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"STEWARDSHIP IN FORESTRY"

To: Mike Totey, Acting State Forests Division Chief
Dave Lorenz, Southwest Oregon Area Director

From: Peter Daugherty, State Forester

Date: April 24, 2017

Subject: Approval of Modifications to Western Lane District's Implementation Plan and Forest Land Management Classifications.

This letter conveys direction related to the Implementation Plan (IP) and Forest Land Management Classifications (FLMC) for approximately 25,250 acres of state-owned forest lands in Western Lane district. Since the approval of the initial IP for Western Lane district in 2003, changes have occurred to the Northwest Forest Management Plan (FMP) and local conditions on the district that necessitate updating the IP and corresponding FLMC maps.

The main revisions to this IP include:

1. Implementation of the 2010 FMP, including the Species of Concern Policy;
2. Meeting the requirements of the Safe Harbor Agreement for the Northern Spotted Owl with Oregon Department of Forestry in the Oregon Coast Range Study Area for the Barred Owl Removal Experiment (U.S. Fish and Wildlife Service, March 2016);
3. Increasing contributions to Division financial viability.

The revision process for this IP and corresponding FLMC maps included opportunities for public involvement, including sharing information with the Forest Trust Land Advisory Committee, the State Forest Advisory Committee and a 30-day written public comment period. No written comments were received during the public comment period.

My review of this IP has found it to be consistent with the FMP and the management activities conducted under this plans will be consistent with State Forests Division Operational Policies and strategies. Therefore, I am approving the revised IP and FLMC maps for Western Lane district.

Sincerely,

Peter Daugherty
Oregon State Forester

Western Lane District

Implementation Plan

April 2017

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Introduction

The *Western Lane District Implementation Plan* (IP) guides forest management for all forest resources on the Western Lane district beginning July 1, 2017. This implementation plan is a major revision of the plan approved by the State Forester in March 2003. It is prepared to describe the operations, activities and projects that will achieve the intent of the long-range vision of the April 2010 *Northwest Oregon State Forests Management Plan* (FMP).

The 2010 FMP revision increased the forests' ability to contribute to local economies while also developing older forest conditions on 30 to 50 percent of the landscape. This reduced the long-term goal for developing older forest types from the previous 40 to 60 percent of the landscape.

Additionally, the 2010 FMP revision replaced the draft Habitat Conservation Plan (HCP) with Species of Concern (SOC) strategies. SOC are fish and wildlife species that are identified as being at risk due to declining populations or other factors (e.g. have a limited range). The Division also developed SOC policies. For the Western Lane district, the SOC list includes 37 species identified by the Oregon Department of Fish and Wildlife (ODFW) and the Oregon Department of Forestry (ODF).

The FMP revision plays a large role in the changes from the 2003 IP. This 2017 IP includes a landscape design that designates 37 percent of the district for the development of complex structure over time and is expected to have a timber harvest volume of 12 MMBF annually. This allocation of complex structure development across the landscape is a foundational strategy for Species of Concern. This IP also integrates the Oregon Department of Forestry/U.S. Fish and Wildlife Service (USFWS) September 2016 Safe Harbor Agreement for Northern Spotted Owls[1].

Timber harvest objectives are derived from harvest modeling, which is intended to balance timber harvest with complex structure objectives on the Western Lane land base. More precisely, a model scenario informed the decision to:

1. Increase the timber harvest volume in the short-term (known as a "departure" from even flow) and maintain a non-declining, even flow of timber harvest in the long-term.
2. Increase the estimated complex structure over the short-term and maintain the habitat target for complex structure within the range defined in the FMP over the long-term.

There are additional details of the harvest level in the Proposed Management Activities section.

[1] *Safe Harbor Agreement for the Northern Spotted Owl with Oregon Department of Forestry in the Oregon Coast Range Study Area for the Barred Owl Removal Experiment* (U.S. Fish and Wildlife Service September 2016).

In summary, this implementation plan was developed to:

1. Implement the 2010 Forest Management Plan, including the Species of Concern Policy;
2. Meet the requirements of the Safe Harbor Agreement;
3. Develop an operationally feasible harvest level;
4. Contribute to Division financial viability.

In addition, the management activities conducted under this plan will be consistent with the management strategies in the FMP and State Forests Operational Policies.

The specific operations and management activities necessary to carry out this IP will be described in annual plans, beginning with the *2018 Western Lane Annual Operations Plan (*AOP*).*

District Overview

Land Ownership/History

The Western Lane district manages approximately 25,256 acres of forest in Lane County. The majority of the land managed by the district is located in the western portion of the county between the Willamette Valley and the Siuslaw National Forest. Approximately one percent of the forestland in Lane County is managed by the district, whereas the federal government (U.S. Forest Service and BLM) manages 67 percent and private timberlands 23 percent. See the district overview map in the Map Section.

Approximately 96 percent of the land base that became Oregon state forestland in the Western Lane district was tax-delinquent land that Lane County deeded to the Oregon Board of Forestry beginning in the 1940s. These Board of Forestry Lands are managed to secure the greatest permanent value of state forestlands to the state. OAR 629 Division 35 defines greatest permanent value to mean "healthy, productive, and sustainable forest ecosystems that over time and across the landscape provide a full range of social, economic, and environmental benefits to the people of Oregon."

The remaining four percent of the land base was acquired by the State of Oregon through the Admissions Act at statehood. The Oregon State Constitution directs that Common School Forest Lands shall be managed by the State Land Board "with the object of obtaining the greatest benefit for the people of this state, consistent with the conservation of this resource under sound techniques of land management." (Article VIII, Section 5) These lands are owned by the Oregon Department of State Lands and managed under contract by ODF. In the early 1990s the department began forming larger, more manageable blocks of forestland by exchanging some of the scattered tracts with private industry. The blocks created were in the Tilden Ridge area south of Deadwood and in the Nelson Creek drainage.

Intense fires swept much of western Lane County in the Walton/Nelson Mountain/Blachly area several times in the early 1900s. Afterward, natural reseeding created vast tracts of almost pure Douglas-fir, now 60 to 90 years old, mixed with multi-stemmed bigleaf maple that resprouted from the roots. In the wetter areas, regenerating red alder generally shaded out the conifer seedlings and created mixed, alder-dominated forests.

The fires were less intense in the Tilden Ridge area south of Deadwood, leaving scattered unburned trees and patches. Much of these remaining trees and patches were logged from 1945 to 1955. Since there was considerable ground disturbance, no tree planting, and no attempt to control hardwood competition, the stands grew up to be mixed conifer and hardwoods of various ages.

Table 1. -- Western Lane District Acreage by County and Fund

County	Board of Forestry	Common School	Total
Lane (acres)	24,324	932	25,256
Lane (percent)	96%	4%	100%

Geology and Soils

The geology of the Coast Range portion of the district is sedimentary rock, mostly sandstones and siltstones deposited over igneous rocks of an older seamount terrain. The deposition of these sedimentary rocks began about 50 million years ago. The area has been uplifted and eroded to form the landforms of the present time. The Eastern Lane portion of the district is in the western Cascades. The geologic history of the western Cascades began 40 million years ago with the eruption of a chain of volcanoes just east of the Eocene shoreline. The area tilted and folded during the middle Miocene (about 15 million years ago) followed by outpouring lava. These rocks are mostly basalt and andesitic flows, volcanic breccia, tuff, and lesser amounts of other igneous rocks.

The landforms of the Oregon Coast Range are geologically youthful as a result of ongoing lift and erosion. The high precipitation levels combined with steep slopes results in high erosion rates dominated by mass wasting. Forest landslides that result in debris slides are a dominant naturally occurring geologic process on this landscape and occur in both harvested and unharvested areas.

Topography

The state forestland is rugged and mountainous, with half the forest on slopes greater than 65 percent and two-thirds on slopes greater than 40 percent. In western Lane County, elevations range from 500 to 2,000 feet. In eastern Lane County, state forestlands are on elevations up to 2,600 feet.

Climate

Winters are wet and mild, with little snow most years. State forestlands are no closer than 20 miles to the coast, so summers are warm and dry with only a minor marine influence.

Rainfall has been extremely variable this century. For example, Eugene's annual rainfall in the 1920s was 20 to 30 inches but was more than 100 inches in 1996. On average, Eugene receives 40 to 50 inches, the Coast Range 80 to 100 inches, and the west slope of the Cascades 60 to 80 inches annually.

Water

ODF's Ownership in a Watershed Context. The United States Geological Survey (USGS) has adopted a scheme to classify water resources over the continental United States. This scheme defines a nested series of six levels of "hydrologic units" that range from "region" (21 total in the US) to "sub-watershed" (median 20,000 acres for Western Lane district). Each hydrologic unit is identified by a unique hydrologic unit code (HUC) that ranges from a 2-digit code (the largest area, region) to a 12-digit code (the smallest area, sub-watershed).

Using this scheme, State Forests managed by the Western Lane district are within two sub-regions (6-digit HUCS). The majority of the district (91.3 percent), is within The Northern Oregon Coast sub-region (HUC 171002), which flows towards the coast. This portion of the district occupies approximately 4.6 percent of the Siuslaw sub-basin (HUC 8 – 17100206). In the Siuslaw system, state land management activities can affect the headwaters of major tributaries of Lake Creek, such as Nelson Creek and Greenleaf Creek. State land management can also affect the headwaters of other major streams such as Chickahominy Creek, a tributary of Wildcat Creek, and San Antone Creek, a direct tributary of the Siuslaw.

Approximately 8.7 percent of the Western Lane district is within the Willamette sub-region (170900), flowing into the Willamette River. State Forest Lands are found in three sub-basins (Upper Willamette, Middle Fork Willamette, and McKenzie) but occupy <0.01 percent within each of them.

Currently, the sub-watershed (HUC-12) is the finest resolution defined for Oregon and is a convenient scale to manage aquatic resources. There are a total of 26 sub-watersheds that contain at least one acre of land managed by State Forests, 17 within the Northern Oregon Coast HUC 6 and 9 within the Willamette (Table 2). The total area of these watersheds is around 600,500 acres and the lands managed by State Forests is approximately 4.2 percent.

The checkerboard ownership pattern goes across the HUC 12 boundaries. The influence on protecting the aquatic resources and addressing limiting factors for aquatic species is limited because of the relatively dispersed and discontinuous ownership pattern of BOF and CSFL lands. Of the 26 HUC 12s, 20 contain less than five percent of land managed by State Forests and all Willamette HUCs have less than five percent of ODF lands (Table 2). Only three HUC 12s have greater than 15 percent of ODF lands (Table 2) with a maximum of 30 percent in the Green Creek-Lake Creek HUC (Table 2).

Given ODF's minor ownership in these HUCS, the primary management objective is not to contribute to degradation of water quality such as increased stream temperature, especially in 303D listed streams such as the Siuslaw River, or impose barriers to fish passage through the portions of the streams managed by ODF.

Streams. ODF classifies streams by size, fish presence, and flow regime. Stream sizes are classified by the estimated mean average discharge (small: less than 2 cubic feet per second; medium: between 2 cfs and 10cfs; and large, greater than 10 cfs), presence of fish (fish and non-fish), and flow regime (perennial and seasonal). Stream size is estimated using a hydrologic model (based on annual precipitation and basin area by region), but the determination of upper extent of fish use and perenniality requires field surveys. Those streams where these field surveys have not been conducted are classified as unknown.

There are approximately 223 miles of streams managed in Western Lane (Table 3), with 31 miles (14 percent) of the total streams currently classified as "Fish". In addition, 21 percent of all streams (total length) managed by ODF are classified as "unknown," which require field surveys for fish and /or flow (Table 2). For the streams that have been surveyed, there are 4.6 miles of non-fish-bearing streams for every mile of fish-bearing streams.

Domestic Water Source. The district is aware of five individual domestic water intakes on state land. As timber sale reconnaissance is conducted, foresters will examine the areas for unrecorded intakes and downstream use.

Table 2 -- Area (acreage and percent of HUC area in parentheses) of ODF managed lands within the 6- and 12-digit HUCs for the Western Lane District.

HUC 12 Name	HUC Total Area Acres	ODF and CSFL Acres (percent total)	Non-ODF or CSFL Acres (percent total)
Northern Oregon Coastal HUC 6			
Dogwood Creek-Siuslaw River	20,451	78 (0.38)	20,372 (99.62)
Green Creek-Lake Creek	20,915	6,218 (29.73)	14,697 (70.27)
Greenleaf Creek-Lake Creek	13,665	1,746 (12.78)	11,919 (87.22)
Halfway Creek-Smith River	27,333	.4 (0)	27,333 (100)
Knowles Creek-Siuslaw River	34,229	658 (1.92)	33,570 (98.08)
Lower Deadwood Creek	15,746	523 (3.32)	15,223 (96.68)
Lower Wildcat Creek	20,931	3,125 (14.93)	17,806 (85.07)
Lower Wolf Creek	18,365	566 (3.08)	17,799 (96.92)
North Creek-Siuslaw River	18,685	79 (0.42)	18,606 (99.58)
Siuslaw Falls-Siuslaw River	17,129	120 (0.7)	17,009 (99.3)
South Fork Siuslaw River	16,370	163 (0.99)	16,208 (99.01)
Triangle Lake-Lake Creek	24,552	1,375 (5.6)	23,177 (94.40)
Turner Creek-Siuslaw River	26,313	5,925 (22.52)	20,388 (77.48)

Table 2 -- Area (acreage and percent of HUC area in parentheses) of ODF managed lands within the 6- and 12-digit HUCs for the Western Lane District.

HUC 12 Name	HUC Total Area Acres	ODF and CSFL Acres (percent total)	Non-ODF or CSFL Acres (percent total)
Upper Deadwood Creek	21,856	489 (2.24)	21,366 (97.76)
Upper Wildcat Creek	13,938	1,361 (9.76)	12,577 (90.24)
Upper Wolf Creek	19,541	322 (1.65)	19,219 (98.35)
Whitaker Creek-Siuslaw River	17,815	308 (1.73)	17,507 (98.27)
sub-total	**347,833**	**23,056 (6.63)**	**324,776 (93.37)**
	Willamette HUC 6		
Dexter Reservoir-Middle Fork Willamette River	47,757	330 (0.69)	47,428 (99.31)
Elk Creek	16,891	781 (4.62)	16,110 (95.38)
Fern Ridge Lake-Long Tom River	42,172	361 (0.86)	41,811 (99.14)
Headwaters Long Tom River	20,585	304 (1.48)	20,281 (98.52)
Lower Blue River	12,792	37 (0.29)	12,755 (99.71)
Lower Coyote Creek	38,315	18 (0.05)	38,297 (99.95)
Spencer Creek	21,268	1 (0)	21,266 (100)
Upper Coyote Creek	21,504	41 (0.19)	21,463 (99.81)
Winberry Creek	31,455	332 (1.05)	31,123 (98.95)
sub-total	**252,739**	**2,205 (0.87)**	**250,534 (99.13)**
Total	**600,572**	**25,261 (4.21)**	**575,311 (95.79)**

Table 3 -- Stream length (miles) by stream size and fish presence, for all streams managed by ODF Western Lane District.

