no more than 7 miles apart?*

With one exception, by year 2056, habitat development under the PRMP, No Action Alternative, and Alternative 1 would be sufficient to support the target spacing between habitat blocks. Habitat development under Alternatives 2 and 3 would not be sufficient to support the target spacing between habitat blocks.

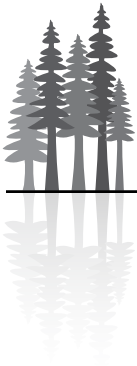
By year 2056, the spacing between habitat blocks would achieve most target spacing distances under the PRMP, No Action Alternative, and Alternative 1, but there would be some differences among these alternatives in when the target spacing would be achieved between specific blocks (*Map 3-4 and Figures 4-82 - 4-87*). The purple and pink lines on *Map 3-4* and *Figures 4-82 - 4-87* measure the spacing between habitat blocks. Purple lines are plotted 6 miles from large habitat blocks; overlapping purple lines indicate that large habitat blocks are spaced no more than 12 miles apart. Pink lines are plotted 3.5 miles from all habitat blocks; overlapping pink lines indicate that small habitat blocks are spaced no more than 7 miles from other small or large habitat blocks.

In all decades, there would be a gap greater than the target spacing between habitat blocks within the northern portion of the Coast Range Province, and a gap greater than the target spacing across the boundary between the southern portion of the Coast Range and central portion of the West Cascades Provinces. The No Harvest reference analysis indicates that the BLM land ownership pattern precludes development of target spacing between these habitat blocks, even by year 2106 (*Figure 4-87*).

Block spacing would be similar under the No Action Alternative and Alternative 1. By 2026, more blocks in the Coast Range and Klamath Provinces would have the target spacing under the No Action Alternative and Alternative 1 than under the PRMP (*Figure 4-83*). However, by 2056, more blocks would have the target spacing under the PRMP than the No Action Alternative or Alternative 1, especially because of the smaller gaps between large habitat blocks in the southern portion of the Klamath Province under the PRMP (*Figure 4-86*).

At 2056, there would be a gap greater than the target spacing between habitat blocks on either side of the Klamath-Coast Range provincial boundary under all of the alternatives. The No Harvest reference analysis indicates that, in the absence of active management, the target spacing across this boundary would be achieved by 2056. Under the PRMP, No Action Alternative, and Alternative 1 (but not under Alternatives 2 or 3), small habitat blocks would develop in this area that would help support owl movement across this boundary without meeting the target spacing.

By 2106, habitat blocks would achieve the target spacing in the southern portion of the Klamath Province under the PRMP, the No Action Alternative or Alternative 1 (*Figure 4-87*). Under the PRMP, the target spacing would be achieved with large habitat blocks; the target spacing would be achieved with small habitat blocks under the No Action Alternative and Alternative 1.



Under Alternatives 2 and 3, the contribution from BLM-administered lands would be insufficient to achieve a landscape that supports proper spacing between habitat blocks. By 2056, substantial spacing gaps would remain between habitat blocks on each side of the Coast Range-Klamath provincial boundary under both Alternatives 2 and 3 (*Figure 4-86*). Unlike the other alternatives, small habitat blocks would not develop in this area to help support owl movement. Even by 2106, Alternative 3 would not contribute to a landscape that supports proper spacing between habitat blocks (*Figure 4-87*).

Interim Nesting Habitat

The spotted owl was listed in 1990 due to the widespread loss of suitable habitat across its entire home range; habitat loss continues to be one of the “most-pressing threats to the spotted owl” (USFWS 2008a:6-7). For this reason, and because large blocks of suitable habitat require time to develop under each alternative, the analysis examines how suitable habitat would persist and develop at various scales across the landscape and within habitat blocks under each alternative. The amount of suitable habitat within habitat blocks reflects how suitable habitat within functional nest territories would change. As described in *Chapter 3* (see *Northern Spotted Owl*), a functional nest territory contains the type, quantity and spatial arrangement of habitat needed to support a nesting spotted owl pair, whether or not that habitat actually is occupied by nesting spotted owls. The amount of suitable habitat within *large* habitat blocks reflects how suitable habitat that is capable of supporting clusters of breeding spotted owl pairs would change, whether or not that habitat actually is occupied by nesting spotted owls. As described in *Chapter 3* (see *Northern Spotted Owl*), clusters of 20 or more spotted owl breeding pairs that support each other demographically are needed for population stability. Because this analysis assumes that nonfederal lands would maintain their current abundances and spatial patterns of habitat, the analysis is confined to federally-administered lands.

- *Would there be a stable or increasing acreage of suitable habitat on all federal lands under the alternative until large blocks of suitable habitat form?*
- *Would there be a stable or increasing acreage of suitable habitat within large or small habitat blocks on federal lands under the alternative until large blocks of suitable habitat form?*
- *Would there be a stable or increasing acreage of suitable habitat within large habitat blocks on federal lands under the alternative until large blocks of suitable habitat form?*

By 2056, the acreage of suitable habitat would increase from current levels under all alternatives at the scales of:

- all federal lands
- federal lands within all habitat blocks
- federal lands within large habitat blocks

However, between 2006 and 2056, the alternatives would differ in whether they would provide stable or increasing acreage of suitable habitat at these various scales.

Under the No Action Alternative and Alternative 1, the acreage of suitable habitat would be stable or increasing in all decades between 2006 and 2056 at the scales of:

- all federal lands
- federal lands within all habitat blocks
- federal lands within large habitat blocks

Under the PRMP, the acreage of suitable habitat would be stable or increasing in all decades between 2006 and 2056 at the scales of:

- all federal lands
- federal lands within large habitat blocks



but not at the scale of:

- federal lands within all habitat blocks

Under Alternatives 2 and 3, the acreage of suitable habitat would be stable or increasing in all decades between 2006 and 2056 at the scale of:

- all federal lands

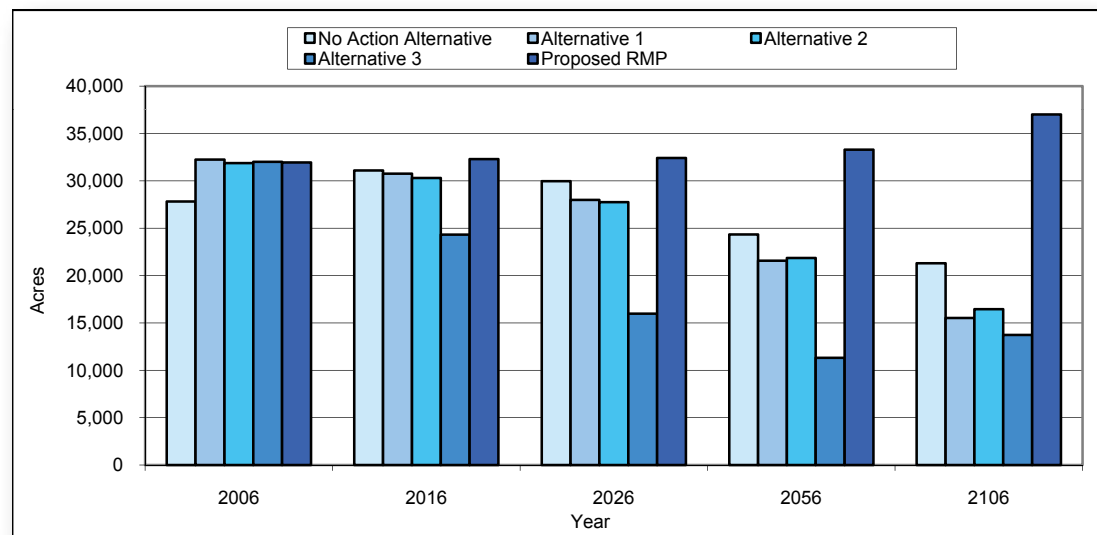
but not at the scales of:

- federal lands within all habitat blocks
- federal lands within large habitat blocks

The development of spotted owl suitable habitat on all federal lands, on federal lands within large and small habitat blocks, and on federal lands within large blocks, is shown in *Figures 4-89, 4-90 and 4-91*, respectively.

At the scale of all federal lands, the acreage of suitable habitat would be stable or increasing in all decades under all alternatives (*Figure 4-89*). Through 2026, the acreage of suitable habitat on all federal lands would remain approximately stable under all alternatives (*Figure 4-89*): increasing from current levels by 5% under the No Action Alternative, 3% under Alternative 1, and 1% under Alternative 3 and the PRMP, and decreasing by 1% under Alternative 2. By 2056, the quantity of suitable habitat on all federal lands would increase from current levels under all alternatives: by 61% under the No Action Alternative, 56% under Alternative 1, 47% under Alternative 2, 53% under Alternative 3 and 54% under the PRMP.

FIGURE 4-89. CHANGES IN THE ACRES OF SUITABLE HABITAT ON FEDERALLY-ADMINISTERED LANDS UNDER THE ALTERNATIVES AND ACCORDING TO THE NO HARVEST REFERENCE ANALYSIS.
 (Note: For the years 2036 and 2046, data are not included for the No Action Alternative or Alternatives 1 and 3.)





At the scale of all habitat blocks (including both small and large habitat blocks), the acreage of suitable habitat would be stable or increasing in all decades under the No Action Alternative and Alternative 1, but not under the PRMP, Alternative 2, or Alternative 3 (Figure 4-90). Through 2026, the acreage of suitable habitat in all habitat blocks would increase from current levels by 6% under the No Action Alternative and 1% under Alternative 1, but would decrease by 7% under Alternative 2, 4% under Alternative 3, and 3% under the PRMP. That is, the acreage of suitable habitat in all habitat blocks would decrease between 2006 and 2026 under Alternatives 2 and 3, and the PRMP, even though the acreage of suitable habitat would be stable on the federal landscape as a whole. By 2056, the acreage of suitable habitat within all habitat blocks would increase substantially from current levels under all alternatives: 138% under the No Action Alternative, 125% under Alternative 1, 113% under Alternative 2, 120% under Alternative 3, and 124% under the PRMP.

At the scale of large habitat blocks, the acreage of suitable habitat would be stable or increasing in all decades under the No Action Alternative, Alternative 1, and the PRMP, but not under Alternatives 2 or 3 (Figure 4-91). Through 2026 the amount of suitable habitat within large habitat blocks would increase from current levels by 8% under the No Action Alternative, 1% under Alternative 1 and 6% under the PRMP, but decline by 11% under Alternative 2 and 10% under Alternative 3. That is, under Alternatives 2 and 3, the decrease in the acreage of suitable habitat in large habitat blocks (which represent habitat blocks that can support breeding clusters) would be greater than the decrease for all habitat blocks, even though the acreage of suitable habitat would be stable on the federal landscape as a whole. In contrast, under the No Action Alternative and the PRMP, the increase in suitable habitat would be disproportionately higher within large habitat blocks (which represent habitat blocks that can support breeding clusters) than from within all habitat blocks or across the entire federal landscape. By 2056, the acreage of suitable habitat within large blocks would increase substantially from current levels under all alternatives: 228% under the No Action Alternative, 207% under Alternative 1; 193% under Alternative 2; 203% under Alternative 3; and 253% under the PRMP.

FIGURE 4-90. CHANGES IN THE ACRES OF SUITABLE HABITAT WITHIN SMALL AND LARGE HABITAT BLOCKS ON FEDERALLY-ADMINISTERED LANDS UNDER THE ALTERNATIVES AND ACCORDING TO THE NO HARVEST REFERENCE ANALYSIS.
 (Note: For the years 2036 and 2046, data are not included for the No Action Alternative or Alternatives 1 and 3.)