Stream Size	Fish	Non-fish	Unknown[1]	Total
Large	7.5 (3.4)	0 (0)	0 (0)	7.5 (3.4)
Medium	9.6 (4.3)	1.1 (0.5)	0.8 (0.4)	11.5 (5.2)
Small	14.3 (6.4)	143.6 (64.5)	46.0 (20.6)	203.8 (91.5)
Total	**31.3 (14.1)**	**144.7 (64.9)**	**46.8 (21)**	**222.8 (100)**

[1] The majority of unknown streams are small and require field surveys for the upper extent of fish distribution and upper extent of perenniality.

Biological Elements

Through this section "Landscape Design" (LD) and "Structure Based Management" (SBM) are referred to periodically. These concepts are essential tools necessary to provide for the biological outputs described in this section. LD and SBM are described later in this document.

Plants

The District Plant List (Table 4) includes endangered, threatened, candidate, and special concern plants that are, or have the potential to be found, on the district. This list is an expanded version of the list found in the *Northwest Oregon State Forests Management Plan* (pg 2-62*)*. There are no known occurrences of these species on state forest lands on this district, but each has habitat requirements that may occur on these lands.

Table 4 -- Western Lane District Endangered, Threatened or Candidate Plant Species[2]

Genus	Species	Common name[1]	Status	Potential to be present
Threatened and Endangered Plants				
Eucephalus	*vialis*	Wayside aster	ST	✓
Castilleja	*levisecta*	Golden Indian- paintbrush	SE, FT	✓
Lomatium	*bradshawii*	Bradshaw's Lomatium	SE, FE	✓
Erigeron	*decumbens*	Willamette daisy	SE, FE	✓
Lupinus	*oreganus*	**Kincaids lupine**	ST, FT	✓
Candidate Plants				
Horkelia	*congesta*	Shaggy horkelia	SC	✓
Cimicifuga	*elata*	Tall bugbane	SC	✓
Montia	*howellii*	Howell's montia	SC	✓

[1]Plant names in bold are on the NW FMP list of plants.
[2] Data Source: Oregon Natural Heritage Data and Oregon Biodiversity Information Center Database – 2016

Status:
SE – State Endangered
ST – State Threatened
SC – State Candidate
FE – Federal Endangered
FT – Federal Threatened

Fish

The streams, rivers, lakes, and other water bodies on the Western Lane district provide habitat for a variety of fish and amphibian species. Around 30 aquatic species use habitats in or downstream of the plan area for part or all of their life history. Fish assemblages in the Northern Oregon Coastal sub-basin are less diverse than in streams flowing to the Willamette sub-basin. Native salmonid species for the coastal streams include chinook, coho, and steelhead. Of the native salmonid species located on the district, only the coastal coho population is listed as Federally Threatened. Other important species include cutthroat trout, sculpins, and lampreys. Streams associated with state forestland flowing to the Willamette may have up to 20 fish species in the larger rivers. These species include the species listed above plus dace, suckers, and an assortment of exotic species.

ODF State Forests Division has adopted strong conservation strategies to restore, protect, and enhance habitats for aquatic species in streams, lakes, and wetlands. For example, riparian buffers applied to fish-bearing streams have been found to provide a long term supply of wood to streams and sufficient shade to protect stream temperature. In addition, State Forests' riparian management includes protective measures for small non-fish streams (perennial and seasonal flow) that have the potential to supply wood and gravel to fish-bearing streams. Protection measures for fish habitat are described in the Aquatic and riparian strategies in the *Northwest Oregon State Forests Management Plan (2010)* and *State Forests Species of Concern Operational Policy (2012).* These measures also provide additional protection to amphibian habitats that occur in the headwater streams.

Wildlife

The Western Lane district provides habitats for most native species found in forests in the Oregon Coast Range (Johnson and O'Neil 2001). Appendix E of the FMP contains lists of native fish and wildlife species that are currently known, or are likely, to exist within the area covered by the FMP. The Oregon Conservation Strategy (ODFW 2016) provides a list of species of concern for each georegion of the state. Many of the species listed as "Conservation Species" for the Coast Range georegion are likely to be present on the Western Lane district. In addition, many game and furbearer species occur on the district. Some of the most common game species are black-tailed deer, Roosevelt elk, black bear, ruffed grouse and mountain quail. Also common are beavers, mountain beavers, cougars, bobcats and coyotes.

Of the many wildlife species found on the Western Lane district, northern spotted owls and marbled murrelets are listed as threatened under both the federal and state Endangered Species Acts. The northern spotted owl was listed as threatened by the USFWS in 1990. The Western Lane district has conducted a northern spotted owl survey program since 1990. Currently, there are three known spotted owl sites on the district state forestland classified as "pair status". There are 44 additional known spotted owl sites near state forest lands that affect management practices on the district. Protection measures for the northern spotted owl are described in *State Forests Bulletin 17-02, Northern Spotted Owl Policies for Western*

Lane District Lands within the Safe Harbor Agreement Area (2016) and the *State Forest Division Operational Policies for Northern Spotted Owls 1.2 (2013).*

The marbled murrelet was listed as threatened in 1992 by the U.S. Fish and Wildlife Service (USFWS) within Washington, Oregon, and California. Surveys for marbled murrelets have been conducted since 1992. To date, surveys have resulted in the establishment of 19 Marbled Murrelet Management Areas (MMMAs) on the district, averaging 97 acres in size. Protection measures for marbled murrelets are described in *State Forest Division Operational Policies for Marbled Murrelets 1.1 (2013).*

Species of Concern

During IP development and associated Landscape Design (LD) revisions, the FMP and the Division's Species of Concern policy (2012) requires an SOC assessment. The 2017 Western Lane district SOC list was developed using the Oregon Conservation Strategy (OCS) as a foundation (ODFW 2016). Nearly all fish and wildlife species listed as Strategy Species in the Coast Range were included. The list also includes federal and state candidate, threatened, and endangered species, ODFW sensitive species, resource sites of species addressed by the Forest Practices Act, and federal species of concern that are known or likely to occur on district or in Coast Range habitats of western Lane County (BLM 2015). Existing or historic distribution of each species was evaluated using ODF survey info (where available) and other known occurrence data (e.g. Oregon Biodiversity Information Center [ORBIC] 2014). The list was then reviewed by ODFW staff during the summer and fall of 2016 and their comments and suggestions were incorporated into the final proposed list.

Through this process, a total of 37 species of concern were identified for Western Lane district including thirteen bird, ten mammal, six amphibian, two reptile, and seven fish species (Table 5). Most species listed are OCS Strategy Species, but five are also federally-listed threatened species, one is a candidate species under the federal Endangered Species Act (ESA), and four are protected under the Oregon Forest Practices Act.

SOC Strategies

ODF's NW Forest Management Plan establishes a set of integrated strategies that are the basis for managing the forest landscape as a whole, and include several strategies designed to maintain, protect, enhance or restore habitat for native fish and wildlife, including some SOC. The FMP also notes that in some districts, additional tools such as site-specific plans or anchor habitats may be appropriate to address SOC needs. The FMP and SOC policy direct a district level assessment of SOC needs to determine the appropriate tools for SOC on a particular district.

As part of the district IP development, a coarse evaluation was conducted, using the Western Lane SOC list, to assess limiting factors and the degree to which habitat needs for each species are adequately addressed by the coarse-filter strategies under the FMP or whether additional fine-filter strategies are appropriate. Information regarding limiting factors and habitat needs was taken directly from ODFW's Oregon Conservation Strategy (OCS) for

most species. For species not addressed in the OCS, general habitat needs were described based on available research and monitoring. The results of the assessment and development of SOC strategies for Western Lane district are presented in Appendix B. In summary, the SOC strategies for Western Lane district include the coarse filter FMP strategies and the application of some "fine filter" strategies through site specific plans, or modified practices. The SOC strategies for the Western Lane district are:

- Structure –based management: the application of silvicultural tools to attain an array of forest stand structures across the landscape, in a functional arrangement, and the production of stand structural components (e.g. canopy layering, understory development). This approach is driven by the Landscape Management Concepts and Strategies detailed in the Northwest Oregon Forest Management Plan. Landscape Management Concept 1 and related strategies call for active management to produce the desired future array of stand structure types, including set targets for complex forest.
- The application of landscape design principles (Landscape Management Concept and Strategy 2 in the FMP): The landscape design developed for this IP applied landscape design principles to provide a functional arrangement of stand types considering characteristics such as patch size and distribution, fragmentation, corridors, and interior habitat. The result is a landscape design that includes 37 percent of the landscape designated for complex forest structure, and designates and blocks up more existing mature and old or complex stands than the 2003 IP. See additional information in the "Landscape Design Overview" section of the IP.
- Snags, green trees, and downed wood: Landscape Management Concept 3, and related strategies, call for active forest management for retention and development of key structural components such as snags, green trees, and downed wood, and the application of FMP targets for these components at landscape scales.
- Riparian and aquatic strategies: the application of RMA standards (Appendix J of the FMP) as well as upslope components such as roads and slope stability strategies. Stream restoration projects will be undertaken as resources allow, and focus on high priority areas.
- Site-specific plans, or modified practices: In addition to the above "coarse filter" strategies, some species may need additional "fine filter strategies." If and when these species are identified on the district, this will be accomplished through the development of site-specific plans. Fine filter strategies in site plans, or otherwise recommended for consideration, may include modified harvest prescriptions or practices, seasonal restrictions, and buffers and resource site protection.

The results of the SOC assessment concluded that the strategies above will address the SOC species for Western Lane district. No Anchor habitats are proposed to be designated at this time. The scattered tract nature of the district limits the need for, and potential efficacy of, this landscape-scale strategy on state forestlands. Existing habitats occupied by SOCs, the configuration of the landscape design, and the juxtaposition of complex habitat on adjacent federal lands present opportunities for multi-ownership strategies that maintain or enhance habitat at larger landscape scales. Anchor habitats are more appropriate and effective on the

North Coast where ODF-managed lands are consolidated in much larger blocks and dominate portions of the landscape, and on the other scattered districts where the Anchors that were ultimately designated were in watersheds where the state also had greater ownership. ODF-managed lands comprise a relatively small percentage of any given watershed on the Western Lane district (Table 2). Site-specific strategies detailed in site plans, or otherwise incorporated into harvest planning where appropriate (e.g. modified practices), are recommended for approximately half of the species on the district list (Appendix B).

Table 5 -- List of Fish and Wildlife Species of Concern for Western Lane District

#	Species	Regulatory Status
	AMPHIBIANS	
1	Cascades frog	Fsoc, SSV
2	Clouded salamander	SSV
3	Coastal tailed frog	Fsoc, SSV
4	Northern red-legged frog	Fsoc, SSV
5	Southern torrent salamander	Fsoc, SSV
6	Western toad	SSV
	REPTILES	
7	Northern Pacific pond turtle	Fsoc, SSC
8	Western Painted turtle	SSC
	BIRDS	
9	American peregrine falcon	SSV
10	Bald eagle	Fsoc, FPA
11	Band-tailed pigeon	Fsoc, FPA
12	Common nighthawk	SSC
13	Great-blue heron	FPA
14	Lewis' woodpecker	Fsoc, SSC
15	Marbled murrelet	FT, ST
16	Northern goshawk	Fsoc, SSV
17	Northern spotted owl	FT, ST
18	Olive-sided flycatcher	Fsoc, SSV
19	Osprey	FPA
20	Purple martin	Fsoc, SSC
21	Western bluebird	SSV
22	Willow flycatcher	Fsoc, SSV

Table 5 -- List of Fish and Wildlife Species of Concern for Western Lane District

#	Species	Regulatory Status
	MAMMALS	
23	California myotis	SSV
24	Fringed myotis	Fsoc, SSV
25	Hoary Bat	Fsoc, SSV
26	Long-legged myotis	Fsoc, SSV
27	Silver-haired bat	Fsoc, SSV
28	Townsend's big-eared bat	Fsoc, SSC
29	Pacific fisher	Fsoc, SSC
30	Pacific marten	SSV
30	Red tree vole	FC, SSV
31	Ringtail	SSV
	FISH	
32	Coastal Cutthroat, Oregon Coast	Fsoc, SSV
33	Coastal Cutthroat, Willamette (Upper Willamette)	Fsoc, SSV
34	Coho, Coastal	FT, SSV
35	Lamprey, Western Brook	Fsoc, SSV
36	Lamprey, Pacific	Fsoc, SSV
37	Lamprey, River	Fsoc

Regulatory Status:
Fsoc – Federal Species of Concern
FPA – Forest Practices Act
FT – Federal Threatened
SSC – State Sensitive Critical
SSV – State Sensitive Vulnerable
FC – Federal Candidate (Distinct Population Segment Only)

Strategy Species are those identified in The Oregon Conservation Strategy (ODFW, 2016). http://www.oregonconservationstrategy.org/

Safe Harbor Agreement

In September 2016, ODF signed a Safe Harbor Agreement (SHA) with the U.S. Fish and Wildlife Service (USFWS) that incorporates northern spotted owl (NSO) sites across approximately 70 percent of state forestlands in Lane County. The SHA defines NSO sites differently than ODF policies had previously, and identifies “baseline” and “non-baseline sites” using Thiessen polygons versus provincial home range circles. Take avoidance policies apply to baseline sites. Non-baseline sites and un-designated areas define where incidental take of NSOs is authorized under an Enhancement of Survival permit associated

with USFWS-funded barred owl removal activities. ODF will be authorized incidental take of spotted owls through this permit as part of otherwise lawful forest management activities associated with these sites. This permit is valid until August 31, 2025. This change in the status and management of some NSO sites requires an assessment of the current LD, and re-alignment of stands that are designated DFC-Complex and harvest opportunities elsewhere. This is to ensure alignment both with the terms of the SHA and the short- and long-term goals of the FMP.

Landscape Design Overview

The FMP requires forest management to attain 15-25 percent each of Layered and Older Forest Structure stands, for a total of 30-50 percent of the landscape to become "complex structure" (the combination of layered and OFS stands). A desired future condition map is in the Map Section. The landscape design process was a collaborative effort between the district, resource specialists and ODFW biologists. The district intends to achieve the desired future condition of 37 percent complex stands on the district by designating areas for older forest structure (OFS) and layered (LYR) stand structures across the landscape, ensuring a variety of forest patch sizes and dispersal habitat for wildlife. The overall design includes habitats for species on the District's SOC list, and also include habitats necessary for those species needing more open conditions. The development of the Desired Future Condition Complex (DFCC) and the desired future condition stand structures is a long-term process.