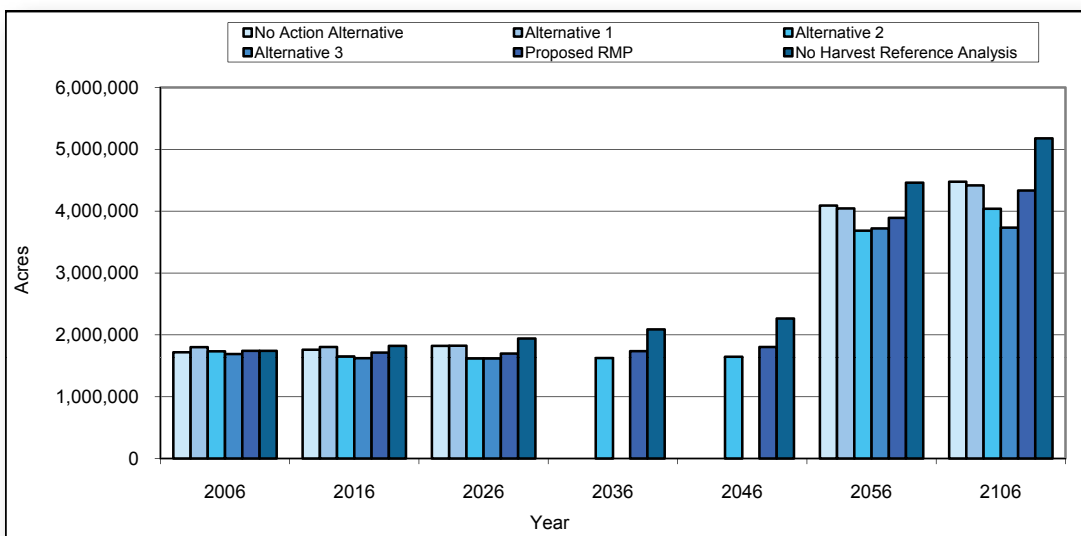
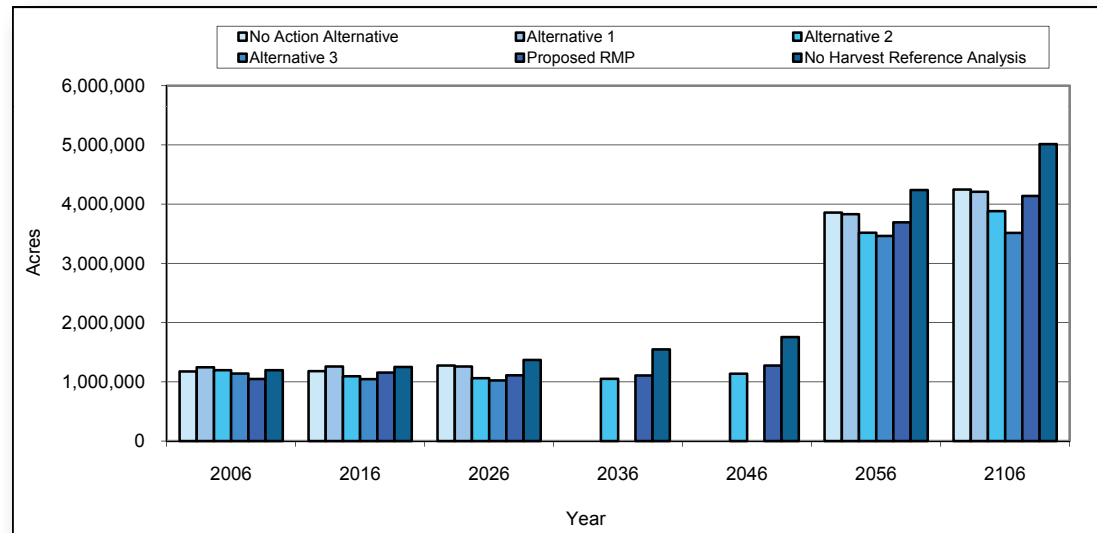




FIGURE 4-91. CHANGES IN THE ACRES OF SUITABLE HABITAT WITHIN LARGE HABITAT BLOCKS ON FEDERALLY-ADMINISTERED LANDS UNDER THE ALTERNATIVES AND ACCORDING TO THE NO HARVEST REFERENCE ANALYSIS.
 (Note: Data for 2036 and 2046 is not included for the No Action Alternative or Alternatives 1 and 3.)



CONSERVATION NEED 2

Habitat conditions within and surrounding large blocks of suitable habitat that facilitate owl movement between the blocks and ensure the survival of dispersing owls

Dispersal Habitat

According to the criteria discussed in *Chapter 3* (see *Northern Spotted Owl*), 50% or more dispersal habitat within a watershed indicates that the watershed is likely to be “functional,” or supports spotted owl dispersal (movement and survival). By this standard, 58 watersheds currently are functional (see *Map 3-5* in *Chapter 3*). The West Cascades Province has disproportionately more functional watersheds than the other provinces. Only five functional watersheds currently occur in the Coast Range Province. The greater the number of functional watersheds, the better the landscape would support owl dispersal (Thomas et al. 1990). However, as detailed in *Chapter 3* (see *Northern Spotted Owl*), there is no defined minimum quantity or spatial arrangement of dispersal habitat needed to support owl movement between the blocks. Therefore, it is not possible to define a minimum or target number of functional watersheds needed to support owl dispersal.

Spotted owl dispersal conditions would improve substantially under all alternatives. By 2036 there would be at least 80 functional watersheds under each alternative. However, by 2056, more evident differences among the alternatives would appear (*Figure 4-92*).

The No Harvest reference analysis indicates that, in the absence of active management on BLM-administered lands, by 2056 (*Figure 4-92*), habitat conditions for spotted owl dispersal on all land ownerships would closely parallel the development of blocks of suitable habitat (*Figure 4-86*). The No Harvest reference analysis indicates that BLM-administered lands are not capable of substantially affecting spotted owl dispersal conditions throughout most of the northern half of the Coast Range Province,



FIGURE 4-92. A COMPARISON OF THE ALTERNATIVES AND THE NO HARVEST REFERENCE ANALYSIS IN 2056: THE PROPORTION OF NORTHERN SPOTTED OWL DISPERSAL HABITAT ON ALL LAND OWNERSHIPS IN EACH FIFTH-FIELD WATERSHED.
 (Note: The legend is shown in Map 3-5 in Chapter 3. Watersheds used to evaluate the Areas of Concern are highlighted.)

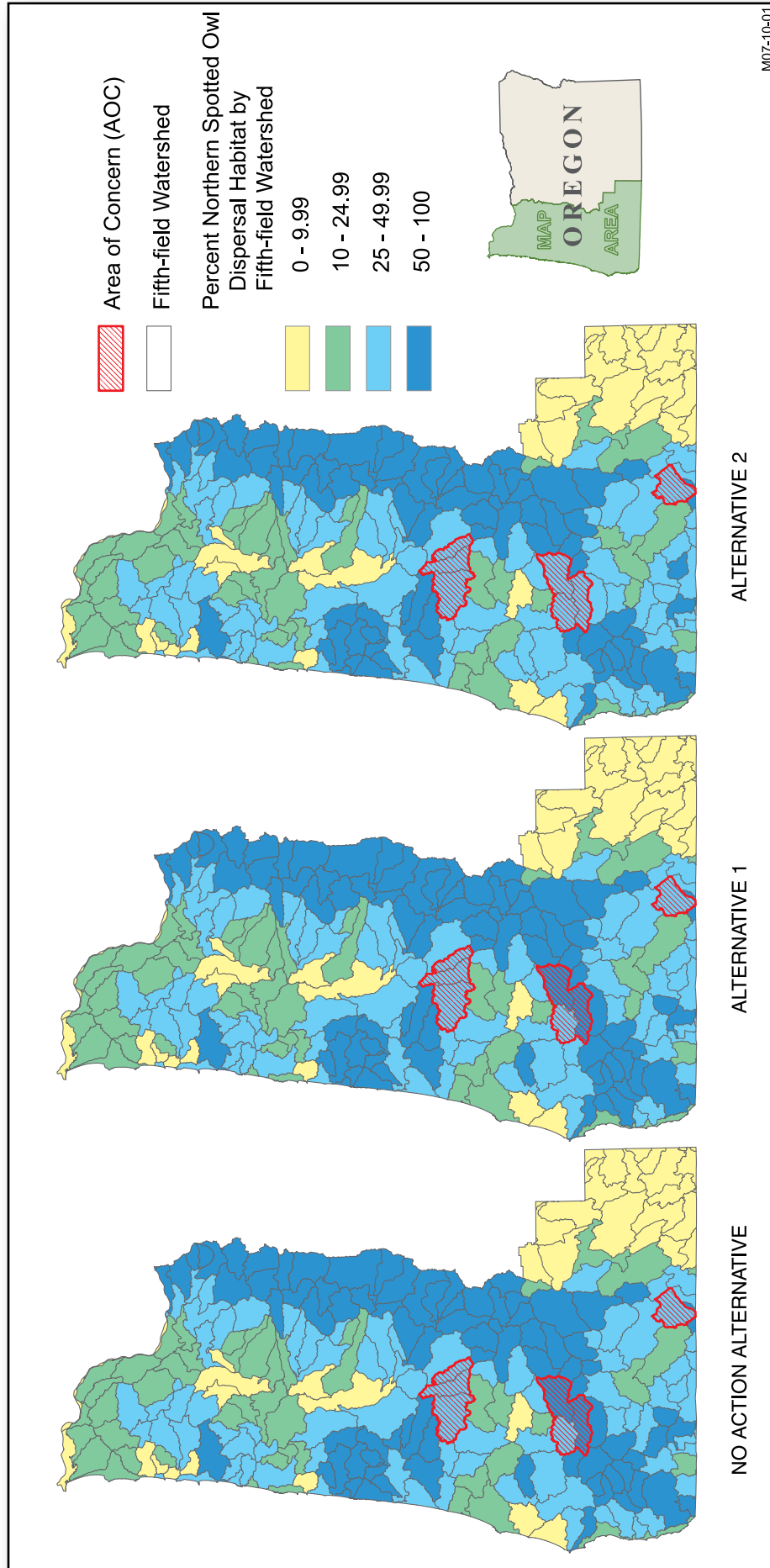
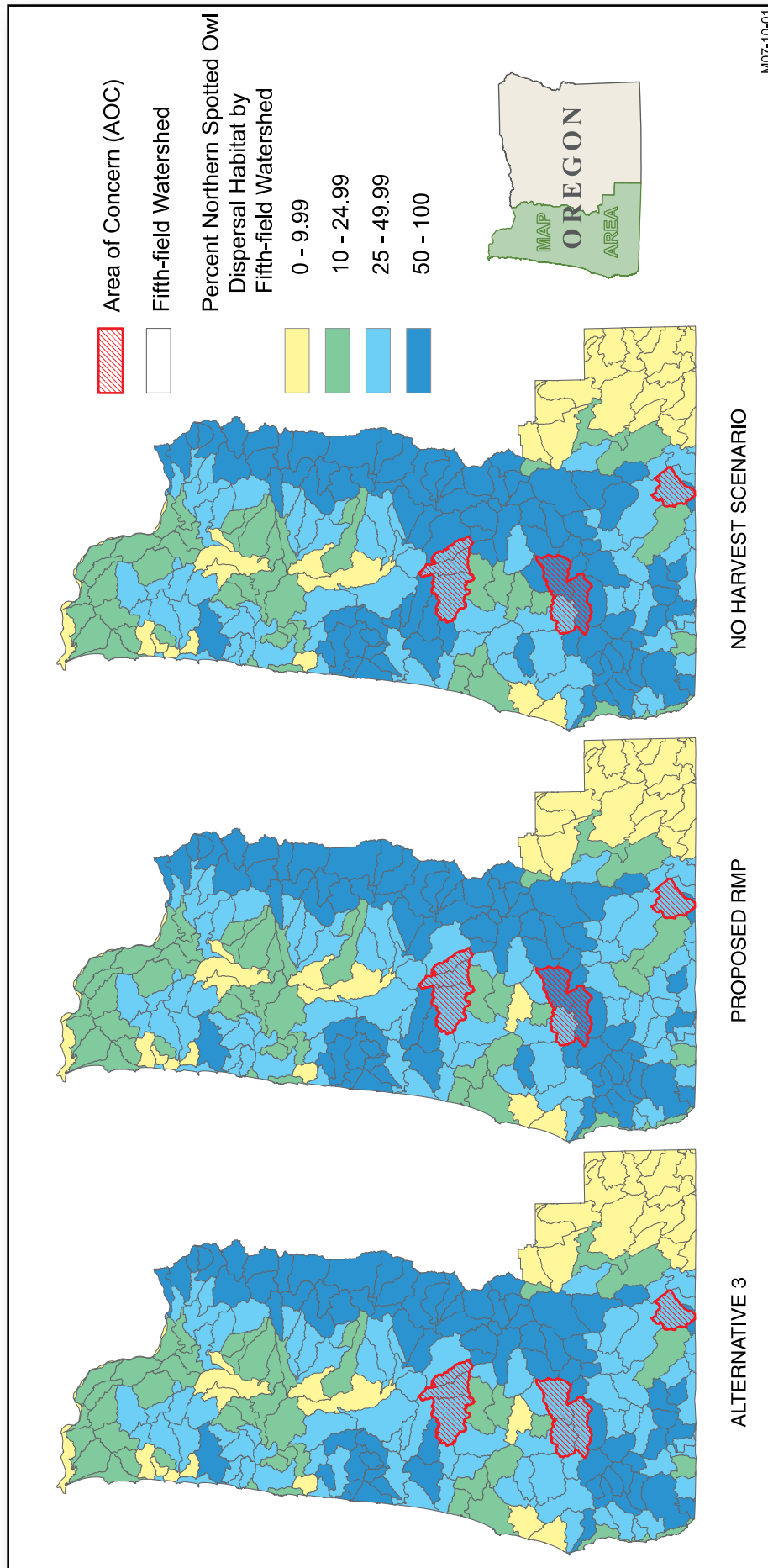


FIGURE 4-92. (CONTINUED)





between the southern Coast Range and central West Cascades Provinces, or between the southern Coast Range and Klamath Provinces because of limited federal ownership in these areas.