The broader landscape design considerations applied consisted of the following:

- The distribution of habitats for native wildlife;
- The range of habitat patch sizes provided;
- Provision of interior habitat areas for species of concern;
- Unique, rare, or sensitive habitats and associated species;
- Connectivity across the landscape including habitats on adjacent federal lands.
- Operational feasibility of active management;
- Current stand age and structure.

The contribution that each selected stand provided to the overall distribution of habitats, and to patch sizes, interior habitat, and connectivity was considered, as well as known or suspected potential to harbor SOCs. Identification and protection of key habitat areas (occupied, suitable, or important for larger landscape connectivity) for SOCs will help maintain existing populations and allow for colonization of new habitat as it develops over the longer term. This landscape design is a foundational strategy for species of concern.

In addition to the development of complex structure, corridors of the more complex stand structure types will be provided along streams. These corridors can provide some connectivity between the complex stands within basins, especially when combined with adjacent federal land.

For the next 30 to 40 years, areas not designated to be OFS or LYR will provide the pool from which regeneration (REG), closed single canopy (CSC), and understory (UDS) stand structures will be created. These stand structures will be arranged across the rest of the landscape, based on habitat, resources, and logistical and operational needs and constraints.

In the long term these forests are expected to maintain the same general balance of structures over the landscape through time. Therefore, when the desired future condition is achieved, much of the landscape will be a dynamic mosaic of slowly shifting stand types, but with relatively stable quantities of each. This shifting mosaic of forest structures is intended to maintain vigorous timber-producing stands, contribute to the diversity of plant communities and wildlife habitats, and enhance overall biodiversity throughout the forest.

Desired Future Condition Landscape Design

The landscape design map represents the district's current vision of where complex structures will be developed over time. The district will use this map in the planning of harvest operations and the designing of silvicultural prescriptions. Through the course of implementation, however, refinements to the landscape design map are likely to occur due to stand conditions, harvest efficiency and operability concerns, or new information.

The district may identify a site designated for the development of complex structure on the landscape design map that is not currently suitable for the development of complex structure. Examples include: sites that are not suitable for partial cut harvesting; sites that are infected with a root rot and require one or more rotations of alder before complex structure can be developed. In these cases the landscape design may be changed, replacing the less desirable site with a site of comparable acreage that is better suited for the development of complex structure.

Changes to the landscape design will not exceed 240 acres in a year and will be fully described in an Annual Operations Plan. The landscape design map will be fully reviewed with any major revision of the district IP.

Forest Land Management Classification System

Below are tables summarizing the district’s Forest Land Management Classification System (FLMCS). The FLMCS has been implemented in accordance with OAR 629-035-0055 The FLMCS is a method of describing the management emphasis of parcels of state forest land. The management emphasis identifies the extent to which a parcel of land can be managed for a variety of forest resources. It also identifies when a particular forest resource may need a more focused approach in its management, or possibly an exclusive priority in its management.

The framework of the FLMCS places all state forest land within one of four land management classifications. The classifications are: (1) General Stewardship, (2) Focused Stewardship, (3) Special Use Areas, (4) High Value Conservation Areas. Subclasses are assigned for the specific forest resources that require a Focused Stewardship, Special Use Classification, or High Value Conservation Area Classification.

Tables 6 and 7 below show the district's land management classification revision. Table 6 shows the classified acres in each of the four management classes. Table 7 shows the number of subclass acres located in the Focused Stewardship Areas, Special Use Areas, and High Value Conservations Areas. Both tables include overlapping acres.

On General Stewardship lands, all forest resources are actively managed using integrated management strategies, techniques, and practices to meet forest management planning goals. Strategies, techniques, and practices that are used may vary spatially and temporally.

On Focused Stewardship lands, integrated management practices are performed in a manner that is intended to accomplish forest management planning goals, and are compatible over time and across the landscape when actively managed, but for which a forest management plan, habitat conservation plan, or other legal requirement identifies a requirement for one or more of the following for a specific resource: supplemental planning, before conducting management practices, that helps to achieve identified goals for the specific resource; modified management practices that help achieve the identified goals for the specific resource; or, compliance with legal or contractual requirements above those required on lands classified as General Stewardship.

On lands classified as Special Use, a forest management plan, SHA, or other legal requirement identifies one or more of the following: a legal or contractual constraint dominates the management of the lands and precludes the integrated management of all forest resources; lands are committed to a specific use and management activities are limited to those that are compatible with the specific use.

On lands classified as High Value Conservation Areas, a forest management plan, habitat conservation plan, or other legal requirement identifies areas in the landscape that need to be appropriately managed in order to maintain, enhance, or restore important conservation values and one or more of the following: a legal or contractual constraint dominates the management of the lands and directs the management of forest resources; lands are committed to a specific conservation value and management activities are limited to those that are compatible with achieving goals for the specific conservation value.

Change to FLMCS

The district's initial draft of the land classification was completed in 2003 and subject to public comment. A major modification was approved in 2015 to comply with the changes to OAR 629-035-0055. This revision of the Western Lane IP includes an

additional major change to the FLMCS (as described in the OAR) for the district. The following classifications have been updated:

- Research and Monitoring – Areas added to the Special Use subclass due to the Safe Harbor Agreement.
- Wildlife Habitat – Areas have been added to Special Stewardship as the result of new information associated Marbled Murrelet Management Areas and Northern Spotted Owl surveys.

The FLMCS includes some overlapping classifications, defined as areas where two or more classifications occur on the same parcel of land. Overlap may occur within classifications or between classifications. Also, overlapping classifications cause the double counting of acres. As a result, if the acres in Tables 6 and 7 were totaled, the total would be greater than the actual number of acres in the district. Some lands may be Special Use for one reason and Focused Stewardship for another reason.

Table 6 -- Western Lane District Acres, by Stewardship Class and Fund*

Classification	BOF	CSL	Total Acres
Focused Stewardship	27215	207	27421
Special Use	18752	3	18755
High Value Conservation Area	3086	31	3118
General Stewardship	2049	700	2748

Table 7 -- Forest Land Management Classifications for Western Lane District - Focused and Special Subclasses (Acres)

	Focused Stewardship	Special Use	High Value Conservation Area
Administrative Sites	0	4	0
Agriculture, Grazing	0	0	0
Aquatic & Riparian	4961	0	1318
Cultural Resource	0	0	0
Domestic Water Use	4	0	0
Energy & Minerals	1	0	0
Operationally Limited	0	305	0
Plants	0	0	0
Recreation	0	0	0
Research/Monitoring	10	18362	0
Transmission	0	54	0
Visual	108	39	0
Wildlife Habitat	22364	0	1800

* Acres in Table 6 and Table 7 include overlapping classifications.

Management Basins

About 91 percent of the district's state forestland is in the Siuslaw River drainage. The remaining forest is very scattered (no piece greater than 640 acres), with streams flowing into various tributaries of the Willamette River. For planning purposes the entire district is treated as one management basin.

Proposed Management Activities

Forest Stand Types—Current Condition

The current stand condition is displayed in the graphs that follow, and on a map in the Map Section. Figure 1 shows the current stand structure, acreage, and percentage, using the structure-based management definitions for structure types. The stand structure abbreviations are given below.

In order to determine the current condition of the stand structure array on the district, an algorithm in the Stand Level Inventory (SLI) was used. The algorithm uses a variety of stand characteristics such as diameter, heights, trees per acre, density, snags, down wood, and understory vegetation to determine stand structures.

Currently 61 percent of the stands on the Western Lane district have been inventoried. Information for unmeasured stands is generated by imputation. Imputation uses specific information from a single measured stand to represent similar unmeasured stands.

All silvicultural prescriptions will be based on actual field reconnaissance during pre-operational analysis and planning, rather than just SLI data.

Figure 2 shows the current age distribution of the forest, regardless of structure, by percentage of acres.

Abbreviations for Forest Stand Structure Types

REG	Regeneration
CSC	Closed Single Canopy
UDS	Understory
LYR	Layered
OFS	Older Forest Structure
NSC	Non-Silviculturally Capable

Figure 1. Western Lane District Forest Structure 2017

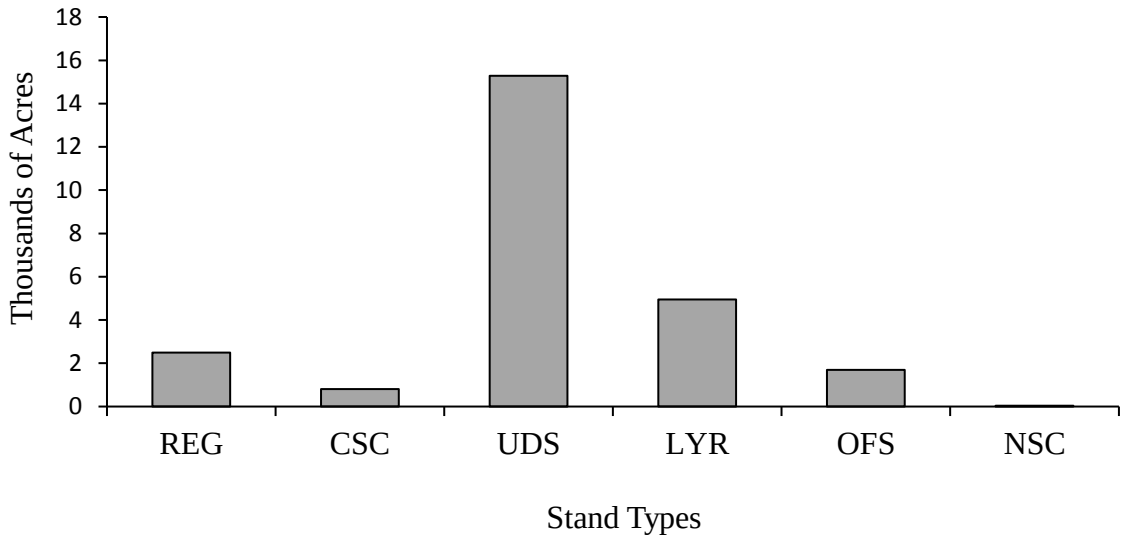
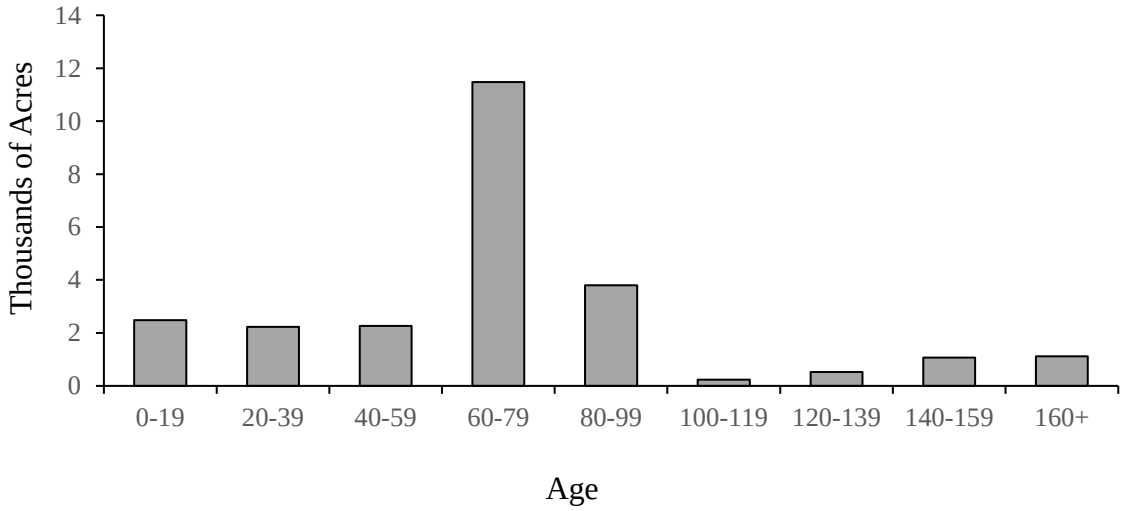


Figure 1. Based on 2017 modeling data.

Note: Non-silviculturally capable (NSC) lands are those areas, greater than 5 acres that are maintained in a permanently non forest condition. The only lands on the district currently in this classification are large power line right-of-ways.

Figure 2. Western Lane District Forest Age Classes 2017



Management Activities in Each Stand Type

This section describes the various management activities and the effects of management for each structure type. Funding for management activities will vary based upon cyclical economic trends. All resource management in the IP is funded through revenues produced from the state forests. Over the long term, it is likely that revenues will support the management activities necessary to meet the FMP and IP goals. However, there may be periods of time when revenues limit investments. For this reason, the following priorities are established in the FMP for conducting activities:

1. Legally or contractually required activities.

2. Minimum activities necessary to achieve the social, economic, and environmental benefits identified in OAR 629-035-0020, including high priority monitoring activities, while emphasizing activities with higher economic return.

3. Fully implement all strategies and monitoring plans.

Due to current economic and budgetary conditions management activities conducted during this IP will likely be at level 2; however planning has occurred to identify opportunities should full implementation of all strategies be possible. Implementation funding levels are determined by revenue projections and the available funding for forest investments. Some of the management activities identified below may not occur at levels 1 or 2. Those activities are identified in the subsequent narrative.

Additionally, at funding levels 1 & 2, harvest activities that generate less revenue due to high logging costs will be reduced or potentially not conducted at all. This could result in less partial cut harvests, which will slow down the pace of developing complex stands in mature stands that are designated as DFC complex. However, regardless of funding level, FMP structural component strategies will be applied during all regeneration harvest activities.

The FMP structural component strategies are fully described in Landscape Management Strategy 3 on page 4-52 to 4-55 of the FMP. Landscape structure outputs include retaining five green trees per acre in regeneration harvest units, two hard snags per acre at least 15 inches in diameter across the landscape, six snags per acre in OFS stands with at least two being 24 inches in diameter; 600-900 cubic feet of conifer logs per acre retained across the landscape in decay class 1 or 2; and in OFS stands retain 600-900 cubic feet per acre in decay class 1 and 2, or 3,000 to 4,500 cubic feet of down logs in all decay classes.