By the year 2056 (*Figure 4-92*):

- Under the No Action Alternative, 84 watersheds would be functional, more than under any other alternative. When compared to Alternative 1 and the PRMP, respectively, one and two additional functional watersheds would develop under the No Action Alternative in the Coast Range Province, where dispersal habitat conditions would be most limited.
- Under both Alternative 1 and the PRMP, 82 watersheds would become functional. These watersheds would be distributed similarly under both alternatives.
- Under Alternatives 2 and 3, respectively, 77 and 78 watersheds would become functional. Habitat conditions under Alternatives 2 and 3 would not foster east-west spotted owl movement through the Klamath Province as well as they would under the other alternatives. Even though, under Alternative 3, there would be more functional watersheds in the southern Klamath Province than under Alternative 1 or the PRMP, there would be fewer functional watersheds in the southern Coast Range Province where dispersal conditions would be most limited.

Dispersal Habitat Quality

Whereas the proportion of total dispersal habitat in a fifth-field watershed is an indicator of the ability of that watershed to support spotted owl dispersal (movement and survival), the portion of suitable habitat in a watershed indicates the quality of dispersal habitat. As discussed in *Chapter 3* (see *Northern Spotted Owl*), older habitat supports spotted owl dispersal better than does younger habitat. However, as detailed in *Chapter 3* (see *Northern Spotted Owl*), there is no defined minimum quantity or spatial arrangement of dispersal habitat needed to support owl movement between the blocks. Therefore, it is not possible to define a minimum or target number of watersheds with higher-quality habitat needed to support owl dispersal.

Currently, only 2 watersheds support at least 50% suitable habitat; an additional 78 watersheds support at least 25% suitable habitat (see *Map 3-6* in *Chapter 3*). *Map 3-6* suggests that habitat conditions for spotted owl dispersal between the southern Coast Range and central West Cascades Provinces, between the southern Coast Range and Klamath Provinces, and through the Coast Range Province, are more limited than is suggested by *Map 3-5* (in *Chapter 3*)

By year 2036, the distribution of watersheds with higher-quality habitat would change little under all alternatives. The least change would occur under Alternative 2, under which the same 2 watersheds would support at least 50% suitable habitat, and 84 other watersheds would support at least 25% suitable habitat.

The No Harvest reference analysis (*Figure 4-90*) illustrates the limited ability of BLM-administered lands to contribute to spotted owl dispersal at the 50% level in the northern half of the Coast Range Province and along the boundary between the southern Coast Range Province and the central West Cascades Province.

By 2056, the number of watersheds with higher-quality habitat would increase under all alternatives (*Figure 4-93*). More watersheds with higher-quality habitat would develop under Alternative 1, followed by the No Action Alternative and the PRMP. Under Alternative 1, 45 watersheds with at least 50% suitable habitat and an additional 81 watersheds with at least 25% suitable habitat would develop. Under the No Action Alternative, 44 watersheds with at least 50% suitable habitat and an additional 82 watersheds with at least 25% suitable habitat would develop. Under the PRMP, 41 watersheds with at least 50% suitable habitat and an additional 82 watersheds with at least 25% suitable habitat would develop. When evaluated in association with the development of dispersal habitat (*Figure 4-92*), under Alternative 1 and the No Action Alternative, more watersheds with higher-quality dispersal habitat would develop in the central Coast Range Province, where dispersal conditions would be most limited, than under the PRMP. The number of watersheds with



higher-quality dispersal habitat in the extreme south of the West Cascades Province, throughout most of the Klamath Province, and throughout the southern half of the Coast Range Province, suggests that dispersal habitat conditions would develop better under Alternative 1, the No Action Alternative, and the PRMP, than is suggested by *Figure 4-92*.

By 2056, 41 watersheds with at least 50% suitable habitat and an additional 73 watersheds with at least 25% suitable habitat would develop under Alternative 3; 39 watersheds with at least 50% suitable habitat and an additional 74 watersheds with at least 25% suitable habitat would develop under Alternative 2 (*Figure 4-93*). Higher-quality dispersal habitat conditions in the southern Klamath Province would not develop as well under Alternatives 2 or 3 as under the other alternatives. When compared to the other alternatives, higher-quality dispersal condition would develop less well in the northern Coast Range Province under Alternative 2, and in the southern West Cascades Province under Alternative 3.

Geographic Areas of Concern

South Willamette-North Umpqua Area of Concern

None of the three watersheds used to represent this Area of Concern currently are functional with respect to the quantity of dispersal habitat (see *Map 3-5* in *Chapter 3*), and less than 25% of the habitat in each watershed currently is comprised of higher-quality dispersal habitat (see *Map 3-6* in *Chapter 3*). These three watersheds would not become functional for dispersal or support at least 25% suitable habitat by 2056 under any of the alternatives (*Figure 4-92* and *Figure 4-93*). The No Harvest reference analysis indicates that the land ownership pattern precludes these three watersheds from providing for dispersal at the 50% level by 2056 (*Figure 4-92*) under any of the alternatives.

Umpqua-Rogue Area of Concern

One of the three watersheds that are used to represent this Area of Concern currently is functional with respect to the quantity of dispersal habitat (*Map 3-5*), and more than 25% of the habitat in each watershed currently is comprised of higher-quality dispersal habitat (see *Map 3-6* in *Chapter 3*). By 2056, two of the three watersheds would be functional under the No Action Alternative, Alternative 1 and the PRMP (*Figure 4-92*). Under Alternatives 2 and 3, dispersal habitat conditions would not measurably improve from the current conditions by 2056. By 2056, all three watersheds would continue to have more than 25% suitable habitat but less than 50% suitable habitat under all alternatives (*Figure 4-93*). The No Harvest reference analysis indicates that the land ownership pattern precludes one of the watersheds from providing for dispersal habitat at the 50% level (*Figure 4-92*) and precludes all three watersheds from developing at least 50% suitable habitat by 2056 (*Figure 4-93*).

Ashland Area of Concern

The one watershed used to represent this Area of Concern currently is not meeting the 50% level with respect to the quantity of dispersal habitat (*Map 3-5*), but more than 25% of the habitat in each watershed currently is comprised of higher-quality dispersal habitat (*Map 3-6*). By 2056, the watershed would continue to have more than 25% suitable habitat but still less than 50% suitable habitat under all alternatives. The No Harvest reference analysis indicates that the land ownership pattern precludes this watershed from meeting the “50-11-40” level of dispersal habitat (*Figure 4-92*) or developing at least 50% suitable habitat by 2056 (*Figure 4-93*) under any of the alternatives.



FIGURE 4-93. A COMPARISON OF THE ALTERNATIVES AND THE NO HARVEST REFERENCE ANALYSIS IN 2056: THE PROPORTION OF NORTHERN SPOTTED OWL SUITABLE HABITAT ON ALL LAND OWNERSHIPS IN EACH FIFTH-FIELD WATERSHED
 (Note: The legend is shown in Map 3-6 in Chapter 3. Watersheds used to evaluate the Areas of Concern are highlighted.)

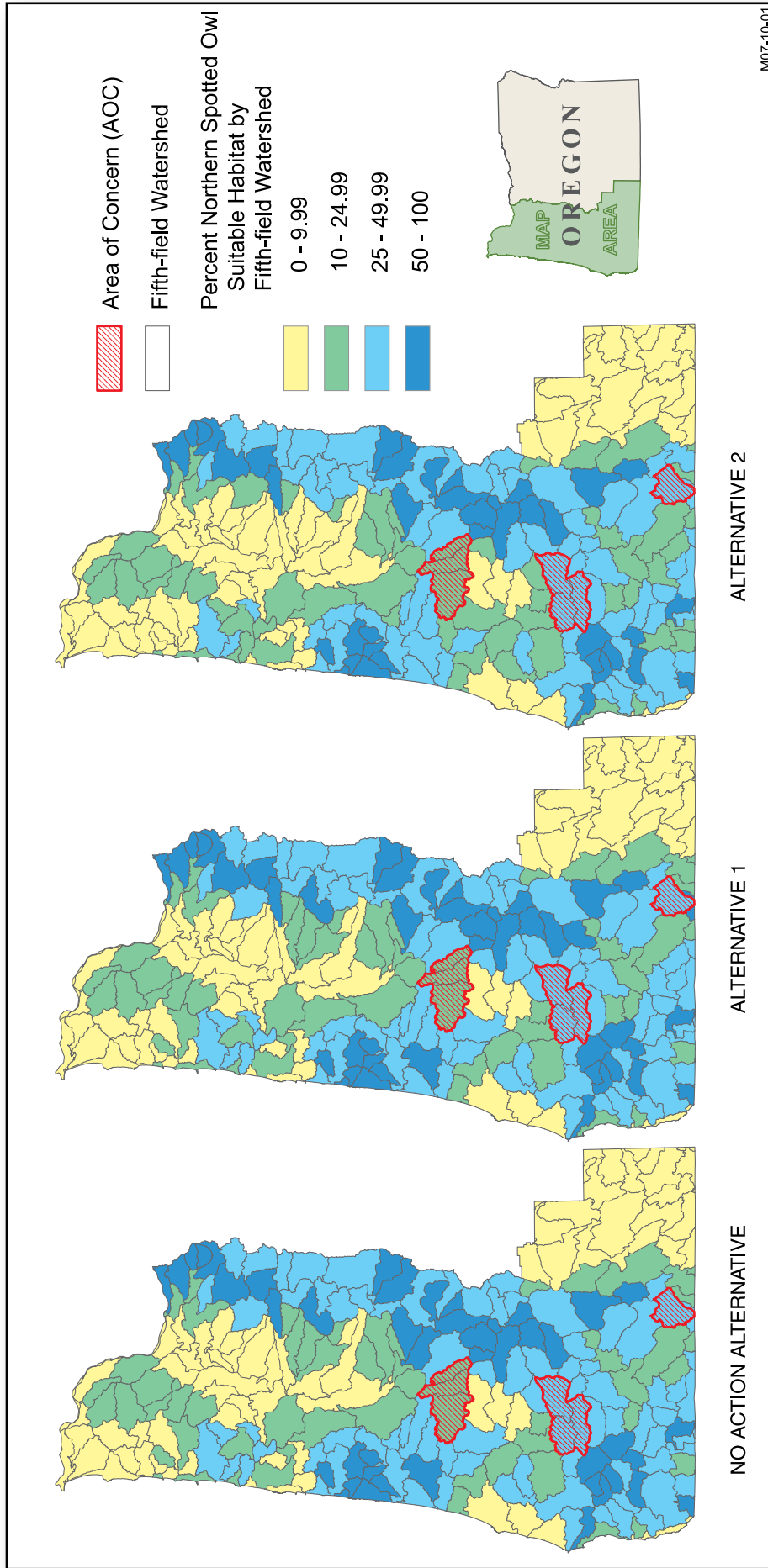
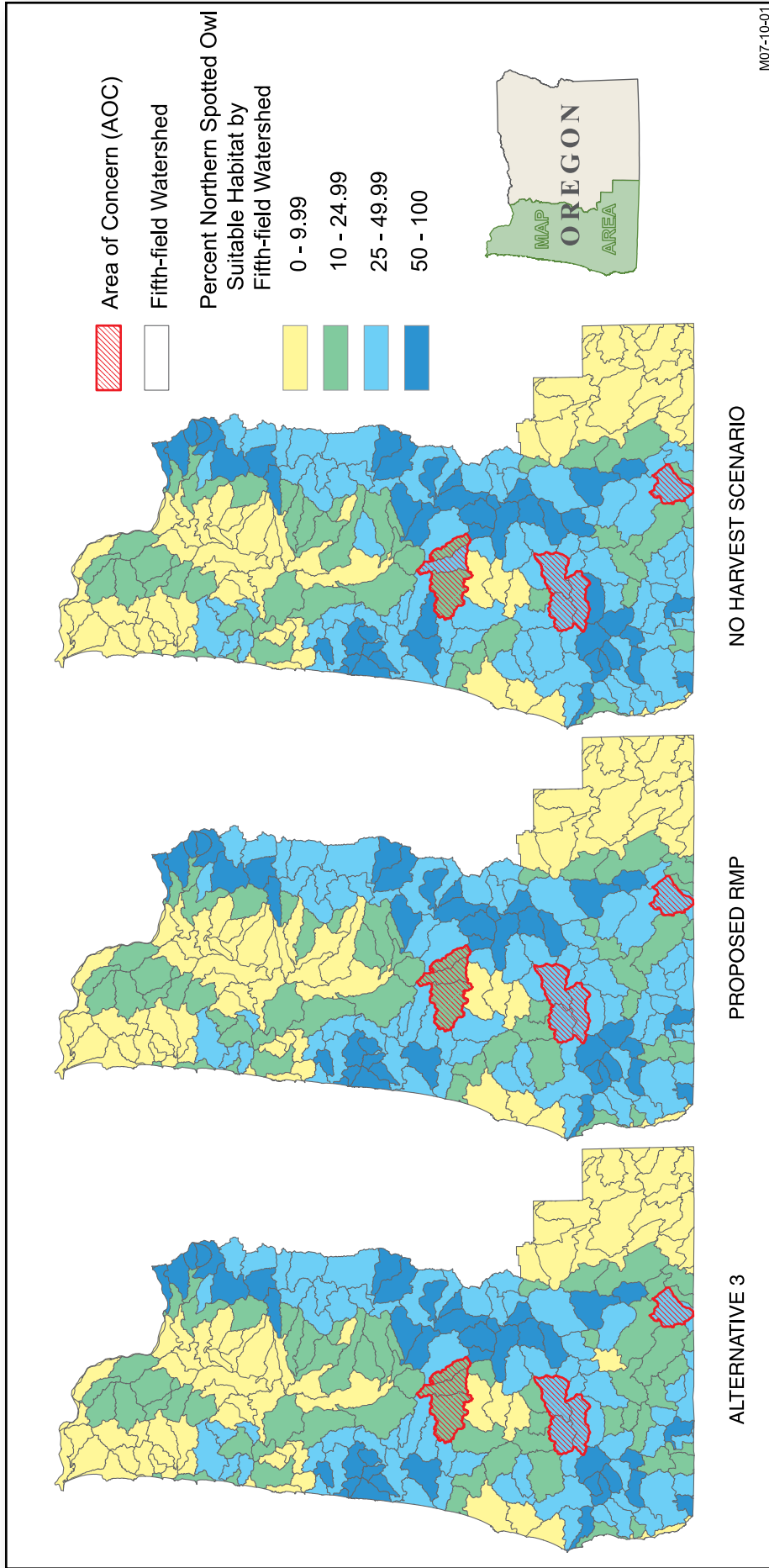