The strategies used to develop snags and down wood will vary according to tree size, age, species, and type of management activity. In first entry commercial thinnings (generally between ages 25 and 40), no prescriptions will be used to develop snags and down wood, as trees this size do not make long-lasting snags or down wood. Some of the trees left in the partial harvest will naturally become snags, due to top breakage. This would also be the case in younger stands harvested early because of Swiss Needle Cast (SNC) infections. In older partial cuts, if pre-harvest stand examinations do not indicate sufficient numbers of snags,

then some trees may be topped or girdled during the operation to become snags. Harvest prescriptions may be modified to provide contributions to landscape level goals for down wood.

In clearcuts, to obtain the objective of two snags and 600 to 900 cubic feet of down wood per acre, pre-harvest estimates and harvest prescriptions must be used to assure these levels are attained. In hardwood stands, it is often difficult to find enough large down wood and snags after the operation. Therefore, these structural elements must often come from conifer trees that are present in the stand.

Regeneration Stands

Management practices will be applied to these young stands in order to quickly re-establish tree cover and maintain tree growth, while providing big game forage and wildlife habitat. These stands have the potential to move through all of the stand structures toward OFS, depending on current and future landscape designs. This strategy includes targets and guidelines for the retention and management of live green trees, snags, downed wood, and numerous other forest structural elements. These structural components in the young plantation will contribute to the proper habitat function of REG stands throughout their growth and development.

Reforestation

Reforestation promptly follows all regeneration harvests and patch-cut harvests as per the Oregon Forest Practice Rules. Site-specific conditions determine species composition, stock type, and stocking levels. A variety of conifer species may be planted during reforestation, with Douglas-fir being the primary species. However, western hemlock and western red cedar will also be planted if the site is appropriate for those species. Red alder is sometimes planted in areas that contain root rot disease that is harmful to conifer species. Tree planting, site preparation, vegetation management, and tree protection activities are important for successful stand establishment and maintenance. Site-specific prescriptions may include, but are not limited to, slash piling, prescribed burning, herbicide treatments, manual release, and tubing (of seedlings to protect them from animal damage).

Pre-commercial Thinning

Pre-commercial thinning (PCT) is an important density management practice in young, dense stands. PCT generally occurs in stands between 13 and 17 years old and removes small or defective trees, in order to provide more water, light, and nutrients to increase the growth of the healthy residual trees. In addition, PCT delays the canopy from closing, thus preserving the growth of herbaceous vegetation required by big game; and provides an opportunity to maintain species diversity in the plantation through tree selection.

PCT is an investment in stand development, and does not generate revenue. The level of PCT investment will likely be limited at FMP implementation levels 1 and 2 and will be considered during annual budget development.

Pruning

No pruning activities will be conducted during implementation levels 1 or 2 during this IP period. Pruning may occur in very isolated locations if the FMP implementation level is changed to a 3.

Closed Single Canopy Stands

Fertilization

No fertilization activities will be conducted during implementation levels 1 or 2 during this IP period. Fertilization may occur in very isolated locations if the FMP implementation level is changed to a 3.

Partial Cut

Past management experience has found that most CSC stands respond well to partial cutting. Not only do the residual trees grow faster, but complex structures and diverse habitats develop more rapidly, with the creation of snags and down wood, and the introduction of a shade-tolerant shrub and conifer understory (such as western hemlock, western red cedar, vine maple). Partial cutting improves forest health by increasing stand vigor and lowering susceptibility to damage from insects, disease, and windthrow, etc. Partial cutting also produces timber, yields revenue, and enhances scenic and wildlife resources.

In planted stands, the first partial cut occurs sometime between age 35 and 45 years. Partial cuts in CSC natural stands will contain a variety of ages, sizes, and stand densities.

Partial cuts in areas not planned to be developed into complex forest conditions will have a silvicultural thinning prescription that reduces stocking enough to increase or maintain individual tree growth. Trees are left evenly spaced over the stand. The goal is to produce high quality, high volume stands at final harvest.

Partial cuts in areas with a DFC of complex will have a silvicultural thinning prescription that is intended to increase or maintain individual tree growth and promote complex forest conditions. Reducing the stocking will encourage larger canopies, diameters, and limbs on the residual trees. In addition, more sunlight will reach the forest floor, which will enhance understory development. The goal here is to put the stands on a pathway towards a complex structure as opposed to producing high value stands for final harvest.

Very little partial cut activities will be conducted in CSC stands during implementation levels 1 or 2. These types of activities can be very important for stand development and will be strongly considered if the FMP implementation level is changed to a 3.

Underplanting/Patch Cutting

In areas with a DFC of complex structure, stands may receive a similar prescription to the one mentioned above, or the stand may be thinned more heavily to allow understory re-

initiation (i.e. establishment of a second layer of trees), either natural or planted. In addition, small patch cuts (from 1-5 acres in size) may be introduced and replanted. Both underplanting and patch cut planting are done with shade tolerant conifer or hardwood. The goal here is to increase diversity and put the stands on a pathway towards a complex structure. Underplanting and patch cutting will occur only on sites well-suited for these activities.

Very little to no underplanting will occur during implementation levels 1 or 2. These types of activities can be very important for putting stands on the pathway towards a complex structure and will be strongly considered if the FMP implementation level is changed to a 3.

Clearcut Harvests

Clearcut harvest in CSC structure will generally be limited to severely overstocked stands, stands with disease issues, environmental damage, or severely infected Swiss Needle Cast (SNC) stands.

SNC is currently not prevalent on the district. However, if stands with moderate to severe infection are discovered they will be evaluated for the best management strategy. Severely affected SNC stands are good candidates for regeneration harvest, as these stands do not respond well to thinning. Many moderately affected stands will also be candidates for regen harvest. See also "Forest Health" Section of IP.

A few clearcuts may also result from the treatment of laminated root rot. These operations will be followed with planting resistant species. Clearcut harvest in severely overstocked CSC stands will be conducted if the stands are determined to be poor candidates for developing layered or older forest structure, where thinning will leave residual trees with poor height-to-diameter ratios, or where the live crown ratios on the residual trees are too low to allow for adequate response to a thinning.

Understory Stands

Partial Cut Harvests

Partial cut harvests in UDS stands are intended to reduce the canopy density, while maintaining and encouraging the development of an understory component or complexity in stands designated as DFC complex. Some of these stands occurred naturally, whereas others are the result of previous partial cut operations. Snags and down woody material may be created during these stand entries dependent on site specific conditions and funding.

Partial cuts in areas not planned to be developed into complex forest conditions will have a silvicultural thinning prescription that reduces stocking enough to increase or maintain individual tree growth. Trees are left evenly spaced over the stand. The goal is to produce high quality, high volume stands at final harvest.

Partial cuts in areas with a DFC of complex will have a silvicultural thinning prescription that is intended to increase or maintain individual tree growth and promoted complex forest

conditions. Reducing the stocking will encourage larger canopies, diameters, and limbs on the residual trees. In addition, more sunlight will reach the forest floor, which will increase the native brush growth in the understory. The goal here is to put the stands on a pathway towards a complex structure as opposed to producing high value stands for final harvest.

Partial cut activities in UDS stands will be limited during implementation levels 1 or 2. These types of activities can be very important for stand development and will be strongly considered if the FMP implementation level is changed to a 3.

Underplanting/Patch cutting

In areas with a DFC of complex, stands may receive a similar prescription to the one mentioned above, or the stand may be thinned heavier to allow the existing understory to continue to grow. If the understory contains mainly brush, an understory of conifer may be planted. In addition, small patch cuts (from 1-5 acres in size) may be introduced and replanted. Both underplanting and patch cut planting are done with shade tolerant conifer or hardwood. The goal here is to increase diversity and put the stands on a pathway towards a complex structure. Underplanting and patch cutting will occur only on sites well suited for these activities.

Very little to no underplanting will occur during implementation levels 1 or 2. These types of activities can be very important for putting stands on the pathway towards a complex structure and will be strongly considered if the FMP implementation level is changed to a 3.

Clearcut Harvest

Most clearcut harvests conducted under this IP will be in understory stands predominately in areas of DFC general. In DFC complex areas, some clearcutting may occur in understory stands that will not easily develop the complexity needed for LYR stands or in cases of disease or severe environmental damage.

UDS stands that are poor candidates to develop into LYR or OFS typically consist of overstory Douglas-fir, with an understory of dense shrub cover such as vine maple, hazel, or salal. Due to the height of the existing tree canopy and the difficulty in establishing seedlings in the thick understory vegetation, it is extremely difficult to develop these stands into LYR and OFS.

Layered Stands

Partial Cut Harvests

Partial cut harvests in LYR stands are intended to reduce the canopy density, while maintaining and encouraging further development of LYR and OFS components such as large overstory trees and understory vegetation layering. Some of these stands occurred naturally, whereas others are the result of previous partial cut operations. Snags and down wood will be created during these stand entries if needed to meet FMP Land Management Strategy 1. Where a LYR stand has the potential of achieving OFS structure, by the addition of a few snags and some down wood, and a commercial harvest operation is not necessary or viable, the district will consider creating these structure components through other means, depending on funding availability.

Partial cut activities in LYR stands will be limited during implementation levels 1 or 2. Increased partial cut activity will be strongly considered if the FMP implementation level is changed to a 3.

Clearcut Harvests

Some stands classified as LYR may be considered for clearcut harvest if they are not in an area designated to become complex structure. Clearcutting will result in a REG stand of vigorously growing trees, with the structure components described in FMP Landscape Management Strategy #3.

Older Forest Structure Stands

There are very few stands of older forest structure on the district. Regeneration harvest will not occur in any of these stands that are mapped as DFC complex unless unforeseen circumstances transpire. However, some stands may be partial cut to improve or maintain their ability to function as OFS stands over time.

Planned Harvesting Activities

This section describes the management activities that will be accomplished during the duration of the Implementation Plan period.

All management activities will be designed consistent with FMP strategies (Chapter 4 in the FMP) for the conservation of resources including those related to slope stability, cultural, scenic resources, and plants.

The Annual Harvest Objective (AHO) in Table 8 identifies the sustainable and predictable production of timber (forest products) from the district, and the harvest activities for the IP period that will be necessary to move toward the desired future condition (FMP page 5-4).

The AHO is determined through the District Opportunity Analysis[2] described in more detail below. The Opportunity Analysis establishes 12 MMBF as the sustainable volume that can be produced to meet the goals of the Northwest Oregon State Forest Management Plan as applied through this IP. The acre ranges for regeneration harvest and partial cut harvest describe the types of harvest activities that will occur over time to achieve the volume objective and desired future condition of stand structures.

There is currently an estimated 795 MMBF of standing wood volume on the district. At the end of this IP period, there will be an approximate total of 787 MMBF of standing wood volume, within one percent of the estimated current standing wood volume. This illustrates that while the district is increasing the annual harvest volume with this IP, the volume being harvested is approximately equal to the total amount of volume being grown on the district during the IP period. Upon the completion of this IP, annual harvest levels are anticipated to drop back to 8 MMBF and the long term standing volume is expected to increase.

The AHOs will be implemented through the district's Annual Operations Plan (AOP). The objective is to achieve the average of the AHO over the expected duration for the IP. Under normal circumstances, the volume proposed in an AOP will be near the AHO target; however, some events may result in an AOP volume that is farther from the AHO target. These events may consist of, but are not limited to, catastrophic windstorm, fire, market conditions, division financial viability, or implementation of the Safe Harbor Agreement (SHA). For example, catastrophic events may lead to emergency salvage operations that result in harvesting above of the AHO, or market conditions preclude meeting AHO targets. Other examples might include meeting the legal requirements set forth in the Safe Harbor Agreement or assuring that the district covers its costs. When unforeseen factors for one district preclude achieving AHO objectives, the State Forester may redirect annual harvest levels to another district. The Annual Operations Plan will describe how the volume relates to the AHO volume identified in the IP.

The acres of regeneration and partial cuts proposed in each AOP will normally be within the ranges identified in Table 9, but the mixture of acres will vary from year to year based on the stands selected for harvest, their current condition, desired future condition, and the silvicultural prescription used to move the stand from its current condition to its future condition. Multiple factors apply to selecting stands for management and prescribing silvicultural prescriptions and their relative importance may change from year to year. Factors that affect these annual decisions include the overall objectives identified in this IP, recent harvest activity in the area, results of threatened and endangered species surveys, condition of the transportation system, current market conditions, division revenue forecasts and the district's ability to cover its share of division costs.

If changed conditions, new information, or different strategies indicate a significant shift in the AHO is necessary; this IP will be revised.

[2] Western Lane IP Supplementary Document District Opportunity Analysis January 2019

The expected average annual timber outputs for the duration of the IP are listed in the following table. Volumes for these estimates are based on historical averages for these types of harvest within the district. (MBF = thousand board feet; MMBF = million board feet.)

Table 8-- Average Annual Partial Cut and Clearcut Harvest Objectives, by Volume and Acres for the Western Lane Implementation Plan

Partial Cut[1,2]		**Clearcut[2]**		**Total**
Acres	**MBF/Acre**	**Acres**	**MBF/Acre**	**MMBF**
0-1000	12	0 – 450	35	12

1. Patch cuts less than five acres will count toward the annual partial cut objective.
2. A variance in annual harvest levels is expected to occur over the duration of the IP. However, the average annual harvest level will be within the ranges identified in this table.

In arriving at estimates of outputs, including timber volume estimates, harvested acres, complex structure projections, and sustainable inventory over time, a harvesting scheduling tool (Patchworks) was used. This tool uses a simulated annealing heuristic to balance multiple objectives. There are three primary inputs to the harvest scheduler: (1) a growth-and-yield model, in this case the Forest Vegetation Simulator (FVS), (2) a detailed spatial representation of the landscape, using thousands of polygons in GIS, and (3) a set of constraints and weighted objectives.

The harvest scheduler used to estimate outputs is limited by the model's inputs, and uncertainty in the inputs should be noted. Initial stand measurements are taken from a stand inventory that inherently has uncertainty for inventory, stand age, etc. From that initial inventory, stands are projected with growth-and-yield curves through FVS, which introduces additional uncertainty. Spatial information is based on current GIS layers, where the largest uncertainty in model runs are in the NSO and marbled murrelet estimates. The model assumes that NSO and marbled murrelets will not move across the landscape and that take-avoidance will be implemented indefinitely. The model also assumes that NSO take avoidance will be different during the SHA than after the SHA expires. For example, during the SHA period NSO sites are subject to specific take avoidance measures focused on Thiessen polygons. Whereas after the agreement, it is assumed that take avoidance will be focused on provincial circles. Complex structure is estimated using a complex structure threshold for Diameter Diversity Index (DDI); complex structure estimates in the model are dependent on where that DDI threshold is set. The measurement is binary, meaning that there is no 'in-between' for a stand; that is, it is either entirely complex structure, or is not complex structure.