FIGURE 4-93. (CONTINUED)





CONSERVATION NEED 3

A coordinated, adaptive management effort to reduce the loss of habitat due to catastrophic wildfire throughout the spotted owl's range, and a monitoring program to clarify whether these risk reduction methods are effective and to determine how owls use habitat treated to reduce fuels

None of the alternatives would establish or preclude specific programs to evaluate the effectiveness of fire risk reduction methods or determine spotted owl use of habitat treated to reduce fuels. Such programs would occur, as needed and appropriate, independent of the planning process. Therefore, this analysis focuses on the effects of the alternatives on the development of spotted owl habitat in the high, low and mixed fire severity regimes, and the development of fire-resilient spotted owl habitat. The analysis assumes that the risk of habitat loss to catastrophic wildfire would lessen with increased amounts of spotted owl habitat in the low and mixed fire severity regimes, and with increased amounts of fire-resilient spotted owl habitat. This analysis is confined to BLM-administered lands in the planning area, because these metrics pertain to individual forest stands, for which there is not specific data available for other land ownerships (see *Forest Structure and Spatial Pattern* in this chapter).

Fire Severity

The effects that would occur under the alternatives on northern spotted owl habitat are discussed separately for the southern and northern portions of the planning area due to regional differences in fire regimes (see *Northern Spotted Owl* in Chapter 3).

Suitable Habitat in Southern Portions of the Planning Area

The acreage of suitable habitat within the low fire severity regime would decrease between year 2006 and 2056 under all alternatives (see Figure 4-94). These decreases would be due to the harvest of mature forest with multi-layered canopies in the harvest land base exceeding the rate at which such stands would develop in the nonharvest land base. In addition, a substantial portion of this decrease under the No Action Alternative would be due to the transition of stands from mature forest with multi-layered canopies (low fire severity regime) to structurally complex forest (mixed fire severity regime) (see Figure 4-95).

FIGURE 4-94. CHANGES BY ALTERNATIVE IN DEVELOPMENT OF NORTHERN SPOTTED OWL SUITABLE HABITAT WITH LOW FIRE SEVERITY IN THE MEDFORD DISTRICT AND THE KLAMATH FALLS RESOURCE AREA

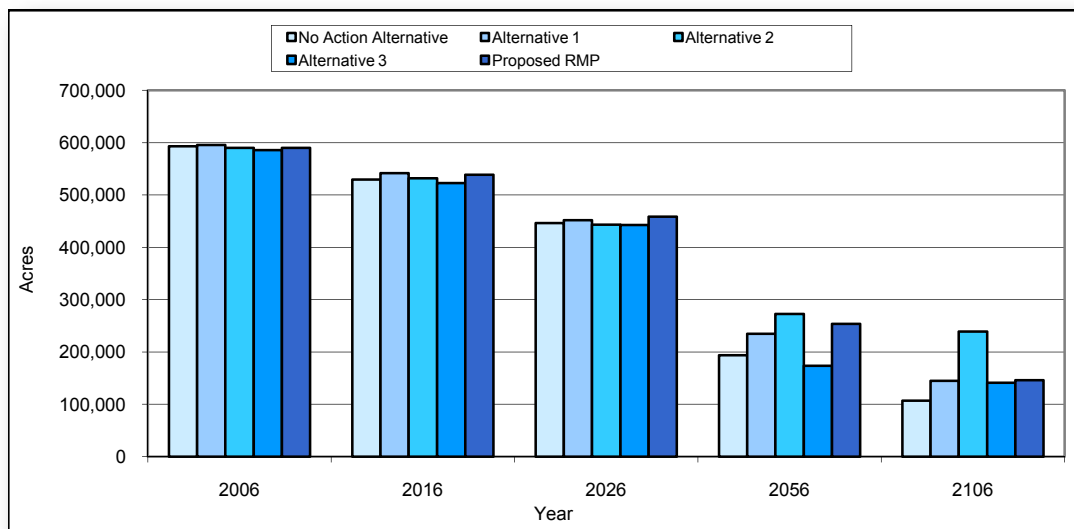
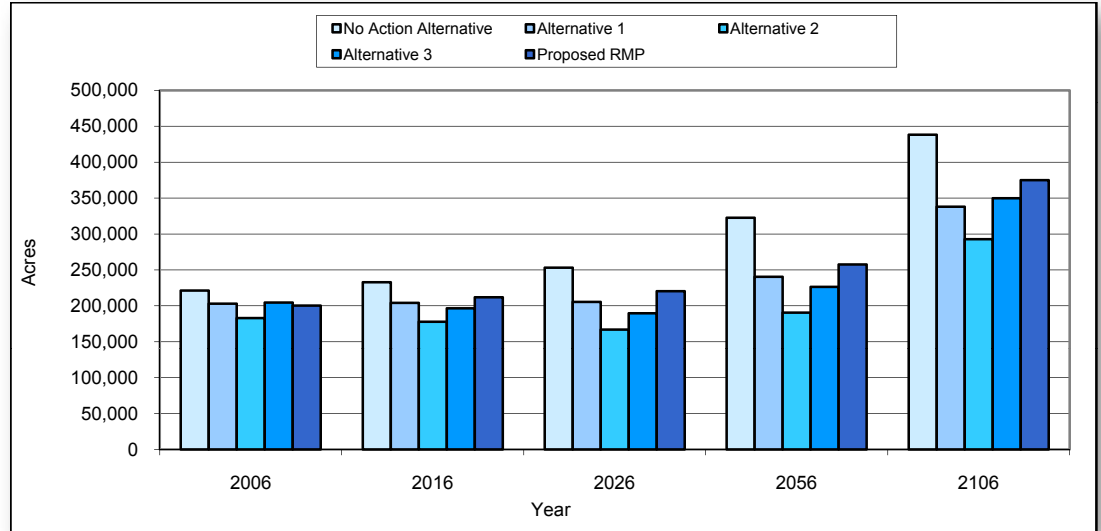




FIGURE 4-95. CHANGES BY ALTERNATIVE IN DEVELOPMENT OF NORTHERN SPOTTED OWL SUITABLE HABITAT WITH MIXED FIRE SEVERITY IN THE MEDFORD DISTRICT AND THE KLAMATH FALLS RESOURCE AREA



The acreage of suitable habitat within the mixed severity regime would increase during each decade under the No Action Alternative, Alternative 1 and the PRMP, between 2006 and 2056 (Figure 4-95). During this same period, the acreage of suitable habitat within the mixed severity regime under Alternatives 2 and 3 would decrease through 2026 before increasing by 2056 (Figure 4-95). These differing rates of change would reflect differences among the alternatives in the acreage of land allocated to the nonharvest land base, which would foster the development of structurally complex forest (mixed fire severity regime) (see *Forest Structure and Spatial Pattern* in this chapter).

The total acreage of suitable habitat within the low or mixed fire severity regimes would increase under the No Action Alternative and the PRMP, and decrease under Alternatives 1, 2, and 3, between 2006 and 2056 (Table 4-51). By year 2106, the total acreage of suitable habitat within the low or mixed severity fire regimes would increase from current levels under all alternatives except Alternative 2 (Table 4-51).

As discussed in Chapter 3 (see *Northern Spotted Owl*), suitable habitat generally does not fall within the high fire severity regime.

TABLE 4-51. PERCENT CHANGE BY ALTERNATIVE BETWEEN 2006 AND 2056, AND BETWEEN 2006 AND 2106, IN THE ACRES OF NORTHERN SPOTTED OWL SUITABLE HABITAT WITH LOW OR MIXED FIRE SEVERITY IN THE MEDFORD DISTRICT AND THE KLAMATH FALLS RESOURCE AREA

Alternative	Percent Change 2006 - 2056	Percent Change 2006 - 2106
No Action	+ 5	+ 34
Alternative 1	- 4	+ 3
Alternative 2	- 11	- 9
Alternative 3	- 17	+ 9
PRMP	+ 5	+ 23



Suitable Habitat in Northern Portions of the Planning Area

The acreage of suitable habitat within the low fire severity regime would decrease under the No Action Alternative, Alternatives 1 and 2, and the PRMP, and increase slightly under Alternative 3, between 2006 and 2056 (see *Figure 4-96*). Similar to the southern portion, these decreases would generally be due to the harvest of mature forest with multi-layered canopies in the harvest land base exceeding the rate at which such stands develop in the nonharvest land base. In addition, a substantial portion of the decreases under the No Action Alternative, Alternative 1, and the PRMP would be due to the transition of stands from mature forest with multi-layered canopies (low fire severity regime) to structurally complex forest (mixed fire severity regime) (see *Figure 4-97*). The slight increase under Alternative 3 would be due to a harvest regime that allows the development of mature forest with multi-layered canopies forest in a landscape dominated by younger forest, but often harvests mature forest with multi-layered canopies forest before it becomes structurally complex forest.

FIGURE 4-96. CHANGES BY ALTERNATIVE IN DEVELOPMENT OF NORTHERN SPOTTED OWL SUITABLE HABITAT WITH LOW FIRE SEVERITY IN THE COOS BAY, EUGENE, ROSEBURG AND SALEM DISTRICTS

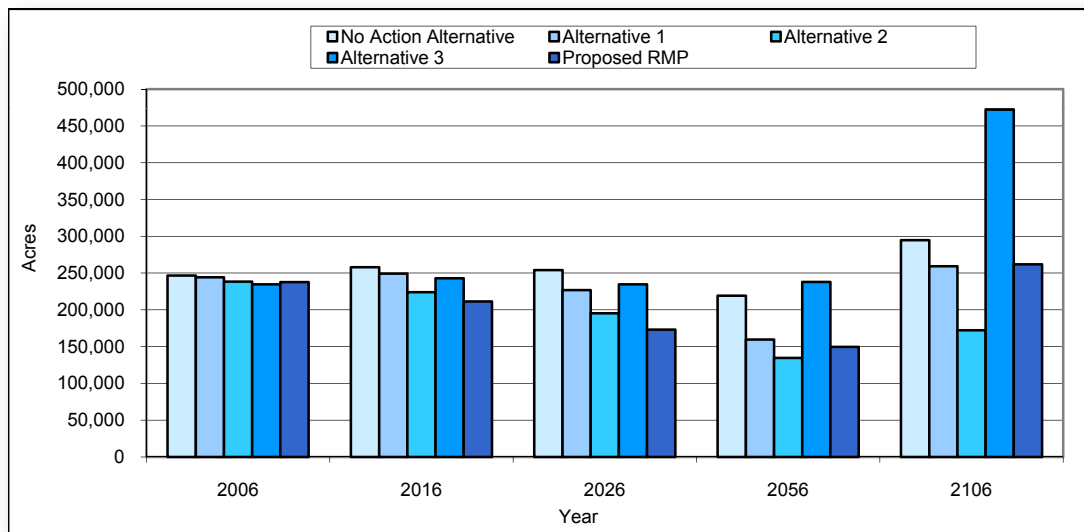
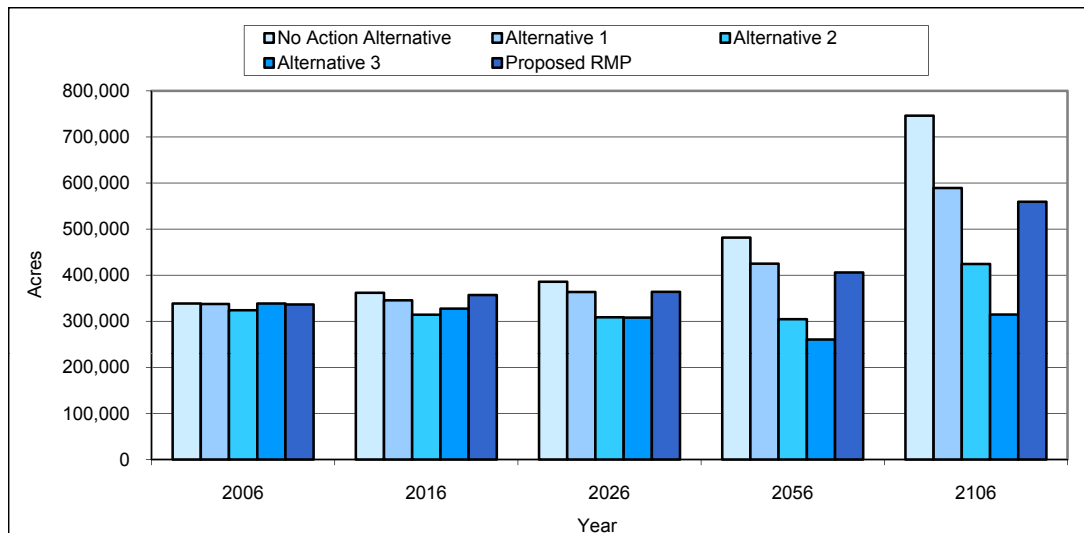


FIGURE 4-97. CHANGES BY ALTERNATIVE IN DEVELOPMENT OF NORTHERN SPOTTED OWL SUITABLE HABITAT WITH MIXED FIRE SEVERITY IN THE COOS BAY, EUGENE, ROSEBURG AND SALEM DISTRICTS





The acreage of suitable habitat within the mixed fire severity regime would increase under the No Action Alternative, Alternatives 1 and 2, and the PRMP, and decrease under Alternative 3, between 2006 and 2056 (Figure 4-97). As in the southern portion, these changes would reflect the differences among the alternatives in acreage of land allocated to the nonharvest land base, which would foster the development of structurally complex forest (mixed fire severity regime) (see *Forest Structure and Spatial Pattern* in this chapter).

As discussed in Chapter 3 (see *Northern Spotted Owl*), suitable habitat generally does not fall within the high fire severity regime.

The total acreage of suitable habitat within the low or mixed fire severity regimes would increase under the No Action Alternative, remain stable under Alternative 1, and decline under Alternatives 2 and 3 and the PRMP, between 2006 and 2056 (Table 4-52). By 2106, the total acreage of suitable habitat within the low or mixed severity fire regimes would increase from current levels under all alternatives (Table 4-52).

Dispersal Habitat in Southern Portions of the Planning Area

The acreage of dispersal habitat in the high fire severity regime would decrease under all alternatives between 2006 and 2056. See Figure 4-98 (*Changes by alternative in development of Northern Spotted Owl dispersal habitat with high fire severity in the Medford and Roseburg Districts and the Klamath Falls Resource Area*). The decrease would be caused by the transition of stands from young high density forest to mature forest and structurally complex forest (see Figure 4-99) exceeding the rate at which stand establishment forest would transition into young high density forest (see Figure 4-100). Figure 4-99 shows “Changes by alternative in development of Northern Spotted Owl dispersal habitat with low fire severity in the Medford and Roseburg Districts and the Klamath Falls Resource Area.” Figure 4-100 shows “Changes by alternative in development of Northern Spotted Owl dispersal habitat with mixed fire severity in the Medford and Roseburg Districts and the Klamath Falls Resource Area.” The alternatives would differ according to the quantity of habitat within young high density forest that would be harvested, thus delaying or preventing its transition into mature forest and structurally complex forest and, in many cases, causing it later to become young high density forest.

TABLE 4-52. PERCENT CHANGE BY ALTERNATIVE BETWEEN 2006 AND 2056, AND BETWEEN 2006 AND 2106, IN THE ACRES OF NORTHERN SPOTTED OWL SUITABLE HABITAT WITH LOW OR MIXED FIRE SEVERITY IN THE COOS BAY, EUGENE, ROSEBURG AND SALEM DISTRICTS

Alternative	Percent Change 2006 - 2056	Percent Change 2006 - 2106
No Action	+ 20	+ 78
Alternative 1	0	+ 46
Alternative 2	- 22	+ 6
Alternative 3	- 13	+ 37
PRMP	- 3	+ 43

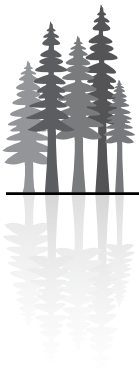


FIGURE 4-98. CHANGES BY ALTERNATIVE IN THE DEVELOPMENT OF NORTHERN SPOTTED OWL DISPERSAL HABITAT WITH HIGH FIRE SEVERITY IN THE MEDFORD AND ROSEBURG DISTRICTS AND THE KLAMATH FALLS RESOURCE AREA

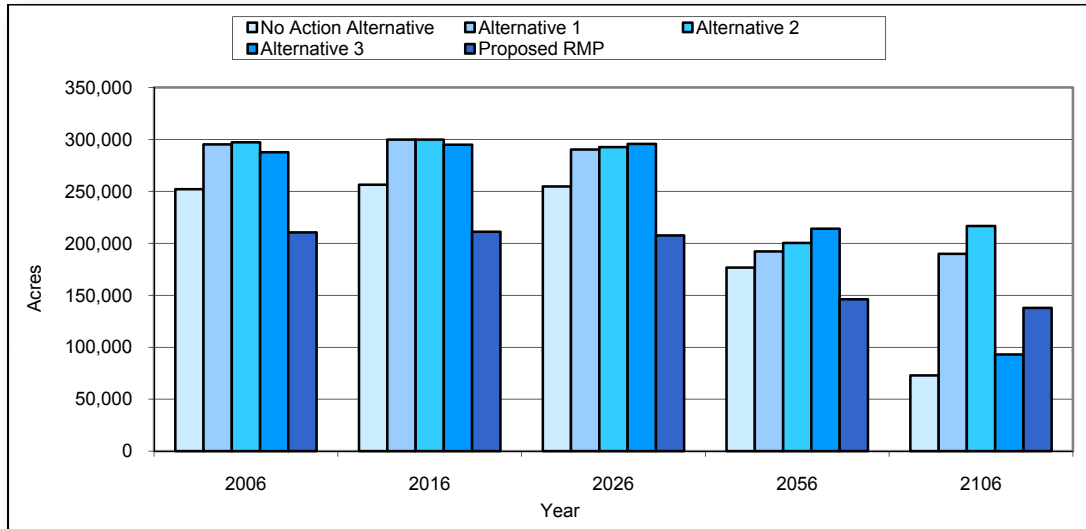
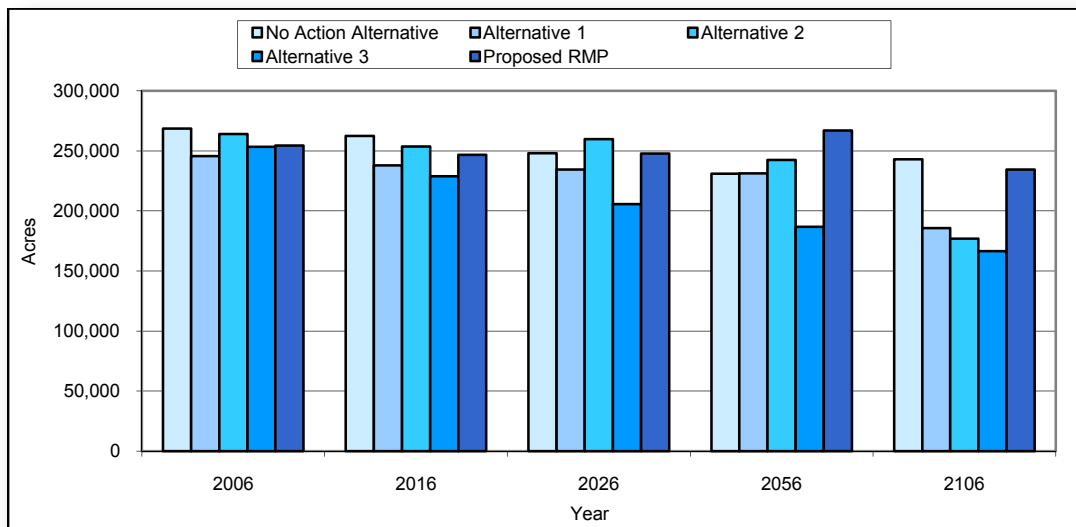


FIGURE 4-99. CHANGES BY ALTERNATIVE IN THE DEVELOPMENT OF NORTHERN SPOTTED OWL DISPERSAL HABITAT WITH LOW FIRE SEVERITY IN THE MEDFORD AND ROSEBURG DISTRICTS AND THE KLAMATH FALLS RESOURCE AREA



The acreage of dispersal habitat within the low or mixed fire severity regimes would increase under the No Action Alternative, Alternative 1, and the PRMP and decrease under Alternatives 2 and 3 between 2006 and 2056 (Table 4-53). By 2106, the acreage of dispersal habitat within the low or mixed fire severity regimes would increase from current levels under all alternatives (Table 4-53).