In modelled scenarios, the primary competing objectives in the model are (1) timber harvest in the short- and long-term and (2) landscape design in the short-term and complex structure requirement in the long-term.

Some of the other rules followed by the model include:

- Ensure sustainability of both long-term timber harvest and inventory on the landscape by simulating non-declining harvest on the landscape for 150 years.
- No harvest in the landscape design until after the complex structure goals have been approximately reached.
- Take-avoidance rules are implemented across the entire planning horizon. Given the large number of overlapping NSO circles on the district, this rule has a significant effect on timber harvest possibilities.

The harvest levels proposed in this IP will contribute toward the desired future structure targets as outlined in Table 9.

Structure Outputs

The harvest levels proposed in this implementation plan will contribute toward the desired future structure targets as outlined in Table 9.

The path and pace of achieving complex structure will be slowed during implementation levels 1 and 2 and/or if significant salvage harvest operations are required to mitigate a forest health risk. During implementation level 3, partial cutting will be the primary silvicultural stand management activity to advance stands toward the next level of structural complexity. More complex structures will not be achieved immediately following a partial cut. Partial cutting in both younger and older stands will progress CSC and UDS stand structures toward the more complex LYR stand structure. Some younger stands will receive multiple partial cut entries to develop the components of an LYR stand. Some LYR stands may require an additional partial cut entry to hasten the development of OFS characteristics (larger diameter trees, higher snag densities, and greater down wood levels, etc.). For the duration of the IP, stands currently in OFS and designated as DFC complex will be retained to function as complex structure on the landscape.

Table 9 -- Anticipated Stand Structure Development by 2027[1] (Shown in % of district)

	REG	CSC	UDS	LYR[2]	OFS
Current Condition	10	3	60	20	7
After Implementation Plan Period[1]	65 (REG, CSC, UDS Combined)			27	7
Desired Future Condition[2,3]	63 (REG, CSC, UDS Combined)			18	19

1. The percentage for all stand structures do not equal 100% either due to rounding and/or because ~1% of the district is designated as Non-Silviculturally Capable or Non-Forest.
2. The time it takes to develop LYR stands into OFS is highly variable and depends on many factors, including (but not limited to): snag and down wood recruitment; and development of trees greater than 32 inches in diameter.
3. It is anticipated that the district will have 37% complex structure by approximately 2047 (30 years after the start of the IP)

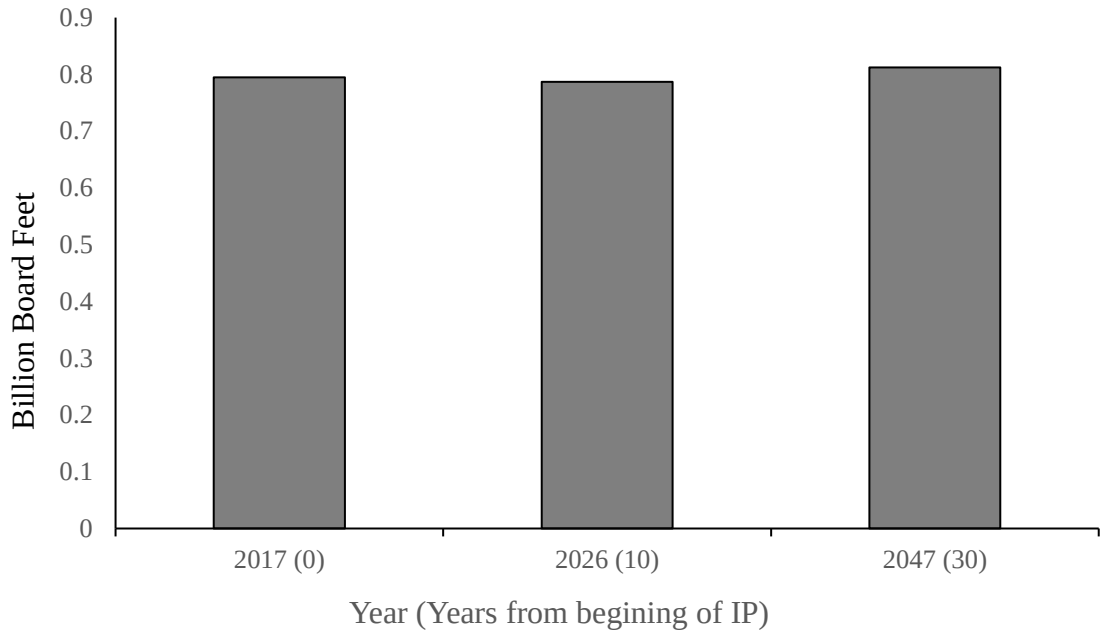
Figure 3 shows the anticipated inventory on the district at the beginning of the IP (July 2017), 10 years after the start of the IP (July 2027), and 30 years after the start of the IP (July 2047). There is little change in the total inventory over the duration of this IP, even with the increase in annual harvest from 8 MMBF per year to 12 MMBF. The increase in standing timber volume over the longer term can be attributed to the current stand characteristics on the landscape:

- **Older stands.** Even with an increased harvest level over the duration of this IP, older stands on the landscape will continue to grow. As seen in Figure 2, the 60 to 79 year age class is the largest age class on the district, comprising nearly half the total area. Over the next 20 years, most of those stands are expected to be in the 80 to 99 year age class.

- **Younger stands.** A significant proportion of the district is composed of young plantations that are rapidly accumulating volume.

This figure shows that the harvest levels are sustainable over the short term. These harvest levels are also sustainable over the long term.

Figure 3. Western Lane District Anticipated Inventory[1]



1. The volume in this chart is based on the outputs of the harvest model used to inform this IP. These figures are estimates intended to demonstrate the volume trend under this implementation plan rather than absolute values. (Source: ODF 2017 modeling data)

Approximately 27 percent of the district‘s stands currently have a complex structure. Some understory stands that have been partial cut in the past will be moving into the layered stand structure during this IP period. Minor amounts of existing layered stands, located outside of the landscape design for complex structure, will be harvested. Overall, the amount of complex stands on the district are expected increase during this IP period.

Roads

Due to the district’s scattered ownership pattern, the primary road network crosses the property of many different landowners. This established road network has been in place for decades and provides access to multiple landowners for forest management activities, fire suppression, and public travel. (Note: these roads are designed and maintained for forest management activities, so the public should use extreme care when traveling these roads). Visions, guiding principles, and goals for managing the road network are discussed in the *Northwest Oregon State Forests Management Plan* (January 2010) and the *Forest Roads Manual* (July 2000). The latter also provides standards and guidance for all road management activities and definitions, road classifications and other terms.

The existing road system consists of collectors and spurs: in total 84 miles of mostly single-lane roads with turnouts. Many of the main roads (collectors) were originally built in the 1940s and 1950s to standards that are not the same as those identified in the 2000 *Forest Roads Manual*. However, most of these roads have been upgraded or vacated and now meet the more recent standards of improved drainage structures, rock surfacing, width, and alignment.

Fish passable structures have been installed on nearly all streams that have been classified as fish streams. There may be a limited number of streams in the upper reaches of drainage basins that have yet to be classified as fish or non-fish where structures may need to be replaced. There are still a few roads that are a legacy from those earlier decades that need improvement, access restriction or vacating.

The following table shows the approximate number of miles by road classification:

Table 10 -- Western Lane District Road System

Road Classification	Miles
Mainline	0
Collector	25
Spur	59
Total Miles	**84**

Although nearly 86 percent of the district’s road miles are surfaced with gravel, not all surfaced roads are suitable for all-weather haul. Surfaced roads not suitable for all-weather haul will be improved as needed for timber sale access.

The district continues to work diligently to reduce forest road risks to water quality and fish habitat. Roadside ditches can be hydrologically connected to the stream network and potentially delivering fine sediment accumulated in the ditches and increase stream discharge during a storm event. The district has disconnected many ditches from streams during the course of road maintenance activities and new culvert installations. New roads and culverts are designed to be disconnected from streams. There are still some disconnect opportunities on district streams with most of these being in the upper reaches of drainages on small, non-fish streams.

Potential Road Activities

To accomplish the district‘s silvicultural objectives, it is estimated that the average road construction distance will be 1.5 miles per year and the average road improvement distance will be 3 miles per year. Road construction and improvement identified in this plan will be primarily achieved through project work connected with timber sales.

Roads will be maintained as necessary to protect water quality and the road system asset value. Road maintenance activities will follow the maintenance guidance in Chapter 7 of the *Forest Roads Manual* and the Forest Practices rules. Road maintenance, like road construction and improvement, is almost entirely accomplished under timber sale contracts. However, road maintenance will not be connected to timber sale contracts when there is emergency work that needs to be completed as soon as possible. Examples of emergency work are mostly attributed to storm damaged where – if nothing is done – damage can occur to protected resources or to road system asset value. During these occasions, the district will contract out road maintenance work.

Road improvement or maintenance activities may not occur as often during funding levels 1 & 2. For example, roads that are not actively used for hauling or are not normally travelled by the public may have waterbars installed in lieu of increasing the aggregate surfacing depth. Another example may include not relocating roads to the top of ridges if they are mid or low on a slope and are not a risk to protected resources or asset value. Additionally, low use roads may receive road side brush management at longer intervals. Regardless of funding level, roads will be maintained and/or improved if that activity is required to meet the *Forest Roads Manual* strategies, the Forest Practice rules, or to protect road system asset value.

No new mainline construction is anticipated during this implementation plan period. Approximately 90 percent of the roads to be constructed will be single spur roads that are within or access timber sale areas. These spurs will be narrow and have lengths between 0.1 miles and 2.0 miles. Collectors that connect these sale areas to the mainline system make up the remaining 10 percent, and in most cases, will access other future timber sales. Many of these same roads will be used for numerous management activities over the next several decades.

Table 11 summarizes proposed road activities on the Western Lane district.

Table 11-- Average Annual Road Activities for the Western Lane District Implementation Plan

Activity	Estimated Average Annual Mileage
New Construction	1.5 miles
Road Improvement	3 miles
Road Vacating	0.1 miles

Exchanging Lands and Maintaining Access

The district will carry out the following activities.

- Continue to pursue land exchange opportunities that are consistent with current Board of Forestry policy to achieve greatest permanent value. Land exchanges are appropriate to consolidate state forest lands, and to acquire lands chiefly valuable for the production of forest crops, watershed protection and development, erosion control, grazing, recreation, or forest administrative purposes.
- Work towards developing a land exchange plan.
- Work towards developing an access easement exchange plan.

Stream Enhancements

The district has cooperated in the past with the Oregon Department of Fish and Wildlife (ODFW) and the Siuslaw Watershed Council on stream enhancement projects involving salmon streams (e.g. Nelson, Cattle, Knapp, and Chickahominy creeks). As part of this cooperation, the district has donated logs and seedlings to the local watershed council for to be used on stream habitat improvement projects not located on district-managed land. In addition, the district has included stream enhancement projects in some timber sales when they are economically, operationally and biologically feasible. The enhancement projects associated with timber sales have all occurred on district-managed land. The district will continue to collaborate with ODFW and watershed councils in regards to stream habitat improvements as funding and resources allow.

Recreation

Recreation on state forest lands in the district is limited due to the scattered ownership pattern and lack of access across private forestlands. However, approximately 60 percent of the district acres are permanently open to public access and dispersed recreation. Recreational use on the district includes occasional hunting, some backroad driving, dispersed camping, and firewood cutting. Very little state land is adjacent to fishable streams and there are no designated hiking trails or campgrounds on the district. Recreational use of state land on the

district is not anticipated to increase to any appreciable extent. This is mostly due to the fragmented ownership pattern, accessibility, lack of suitable sites, and size of the parcels managed by the district. No recreation development is anticipated during this IP period.

Energy and Mineral Resources

Limited amounts of mineral resources (aggregate rock) have been identified in isolated locations on the district to make improvements to transportation systems needed to support forest management operations. The district will assess the amount of and quality of rock present in these locations. If the assessment data indicates sufficient rock, the district will analyze resource protection issues and estimate long-term rock requirements.

No energy resources have been identified on the district.

Cultural Resources

The district will coordinate with tribal nations and will preserve and protect archaeological and cultural resource sites during forest management activities according the ODF Cultural Resources Policy (2016). In addition, the district will classify sites according to Chapter 4 of the FMP. The following points are used during the classification of a cultural site:

- Inventoried cultural resource sites will be evaluated to determine the appropriate protection class (Class I, II, or III).
- Potential operation areas will be checked against the cultural resource site inventory for the district to see if any sites are in or adjacent to the operation area.
- Sites that are within or adjacent to a proposed operation that has the potential to impact the site, and which have not been assessed for class designation, will be evaluated to determine the appropriate cultural resource class.
- Class I sites will be protected according to the legal standards in the applicable laws (At this time the district is not aware of any Class I sites).
- Protection of Class II or III sites will be based on field inspection of the site and consultation with the State Forests Field Operations and Policy Manger or other specialist.

Scenic Resources

State land in the district has very limited scenic value. The western part of the district is bisected by Highways 36 and 126, which are designated as scenic highways. A few hundred acres of state land are visible from the highways. State land is not visible from urban areas and does not provide any important scenic vistas.

The resource analysis section of each AOP will include an evaluation of the potential visual impacts and a description of the landscape and/or stand-level prescriptions that will be applied.

Forest Health

Insects and Disease

Laminated root rot, a native fungal disease, is present in sparse, isolated patches comprising less than five percent of the stands throughout the district. Root rot locations have been identified in the Wolf Creek and Pataha Creek basins. This disease infects several conifer species, but it can be fatal to Douglas-fir and grand fir. Where laminated root rot is suspected the district conducts surveys through coordination with the agency‘s Insect and Disease staff. Where root rot infection areas are identified, the disease susceptible species are removed and the area is reforested with disease resistant species.

Swiss Needle Cast is a native fungal disease of Douglas-fir that had historically caused little damage. In the mid-1980s, the disease began to spread and became more severe. This disease, which causes the premature shedding of needles, has resulted in severe growth reductions in some stands, particularly plantations between 10 and 30 years old. In addition to the growth loss, there is concern that this disease will limit the development of complex forest structures in severely infected stands. Currently, Swiss Needle Cast is very limited on the Western Lane district. It exists primarily in very small patches in the westernmost portions of the district and none of the stands are considered to be severely infected. The district will perform its management in accordance with the “State Forest Strategic Plan for Swiss Needle Cast,” and updates.

At this time the district has no serious insect problems. However, recent drought, ice and wind storms have increased mortality, which could lead to insect infestations. Mortality caused by severe weather patterns will be monitored and salvage operations may occur to reduce the potential of insect infestations. These salvage operations will occur where it is deemed feasible and appropriate by staff.