FIGURE 4-100. CHANGES BY ALTERNATIVE IN THE DEVELOPMENT OF NORTHERN SPOTTED OWL DISPERSAL HABITAT WITH MIXED FIRE SEVERITY IN THE MEDFORD AND ROSEBURG DISTRICTS AND THE KLAMATH FALLS RESOURCE AREA

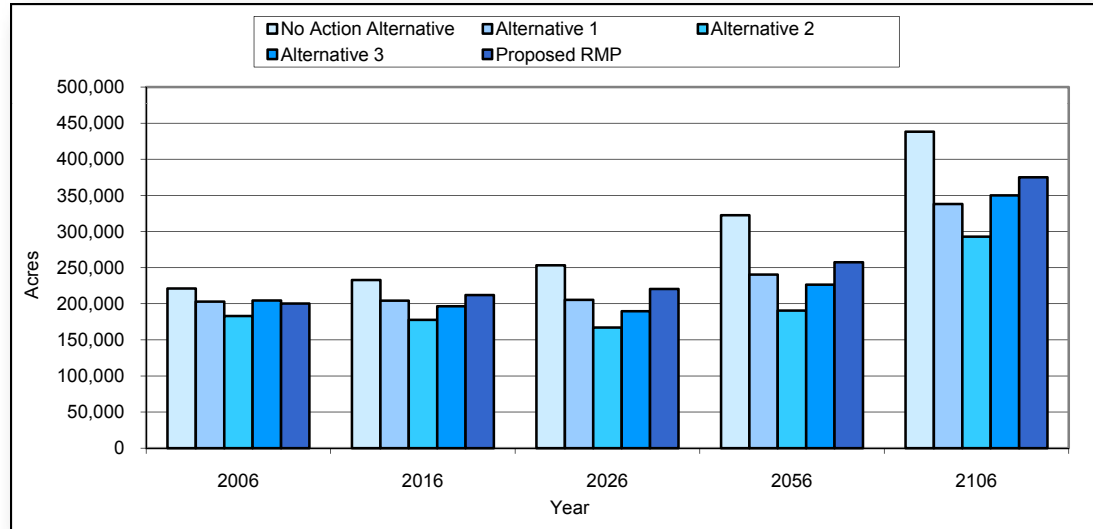


TABLE 4-53. PERCENT CHANGE BY ALTERNATIVE BETWEEN 2006 AND 2056, AND BETWEEN 2006 AND 2106, IN THE ACRES OF NORTHERN SPOTTED OWL DISPERSAL HABITAT WITH LOW OR MIXED FIRE SEVERITY IN THE MEDFORD DISTRICT AND THE KLAMATH FALLS RESOURCE AREA

Alternative	Percent Change 2006 - 2056	Percent Change 2006 - 2106
No Action	+ 13	+ 39
Alternative 1	+ 5	+ 17
Alternative 2	- 3	+ 5
Alternative 3	- 10	+ 13
PRMP	+ 15	+ 34

Dispersal Habitat in Northern Portions of the Planning Area

The acreage of dispersal habitat within the low or mixed fire severity regimes would increase under all alternatives. See Table 4-54 (Percent change, by alternative, between 2006 and 2056, and between 2006 and 2106, in the acres of northern spotted owl dispersal habitat with low or mixed fire severity in the Coos Bay, Eugene and Salem Districts). Changes through 2056 would be similar to those that would occur in the southern portion of the planning area and would occur because the transition of stands from young high density forest to mature forest and structurally complex forest would exceed the rate at which stand establishment forest would transition into young high density forest. The principal differences between the northern and southern portions of the planning area are that changes in the quantity of dispersal habitat in each fire severity regime would be greater in the northern portion. This reflects the higher proportion of stands in the northern part of the planning area that currently are in young high density forest and mature with single canopy forest.

Figures 4-101 - 4-103 show changes in development of northern spotted owl dispersal habitat by alternative in the high, low, or mixed fire severity regimes in the northern portion of the planning area.



TABLE 4-54. PERCENT CHANGE BY ALTERNATIVE BETWEEN 2006 AND 2056, AND BETWEEN 2006 AND 2106, IN THE ACRES OF NORTHERN SPOTTED OWL DISPERSAL HABITAT WITH LOW OR MIXED FIRE SEVERITY IN THE COOS BAY, EUGENE AND SALEM DISTRICTS

Alternative	Percent Change 2006 - 2056	Percent Change 2006 - 2106
No Action	+ 59	+ 72
Alternative 1	+ 47	+ 65
Alternative 2	+ 27	+ 41
Alternative 3	+ 43	+ 46
PRMP	+ 44	+ 61

FIGURE 4-101. CHANGES BY ALTERNATIVE IN DEVELOPMENT OF NORTHERN SPOTTED OWL DISPERSAL HABITAT WITH HIGH FIRE SEVERITY IN THE COOS BAY, EUGENE, ROSEBURG AND SALEM DISTRICTS

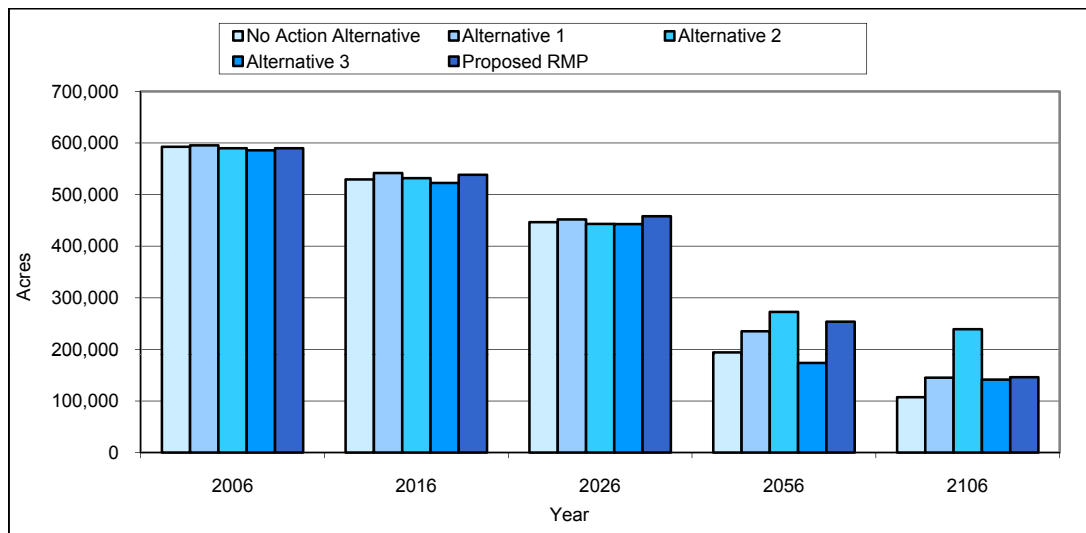


FIGURE 4-102. CHANGES BY ALTERNATIVE IN DEVELOPMENT OF NORTHERN SPOTTED OWL DISPERSAL HABITAT WITH LOW FIRE SEVERITY IN THE COOS BAY, EUGENE, ROSEBURG AND SALEM DISTRICTS

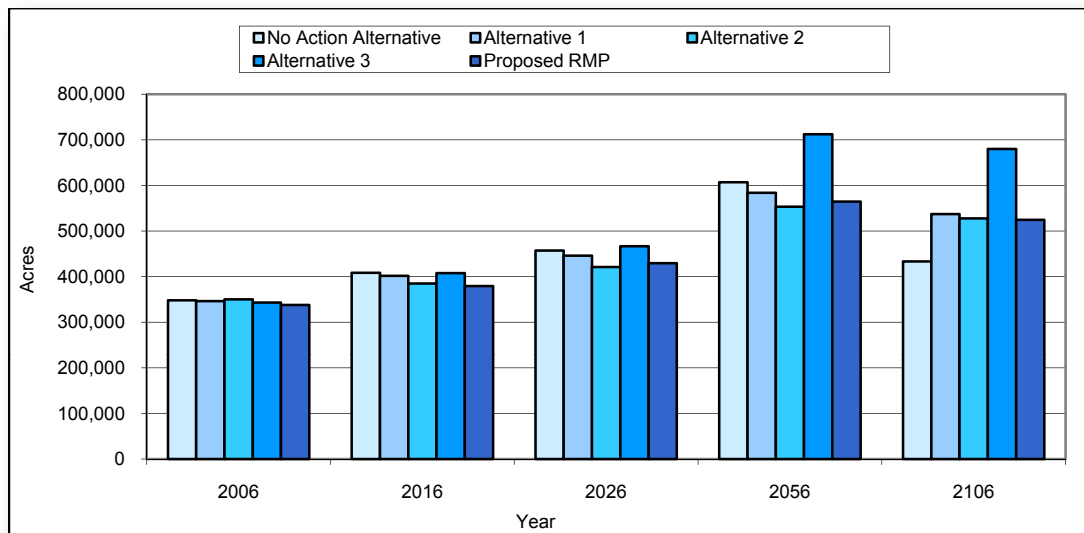
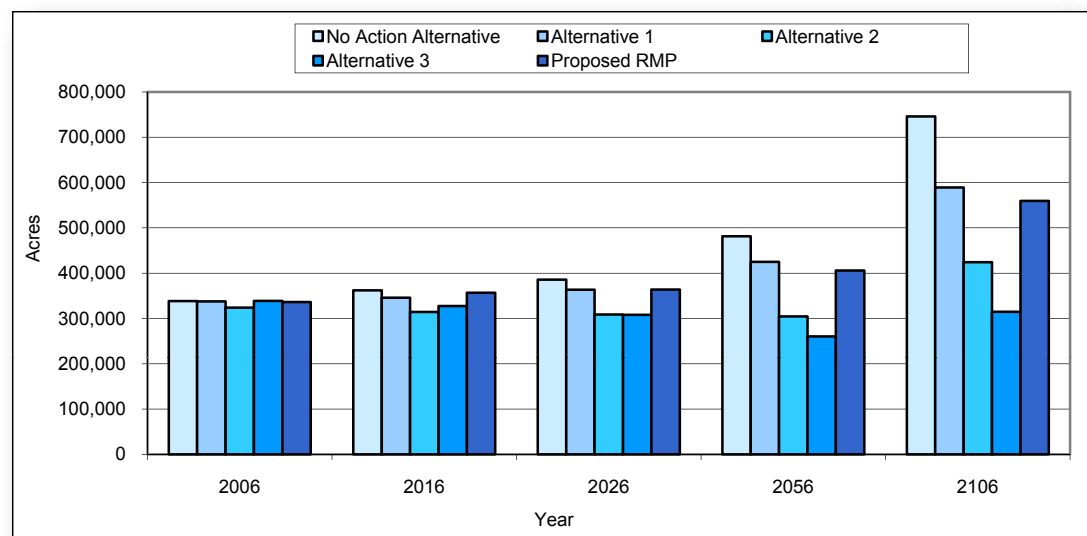




FIGURE 4-103. CHANGES BY ALTERNATIVE IN DEVELOPMENT OF NORTHERN SPOTTED OWL DISPERSAL HABITAT WITH MIXED FIRE SEVERITY IN THE COOS BAY, EUGENE, ROSEBURG AND SALEM DISTRICTS



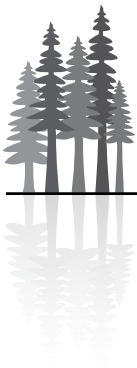
Conclusions for Fire Severity

On BLM-administered lands, between 2006 and 2056:

- The No Action Alternative would contribute to Conservation Need 3, because the acres of spotted owl suitable and dispersal habitats in the low and mixed fire severity regimes would increase throughout the planning area.
- Alternative 1 would not contribute to Conservation Need 3, because the acres of spotted owl suitable habitat in the low and mixed fire severity regimes in the southern portion of the planning area would decrease where the risk to spotted owl habitat is higher.
- Alternatives 2 and 3 would not contribute to Conservation Need 3, because the acres of spotted owl suitable habitat in the low and mixed fire severity regimes throughout the planning area would decrease, with substantial decreases in the southern portion of the planning area where the risk to spotted owl habitat is higher. Also, the acres of dispersal habitat in the low and mixed fire severity regime would decrease in the southern portion of the planning area.
- The PRMP would contribute to Conservation Need 3. Even though the acres of spotted owl suitable habitat in the low and mixed fire severity regimes would decrease in the northern portion of the planning area, it would increase in the southern portion of the planning area where the risk to spotted owl habitat is higher. The acres of dispersal habitat in these regimes would substantially increase throughout the planning area under the PRMP.

Fire Resiliency

As detailed in *Chapter 3 (see Northern Spotted Owl)*, fire resiliency is the ability of a vegetative community to withstand or recover from a fire disturbance. The stand structural classes that exhibit fire resiliency are stand establishment with structural legacies, young forest with structural legacies, mature forest, and structurally complex forest. It is evaluated in this analysis only in the Klamath Falls Resource Area and the Medford District.



Northern Spotted Owl Suitable Habitat

The acreage of fire-resilient suitable habitat in the Medford District would increase under the No Action Alternative and the PRMP, and decrease under Alternatives 1, 2, and 3 between 2006 and 2056 (*Table 4-55*). By 2106, the acreage of fire-resilient suitable habitat in the Medford District would increase from current levels under all alternatives except Alternative 2.

The acreage of fire-resilient suitable habitat in the Klamath Falls Resource Area would increase under the PRMP, and decrease under all other alternatives (*Table 4-56*).

The differences among alternatives in fire resiliency would result primarily from the application of different management prescriptions to retain trees in harvest units. The PRMP would require uneven-age management in portions of the Medford District and Klamath Falls Resource Area, which would improve fire resiliency. In contrast, under Alternatives 1 and 2, trees would not be retained in regeneration harvest units. Although trees would be retained in regeneration and partial harvest units under Alternative 3, little of this retention would occur in, and increase the fire resiliency of, spotted owl suitable habitat.

Between 2006 and 2106, only the PRMP would increase the quantity of suitable habitat with fire resiliency in both the Medford District and the Klamath Falls Resource Area (*Tables 4-55 and 4-56*). The No Action Alternative, and Alternatives 1 and 3, would increase fire resiliency only in the Medford District. Alternative 2 would decrease fire resiliency in both the Medford District and Klamath Falls Resource Area.

Figures 4-104 and 4-105, respectively, show changes in development of northern spotted owl suitable habitat, by alternative, with fire resiliency in the Medford District and the Klamath Falls Resource Area.

TABLE 4-55. PERCENT CHANGE BY ALTERNATIVE BETWEEN 2006 AND 2056, AND BETWEEN 2006 AND 2106, IN THE ACRES OF NORTHERN SPOTTED OWL SUITABLE HABITAT WITH FIRE RESILIENCY IN THE MEDFORD DISTRICT

Alternative	Percent Change 2006-2056	Percent Change 2006-2106
No Action	+ 6	+ 38
Alternative 1	- 2	+ 7
Alternative 2	- 9	- 6
Alternative 3	- 14	+ 14
PRMP	+ 6	+ 24

TABLE 4-56. PERCENT CHANGE BY ALTERNATIVE BETWEEN 2006 AND 2056, AND BETWEEN 2006 AND 2106, IN THE ACRES OF NORTHERN SPOTTED OWL SUITABLE HABITAT WITH FIRE RESILIENCY IN THE KLAMATH FALLS RESOURCE AREA

Alternative	Percent Change 2006 - 2056	Percent Change 2006 - 2106
No Action	- 13	- 23
Alternative 1	- 33	- 52
Alternative 2	- 31	- 48
Alternative 3	- 65	- 57
PRMP	+ 4	+ 16



FIGURE 4-104. CHANGES BY ALTERNATIVE IN DEVELOPMENT OF NORTHERN SPOTTED OWL SUITABLE HABITAT WITH FIRE RESILIENCY IN THE MEDFORD DISTRICT

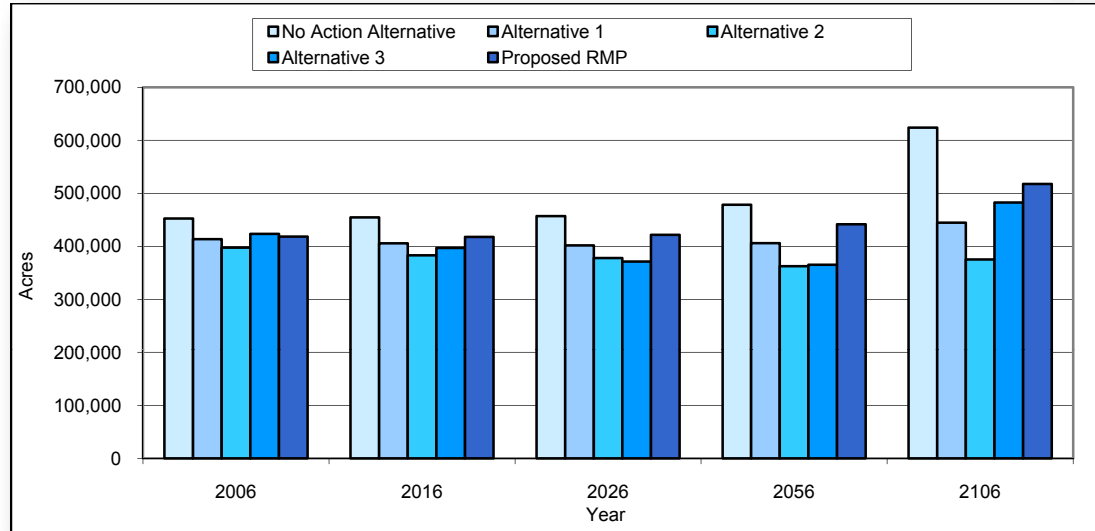
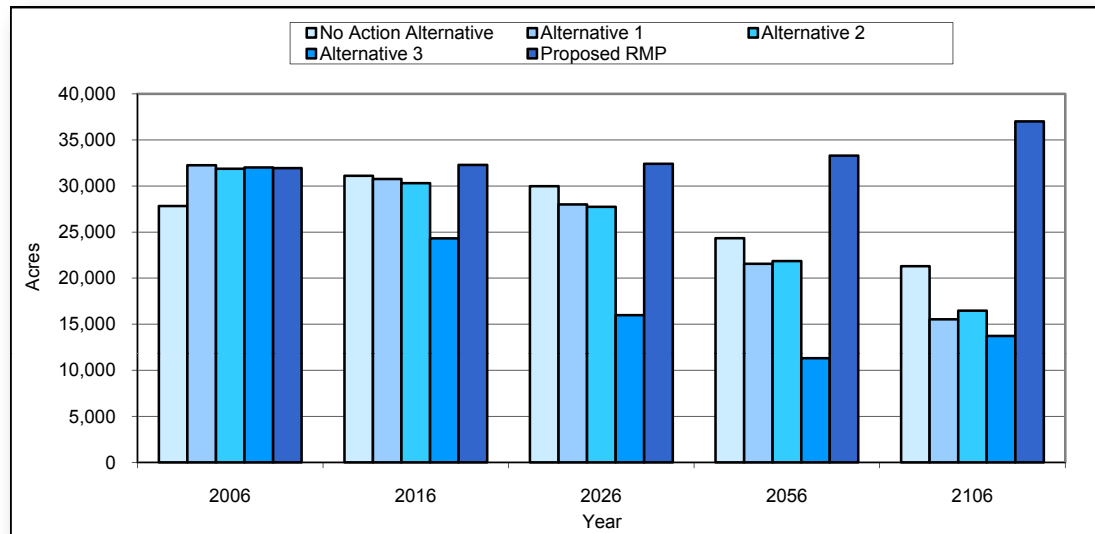
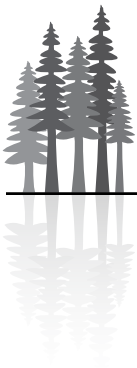


FIGURE 4-105. CHANGES BY ALTERNATIVE IN DEVELOPMENT OF NORTHERN SPOTTED OWL SUITABLE HABITAT WITH FIRE RESILIENCY IN THE KLAMATH FALLS RESOURCE AREA





Northern Spotted Owl Dispersal Habitat

By 2056, the acreage of fire-resilient dispersal habitat in the Medford District would increase under the No Action Alternative and the PRMP, and decrease under Alternatives 1, 2, and 3 (Table 4-57). The acreage of fire-resilient suitable habitat in the Klamath Falls Resource Area would increase under the PRMP and decrease under all other alternatives (Table 4-58).

By 2106, the acreage of fire-resilient dispersal habitat would increase in both the Medford District and Klamath Falls Resource Area under the No Action Alternative and the PRMP. The acres of fire-resilient dispersal habitat would decrease in both areas under the other alternatives.

Figures 4-106 and 4-107, respectively, show changes in development of northern spotted owl dispersal habitat, by alternative, with fire resiliency in the Medford District and the Klamath Falls Resource Area.

TABLE 4-57. PERCENT CHANGE BY ALTERNATIVE BETWEEN 2006 AND 2056, AND BETWEEN 2006 AND 2106, IN THE ACRES OF NORTHERN SPOTTED OWL DISPERSAL HABITAT WITH FIRE RESILIENCY IN THE MEDFORD DISTRICT

Alternative	Percent Change 2006 - 2056	Percent Change 2006 -2106
No Action	+ 5	+ 16
Alternative 1	- 10	- 13
Alternative 2	- 16	- 21
Alternative 3	- 11	- 5
PRMP	+ 3	+ 12

TABLE 4-58. PERCENT CHANGE BY ALTERNATIVE BETWEEN 2006 AND 2056, AND BETWEEN 2006 AND 2106, IN THE ACRES OF NORTHERN SPOTTED OWL DISPERSAL HABITAT WITH FIRE RESILIENCY IN THE KLAMATH FALLS RESOURCE AREA

Alternative	Percent Change 2006 - 2056	Percent Change 2006 - 2106
No Action	- 3	+ 6
Alternative 1	- 25	- 49
Alternative 2	- 23	- 47
Alternative 3	- 52	- 60
PRMP	+18	+ 20



FIGURE 4-106. CHANGES BY ALTERNATIVE IN DEVELOPMENT OF NORTHERN SPOTTED OWL DISPERSAL HABITAT WITH FIRE RESILIENCY IN THE MEDFORD DISTRICT

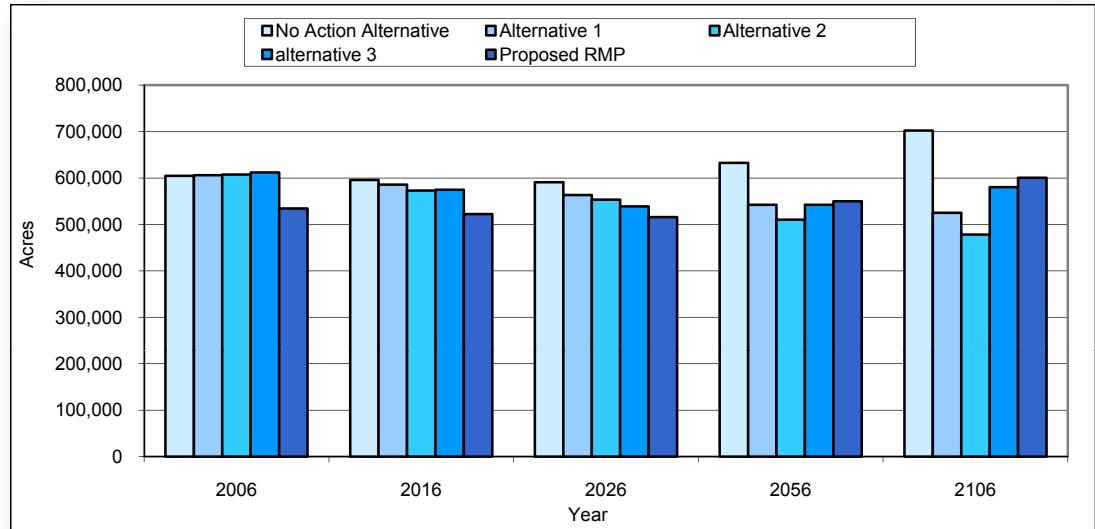
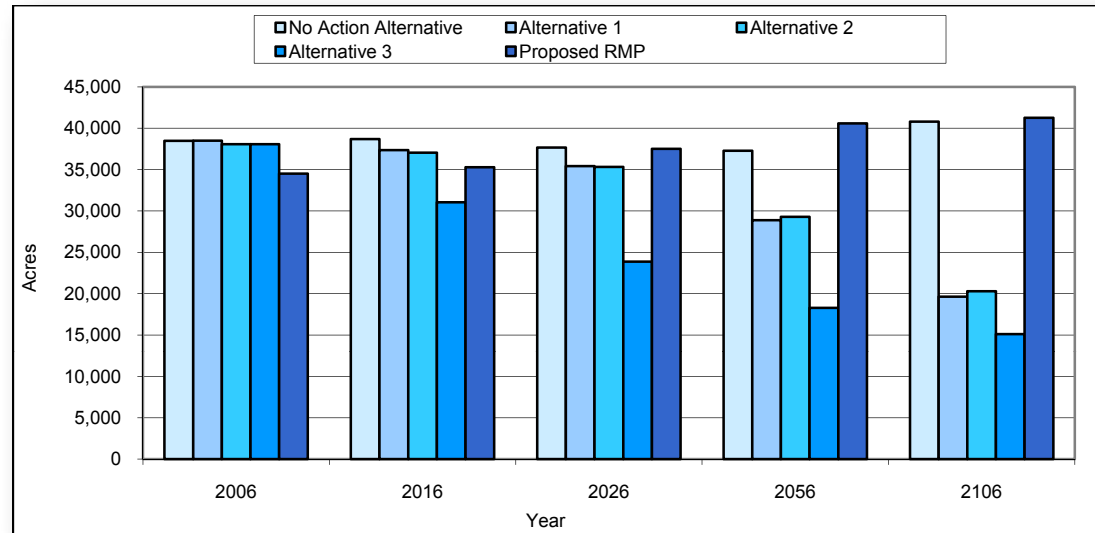
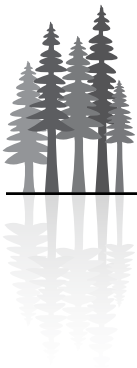