ODF conducts annual forest health surveys across the entire state and the Western Lane district is covered as part of these surveys. Areas identified as a concern during these surveys will be reviewed and mitigated if economically and operationally feasible. All salvage operations will adhere to the division policies.

Invasive Weeds

Various noxious weed species such as tansy, scotch broom, false brome, knapweed, Himalayan and evergreen blackberry, and thistles are widespread throughout the agricultural and forest areas of Lane County in the district forests, particularly along roads.

Equipment washing to prevent the introduction or spread of invasive species will be required in most timber sale contracts on the district where there is a significant threat from invasive species. In addition, the district will continue to employ an Early Detection and Rapid Response (EDRR) strategy for noxious weeds identified as “A” (highest priority) and “T” (target) on the Oregon State Noxious Weed List. A definition of EEDR and the State Noxious Weed List can be viewed on the Oregon Department of Agriculture Noxious Weed Website - http://www.oregon.gov/ODA/programs/Weeds/Pages/AboutWeeds.aspx

Special Forest Products

The district has very little to no demand from the public for minor forest products such as salal, ferns, mushrooms, moss, boughs, etc. This is due to low population centers near the district's lands, scattered ownership patterns and limited access due to gated private roads.

The district has a low to moderate demand for firewood. The district has offered both personal and commercial firewood cutting permits in the past. It is anticipated that firewood demand will remain the same during this IP period. District firewood opportunities will be evaluated each year and the firewood cutting program will be included in each AOP.

Map Section

Western Lane District Overview

Western Lane District: Current Condition Stand Structure

Western Lane District: Desired Future Condition Stand Structure

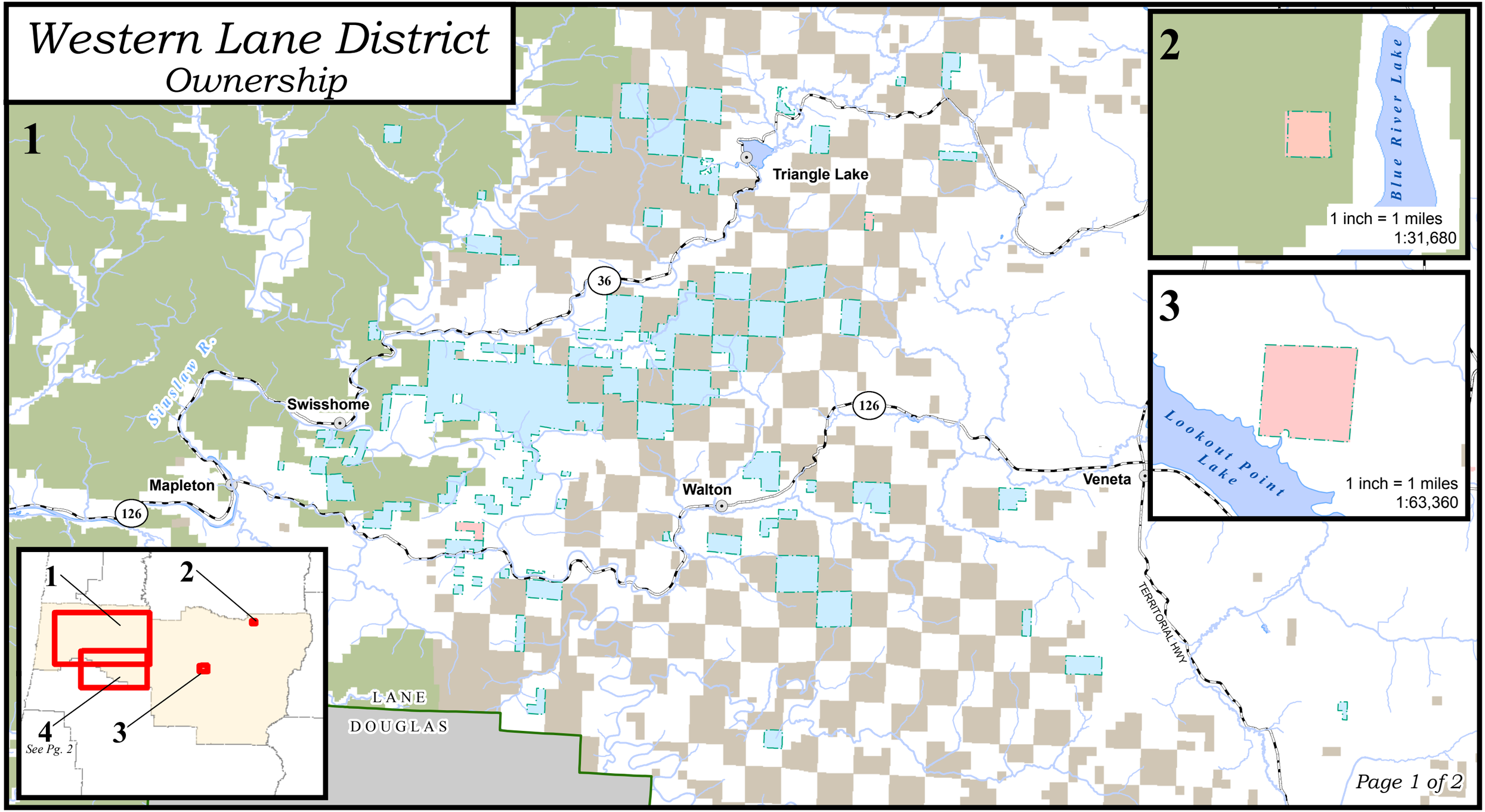
Western Lane District: Forest Land Management Classification – Stewardship Classes

Western Lane District: Forest Land Management Classification – Biological Subclasses

Western Lane District: Forest Land Management Classification – Management Subclasses

Western Lane District: Forest Land Management Classification – Social Subclasses

Western Lane District
Ownership



Board of Forestry Lands
Common School Lands
US Bureau of Land Management
US Forest Service

Roads
Streams, Large
Streams, Medium
Management Basins

Towns
Adjacent District

N

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Western Lane District
Ownership

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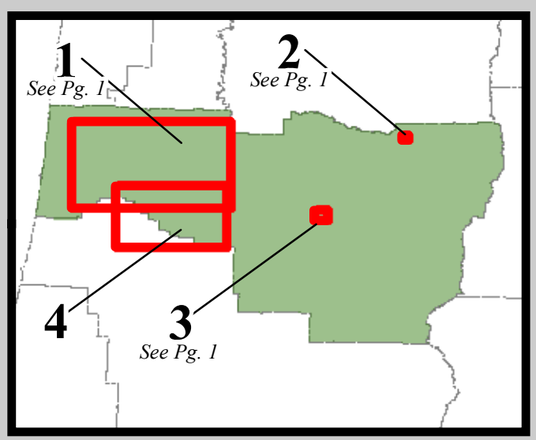

Board of Forestry Lands
Common School Lands
US Bureau of Land Management
US Forest Service

Roads
Streams, Large
Streams, Medium
Management Basins

Towns
Adjacent District

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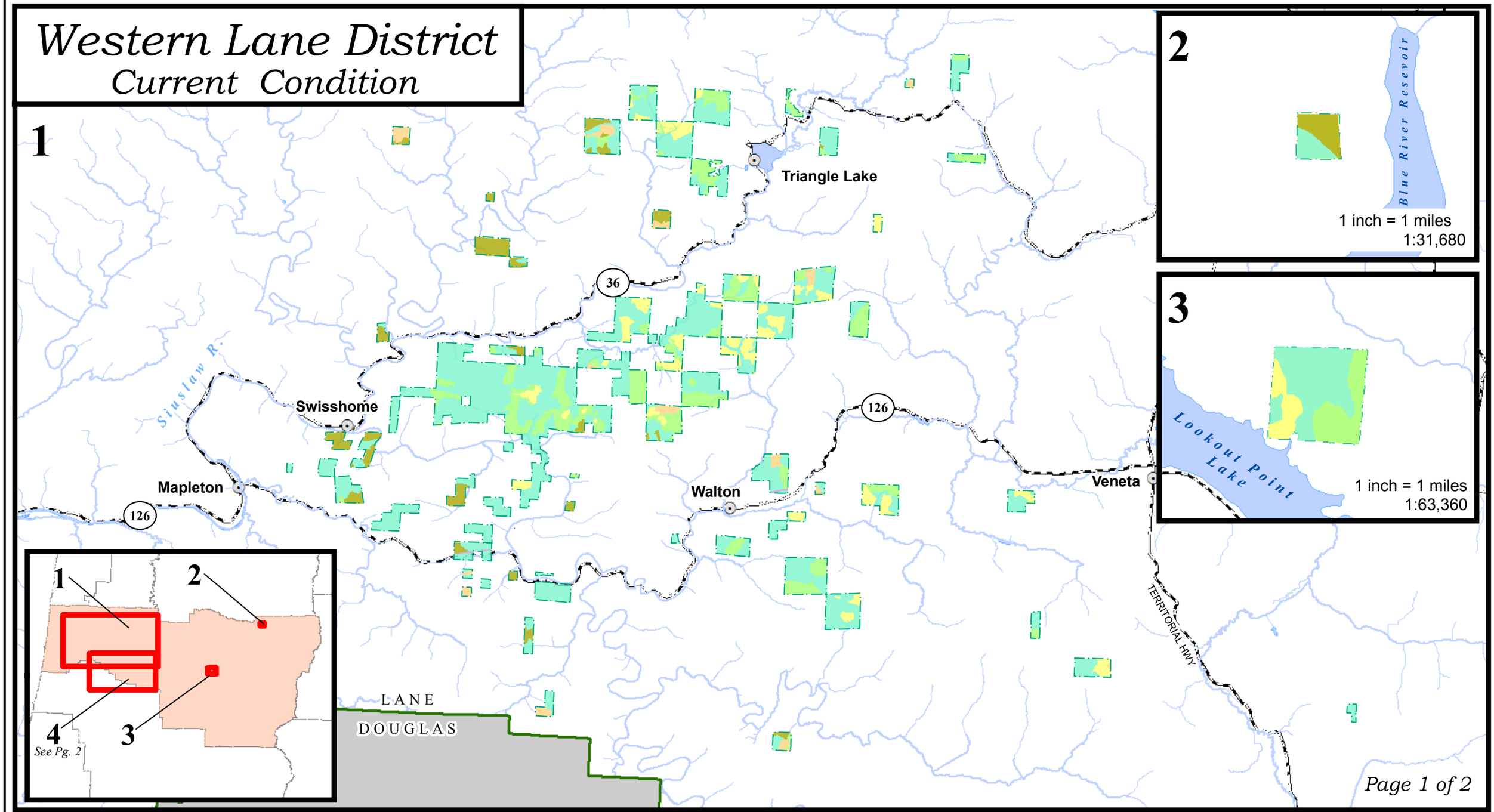
Western Lane District
Current Condition



Stand Structure Type
- Closed Single Canopy
- Layered
- Nonforested
- Older Forest Structure
- Regeneration
- Understory

Roads
- Streams, Large
- Streams, Medium
- Management Basins

Towns
- Adjacent District

N

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Western Lane District
Current Condition

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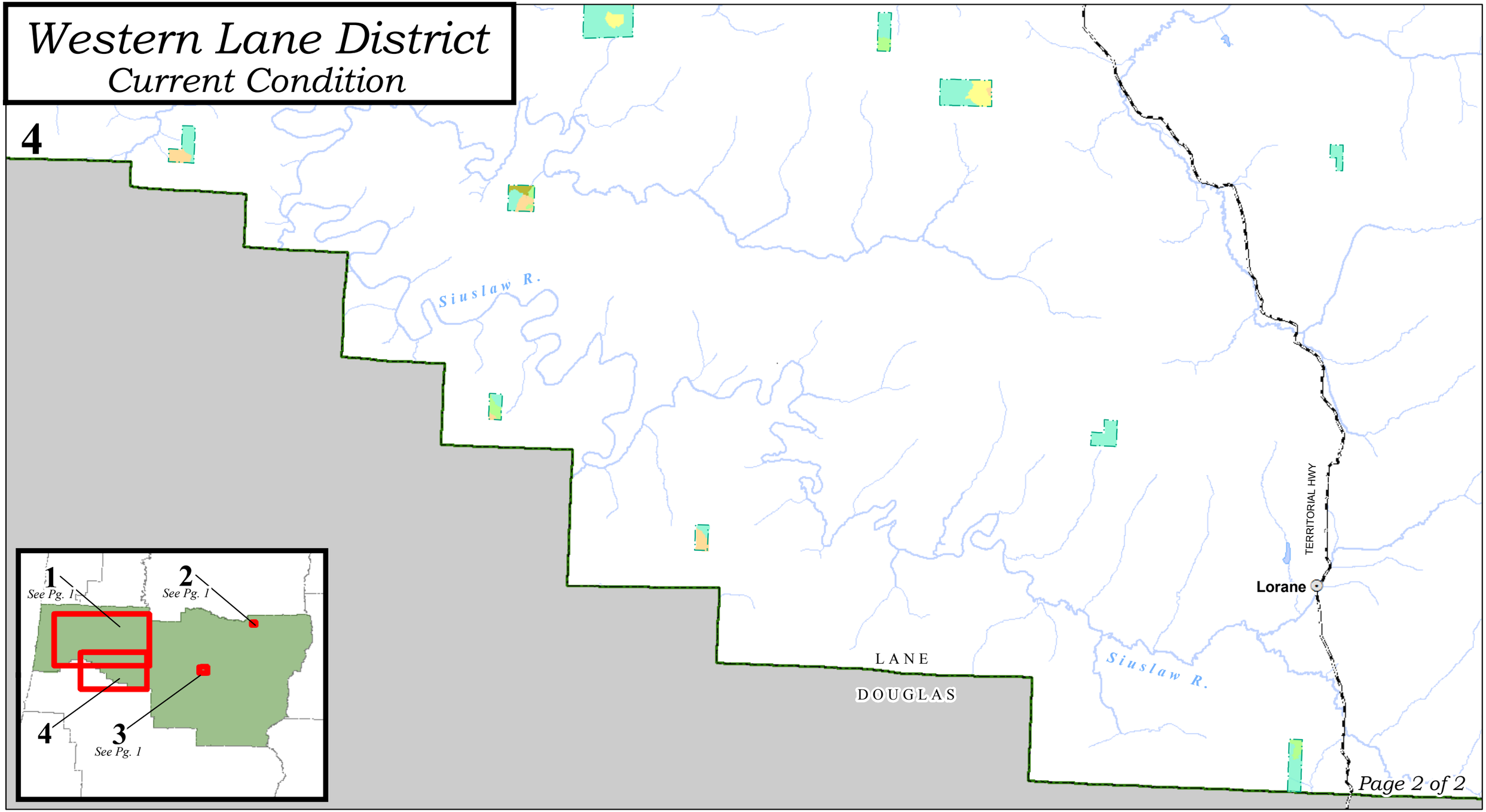