FIGURE 4-107. CHANGES BY ALTERNATIVE IN DEVELOPMENT OF NORTHERN SPOTTED OWL DISPERSAL HABITAT WITH FIRE RESILIENCY IN THE KLAMATH FALLS RESOURCE AREA





Conclusions for Fire Resiliency

On BLM-administered lands, between 2006 and 2056:

- The No Action Alternative would contribute to Conservation Need 3, because the total acreage of spotted owl suitable and dispersal habitats with fire resiliency would increase (even though the acres of suitable and dispersal habitat with fire resiliency would decrease in the Klamath Falls Resource Area).
- Alternatives 1, 2 and 3 would not contribute to Conservation Need 3, because the acreage of spotted owl suitable and dispersal habitats with fire resiliency would decrease.
- The PRMP would contribute to Conservation Need 3, because the acreage of spotted owl suitable and dispersal habitats with fire resiliency would increase.

CONSERVATION NEED 4

In areas of significant population decline, the application of the full range of survival and recovery options for this species in light of significant uncertainty

As discussed in *Chapter 3* (see *Northern Spotted Owl*), northern spotted owl populations appear to be affected by influences that both are habitat-related (e.g., timber harvest and wildfire) and not directly related to habitat (e.g., competition from barred owls and West Nile virus). Since scientists currently cannot separate the effects of these influences on spotted owl populations, the BLM has no credible means to evaluate how the alternatives (which would affect primarily habitat) alone would affect those populations. Instead, this analysis examines how the alternatives would affect: (1) the estimated number of functional northern spotted owl nest territories on all land ownerships, and (2) the number of known and predicted spotted owl sites on BLM-administered lands in the nonharvest land base.

- A functional nest territory contains the type, quantity, and spatial arrangement of habitat needed to support a nesting spotted owl pair, whether or not that habitat actually is occupied by nesting spotted owls. As described in *Chapter 3* (see *Northern Spotted Owl*), the number of functional territories is a measure of the habitat contained within large and small habitat blocks and is estimated using the formula developed by Thomas et al. (1990:198).
- The acreage allocated to the nonharvest land base varies by alternative. The number of known and predicted spotted owl sites that currently exist that would be located in the nonharvest land base under each alternative reflects those spotted owl sites that would be supported by habitat conditions that would persist and improve over time under each alternative.

This analysis cannot predict how the northern spotted owl population would respond numerically to the alternatives. However, in light of the myriad of influences that appear to affect northern spotted owl populations, this analysis provides an indication of how spotted owls would respond to the alternatives, to the extent that their response would be a function of the number of functional nest territories and the portion of existing spotted owl sites that would be in the nonharvest land base.

Map 3-4 and *Figures 4-82 - 4-87* show how large and small blocks of northern spotted owl suitable habitat, on all land ownerships, would change over time under each alternative. *Figure 4-108* shows how the number of functional northern spotted owl nest territories that would occur within these habitat blocks would change by alternative.

Between 2006 and 2026, the number of functional nest territories would increase from current conditions under the No Action Alternative and Alternative 1: 6% under the No Action Alternative and 1% under Alternative 1. During this same period, the number of functional nest territories would decrease from current conditions under Alternatives 2 and 3 and the PRMP: -8% under Alternative 2, -4% under



Alternative 3, and –3% under the PRMP. By 2056, the number of functional nest territories would increase under all alternatives: 89% under the No Action Alternative, 77% under Alternative 1, 64% under Alternative 2, 71% under Alternative 3 and 76% under the PRMP.

The numbers of known and predicted northern spotted owl sites in the nonharvest land base, under each alternative, are shown in *Table 4-59*. At least 40% of known and predicted spotted owl sites would persist under the No Action Alternative and Alternative 1; 37% under the PRMP; 27% under Alternative 2, and 6% under Alternative 3.

FIGURE 4-108. CHANGES IN THE ESTIMATED NUMBER OF FUNCTIONAL NORTHERN SPOTTED OWL NEST TERRITORIES THAT WOULD OCCUR ON ALL LAND OWNERSHIPS UNDER EACH ALTERNATIVE AND ACCORDING TO THE NO HARVEST REFERENCE ANALYSIS (Note: Data for 2036 and 2046 are not included for the No Action Alternative or Alternatives 1 and 3.)

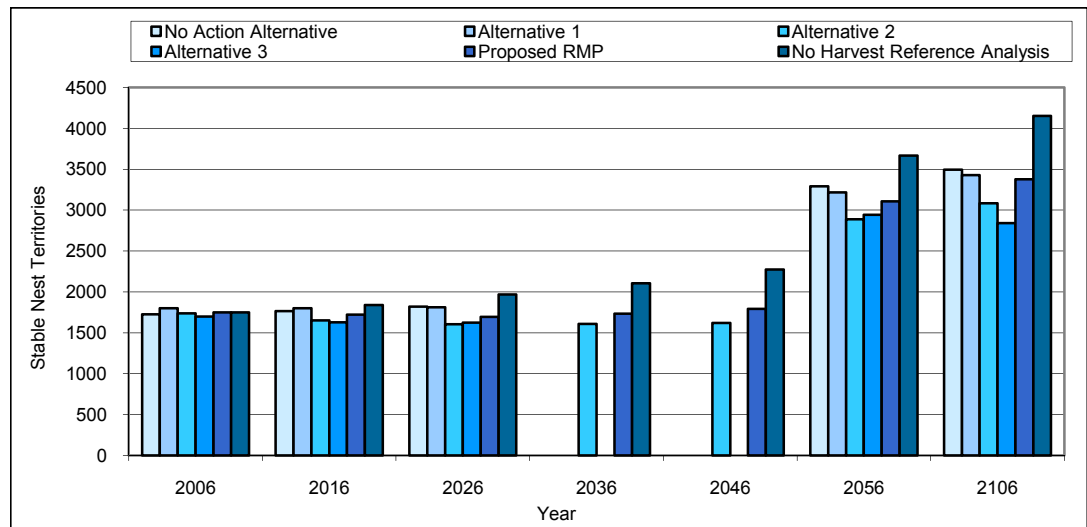


TABLE 4-59. THE NUMBERS OF KNOWN AND PREDICTED NORTHERN SPOTTED OWL SITES ON BLM-ADMINISTERED LANDS IN THE PLANNING AREA THAT CURRENTLY OCCUR IN THE NONHARVEST LAND BASE UNDER EACH ALTERNATIVE.

(Note: Percentages are those portions of the known (1,110) and predicted (196) spotted owl sites that occur on BLM-administered lands in the planning area.)

Alternative	Number (percent) of Known Spotted Owl Activity Sites In the Nonharvest Land Base	Number (percent) of Predicted Spotted Owl Sites In the Nonharvest Land Base
No Action	474 (43%)	44 (22%)
Alternative 1	524 (47%)	45 (23%)
Alternative 2	317 (29%)	42 (21%)
Alternative 3	66 (6%)	18 (9%)
PRMP	442 (40%)	47 (24%)



Effects of the Alternatives on the Barred Owl

The barred owl is a species that is capable of displacing northern spotted owls from their nest territories (Gremel 2005, Anthony et al. 2006 and Forsman et al. 2006). The *Final Recovery Plan for the Northern Spotted Owl* (USFWS2008a:64-66, 107-108) describes the potential threat that the barred owl poses to the northern spotted owl and the difficulties of verifying relationships between barred owl occupancy and habitat management. That discussion is incorporated here by reference. This EIS does not conduct a detailed analysis of the effects of the alternatives on the barred owl, because the current knowledge of the barred owl, and of how barred owls and northern spotted owls interact, is insufficient to design habitat management practices that control or lessen the potential effect of the barred owl on spotted owl conservation. Because of this, the BLM has no credible means to evaluate how the alternatives would influence the potential effect of the barred owl on spotted owl conservation.

Although barred owl occupancy might pose a risk to the conservation of the northern spotted owl, the level of that risk has yet to be determined scientifically. Since land use allocations and habitat management practices cannot be designed to control the barred owl given current scientific knowledge, other practices, such as the physical removal of barred owls from northern spotted owl habitat, currently are being evaluated (USFWS 2008a). The BLM does not have authority on its own to physically remove barred owls. The BLM, however, would be able to cooperate in a program of the U.S. Fish and Wildlife Service and the State of Oregon. The alternatives neither preclude nor anticipate the implementation of such a program.

A strategy to address the potential barred owl risk is contained in the *Final Recovery Plan for the Northern Spotted Owl* (USFWS 2008a). One of those conservation strategies has been incorporated into the PRMP. The Recovery Plan recommended that substantially all the high quality suitable habitat outside the managed owl core areas be retained for 10 years to provide refugia areas for spotted owls that may be dispersing from the core areas due to barred owls. The 10-year period is intended to allow the time necessary for the U.S. Fish and Wildlife Service to complete research on methodologies to control the barred owl incursion. In response to this recommendation, the PRMP identified such high quality spotted owl habitat in the timber harvest base on which it would defer regeneration harvest until after the year 2023. The BLM will continue to cooperate with, and assist, the U.S. Fish and Wildlife Service in implementing that strategy.

Human Disturbance

Disturbances associated with a variety of land use actions can negatively affect northern spotted owls. Such disturbances would be most likely to include: elevated (above ambient¹¹) levels of noise in occupied nesting habitat during breeding periods (e.g., from the use of chainsaws or the felling and yarding of trees in adjacent stands); increased human intrusions into occupied habitat; and mechanical shaking of occupied trees (e.g., by the rotor-wash of hovering helicopters, or the movement of yarding cables). Such disturbances are more likely to disrupt normal behavior in a manner that would affect individual spotted owls when the disturbances occur during the breeding period and in proximity to an active nest (USFWS 2003 and 2007b). Examples of disrupted behavior include abandonment of a nest or territory, interrupted foraging, and delayed feeding of the young.

Normally, potential disruptions are of short duration (i.e., hours or days during a single breeding period), and they commonly are substantially reduced or completely eliminated during project planning by the application of protection measures (e.g., timing restrictions). For these reasons, the effects of disturbances on northern spotted owls generally are considered to be less significant than the effects of habitat loss (USFWS 2003).

¹¹In this context, ambient refers to the level of pre-project disturbance. For example, log hauling along a road that normally receives substantial use by the public probably would not cause disturbances that exceed the ambient level. However, that same hauling along a road that receives no or infrequent public use might cause disturbances that exceed the ambient level because resident owls are less habituated to those disturbances. Determinations of whether disturbances would affect northern spotted owls can only be made by examining individual projects.



The potential effects to spotted owl populations from disturbances associated with the alternatives are not evaluated here because: (1) all of the alternatives restrict activities that require a BLM permit and could disrupt normal behaviors during the breeding period, and (2) the application of those restrictions, and the potential effects of proposed site-specific disturbances, are more accurately evaluated during project planning and, when affects are anticipated, associated Section 7 consultation with the U.S. Fish and Wildlife Service.

There would be no substantive disturbance effects from BLM management activities to known nesting northern spotted owls under any of the alternatives because, under all alternatives, the BLM would restrict activities that would disrupt nesting northern spotted owls, including, if necessary, the casual uses of BLM facilities. The BLM normally does not control most casual use of BLM-administered lands and facilities (i.e., lawful activities that do not require a BLM permit), such as recreational activities, because they tend to be dispersed and rarely cause more than temporary effects to individual northern spotted owls.