Stand Structure Type
- Closed Single Canopy
- Layered
- Nonforested
- Older Forest Structure
- Regeneration
- Understory

Roads
- Streams, Large
- Streams, Medium
- Management Basins

Towns
- Adjacent District

N

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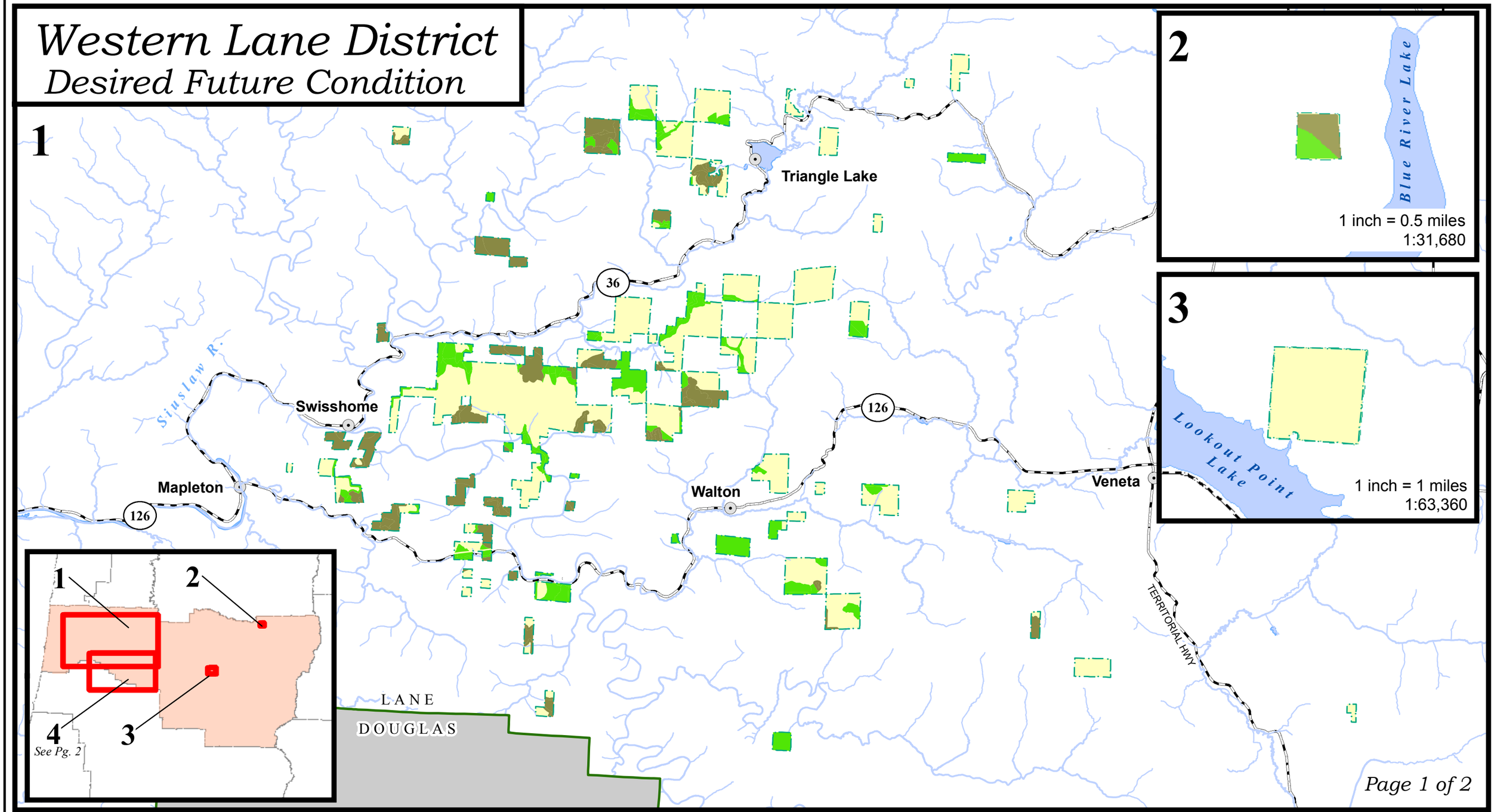
Western Lane District
Desired Future Condition



Stand Structure Type

- LYR
- OFS
- Other

- Roads
- Streams, Large
- Streams, Medium
- Management Basins

- Towns
- Adjacent District

N

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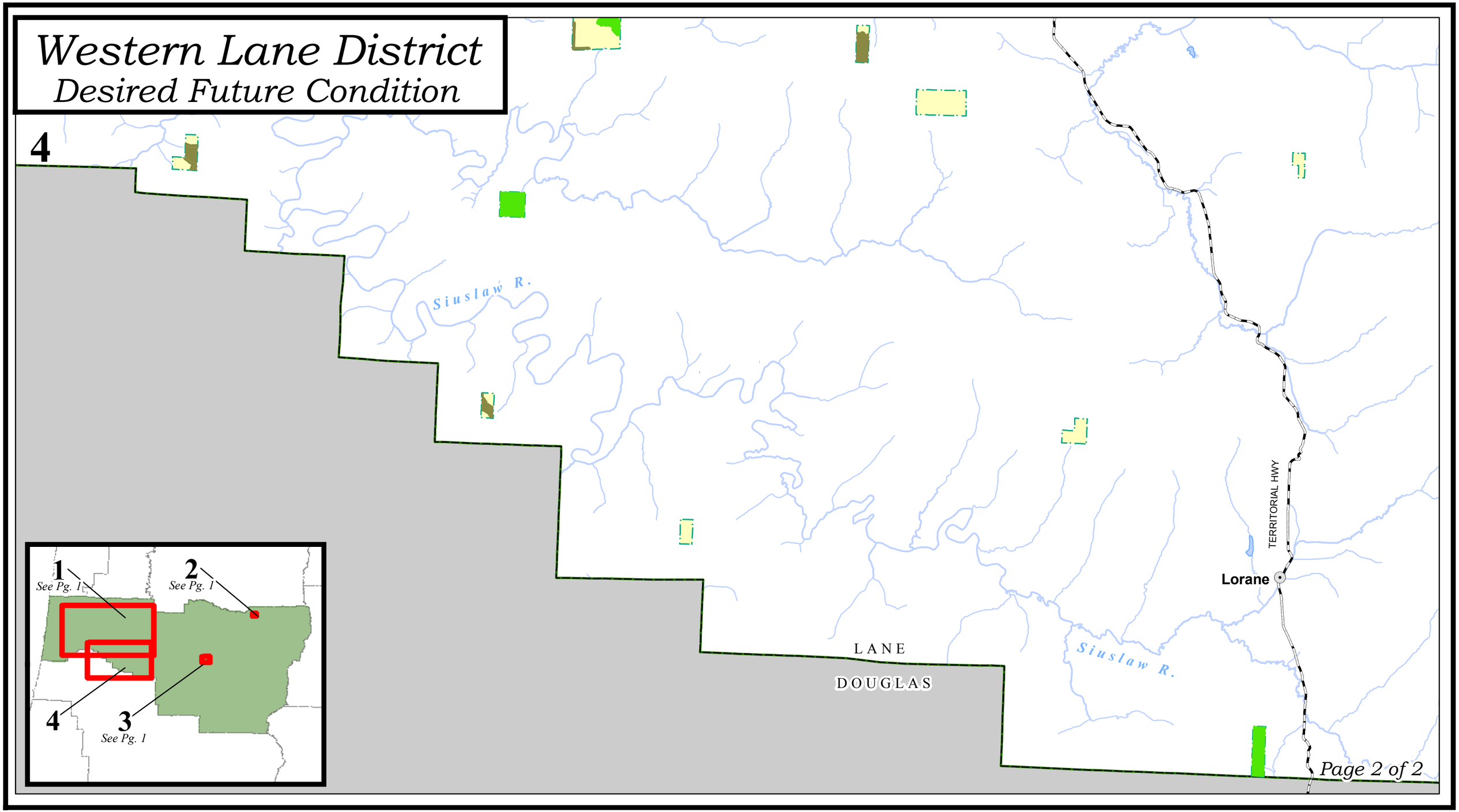
Western Lane District
Desired Future Condition



Stand Structure Type

- LYR
- OFS
- Other

- **Roads**
- Streams, Large
- Streams, Medium
- Management Basins

- **Towns**
- Adjacent District

N

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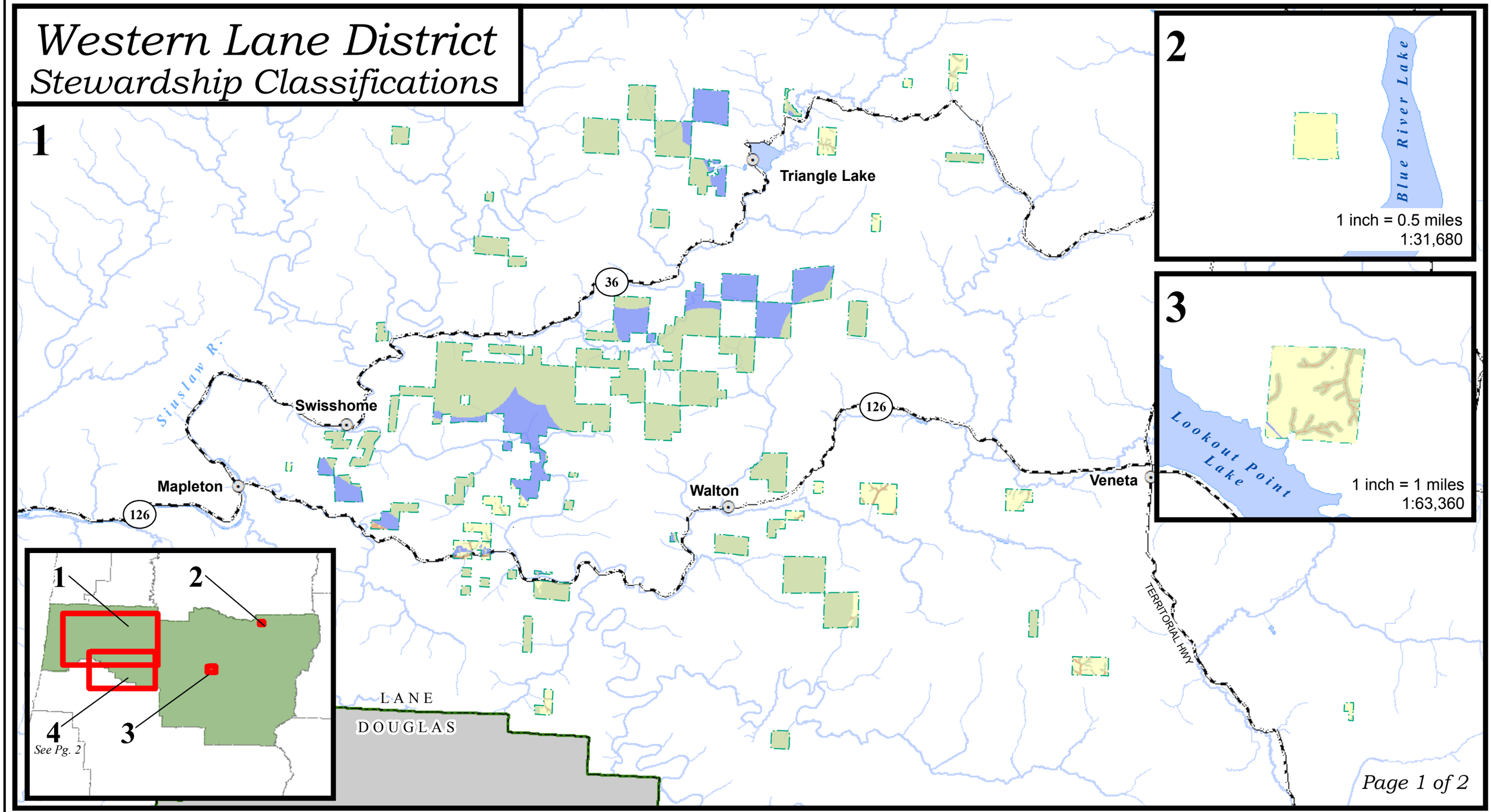
Western Lane District
Stewardship Classifications



STEWARDSHP

- High Value Conservation Area
- Special Use
- Focused
- General

- Roads
- Streams, Large
- Streams, Medium
- Management Basins

- Towns
- Adjacent District

N

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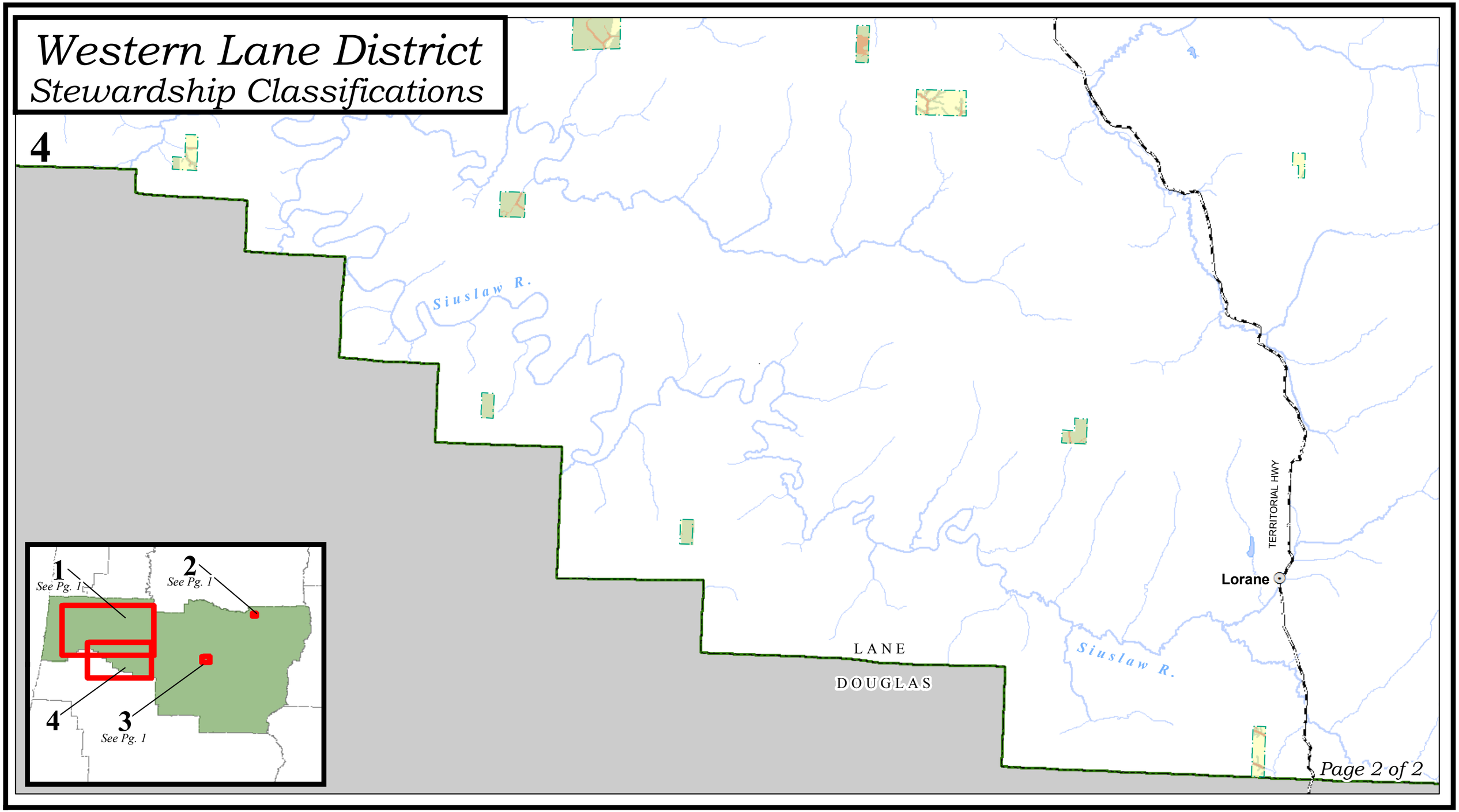
Western Lane District
Stewardship Classifications



STEWARDSHP
- High Value Conservation Area
- Special Use
- Focused
- General

- **Roads**
- Streams, Large
- Streams, Medium
- Management Basins

- **Towns**
- Adjacent District

N

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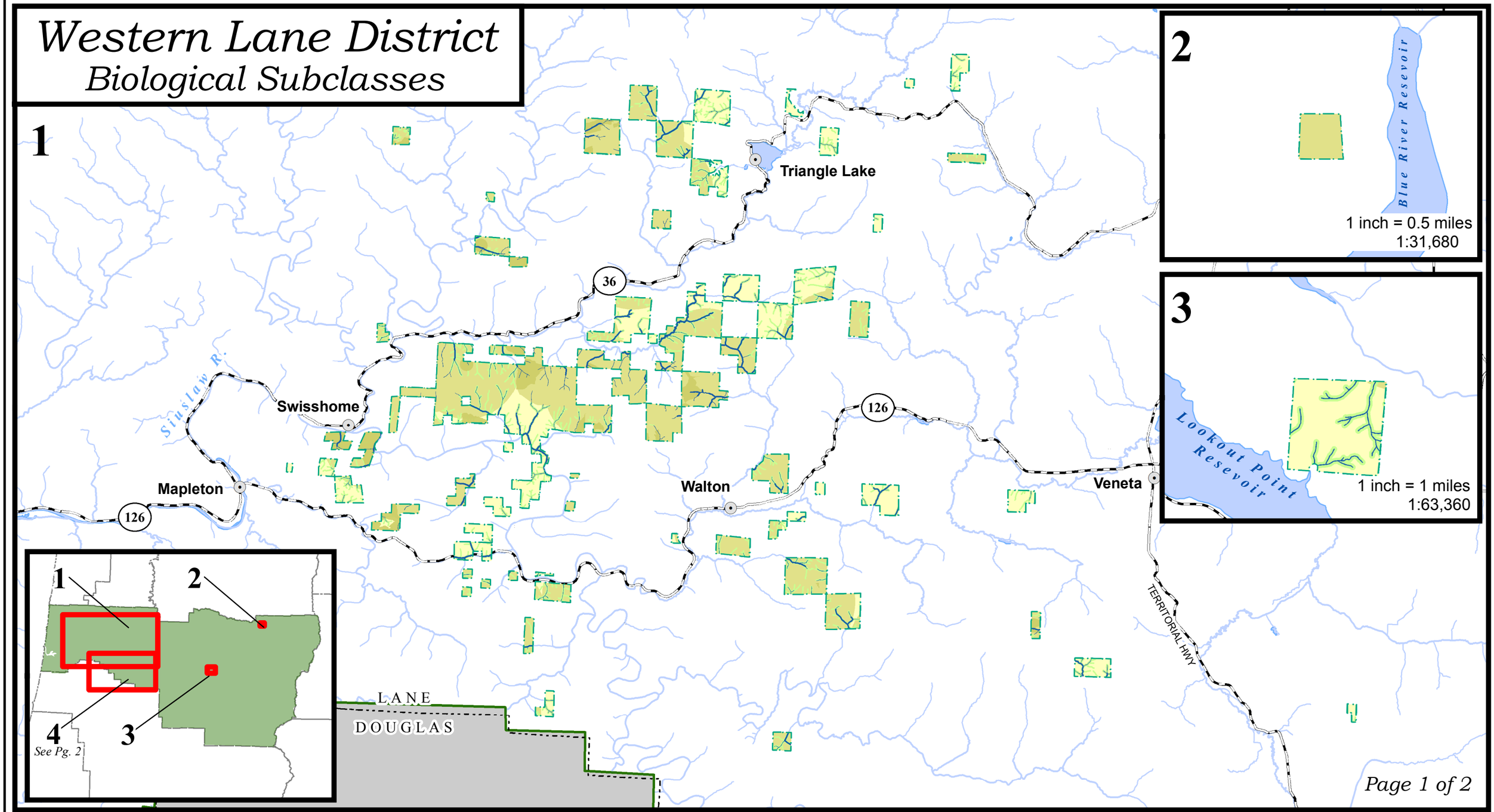
Western Lane District
Biological Subclasses



High Value Conservation Areas
- Aquatic and Riparian Habitat
- Wildlife Habitat

Focused
- Plants
- Aquatic and Riparian Habitat
- Wildlife Habitat

- Towns
- Roads
- Streams, Large
- Streams, Medium
- Management Basins
- General Stewardship
- Adjacent District

N

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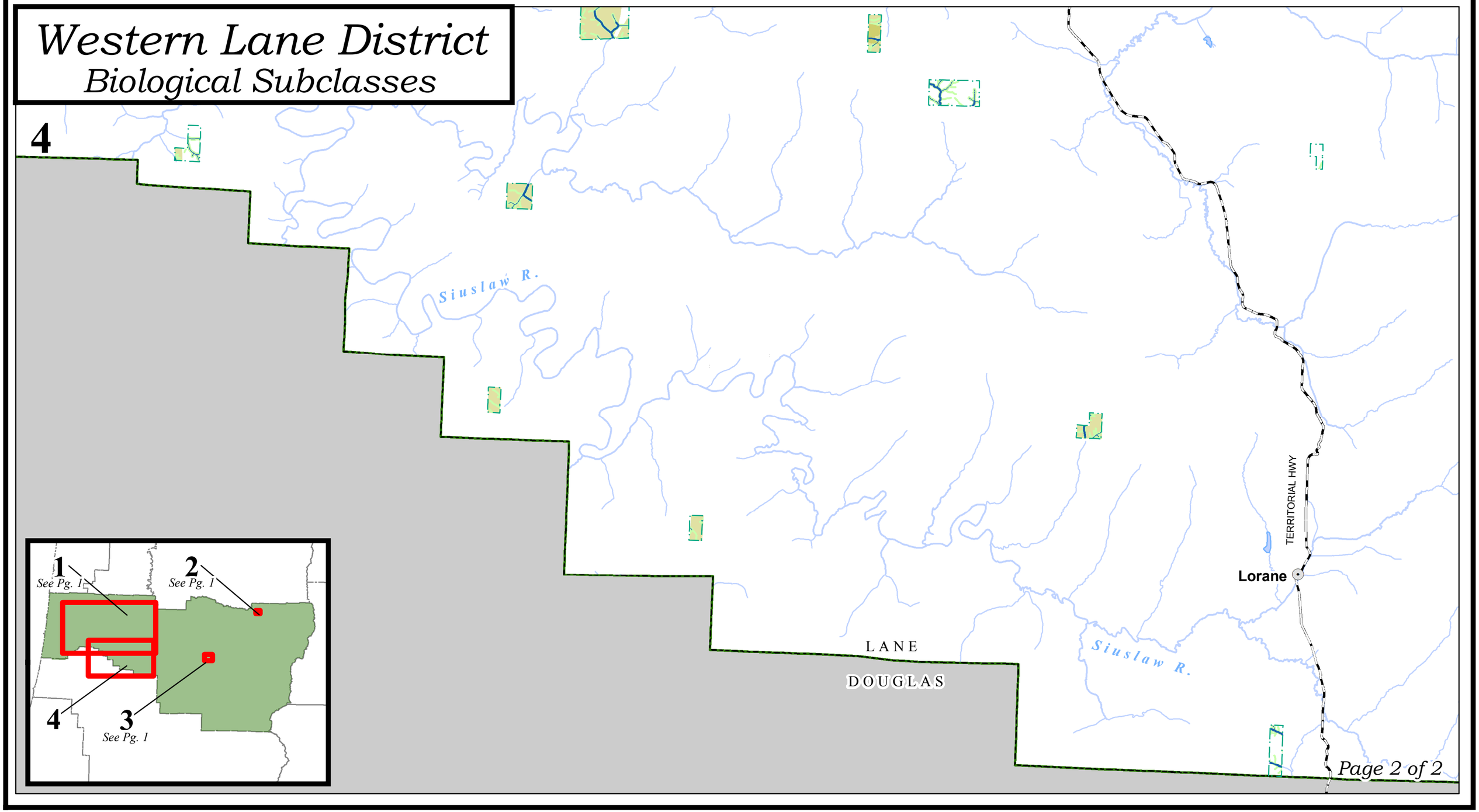
Western Lane District
Biological Subclasses



High Value Conservation Areas
- Aquatic and Riparian Habitat
- Wildlife Habitat

Focused
- Plants
- Aquatic and Riparian Habitat
- Wildlife Habitat

- **Towns**
- **Roads**
- Streams, Large
- Streams, Medium
- Management Basins
- General Stewardship
- Adjacent District

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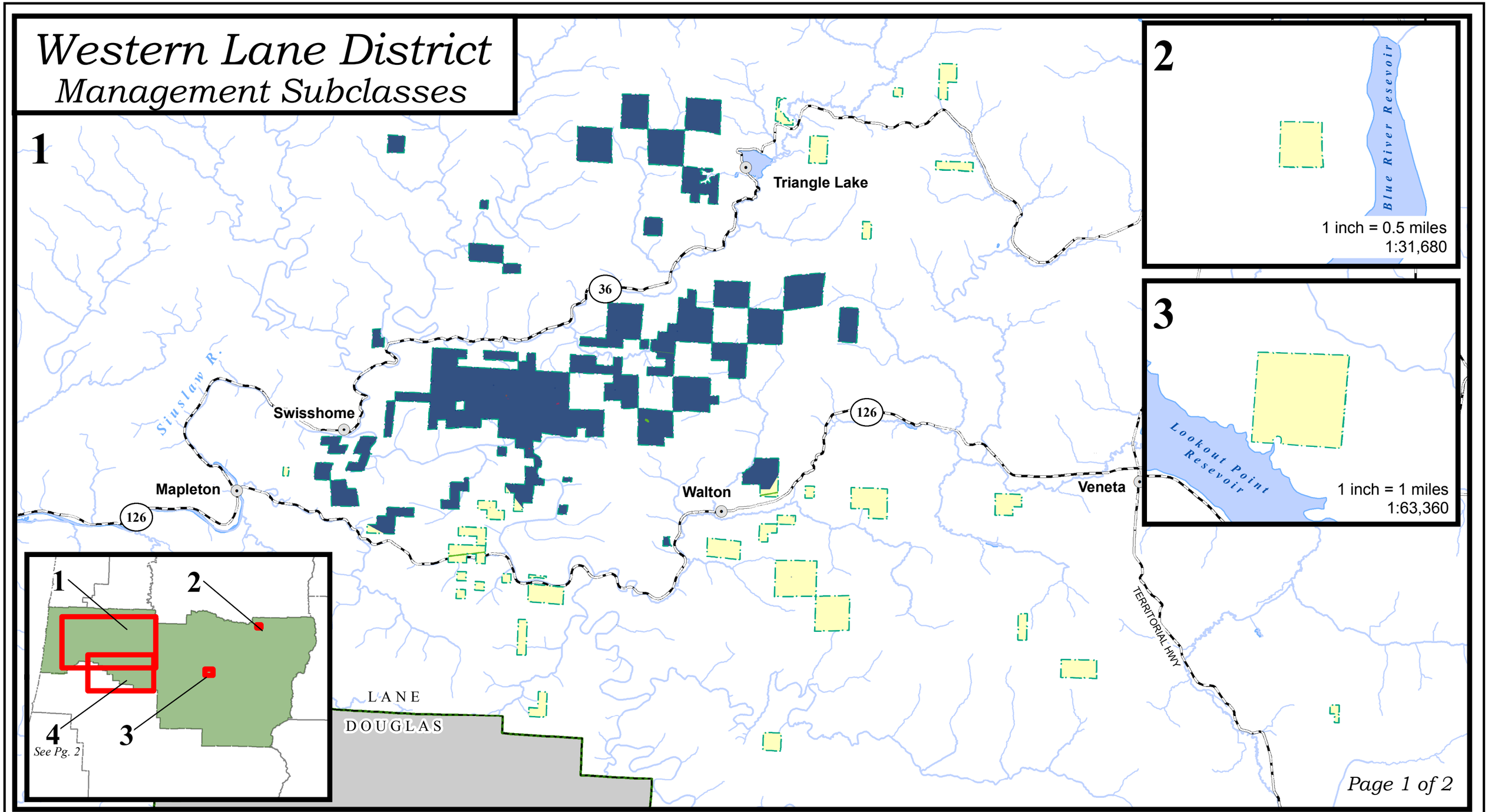
Western Lane District
Management Subclasses



Special Use
- Administrative Sites
- Easements
- Research/Monitoring
- Transmission
- Operationally Limited

Focused
- Easements
- Research/Monitoring
- Transmission
- Energy and Minerals

- Towns
- Roads
- Streams, Large
- Streams, Medium
- Management Basins
- General Stewardship
- Adjacent District

N

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Western Lane District
Management Subclasses

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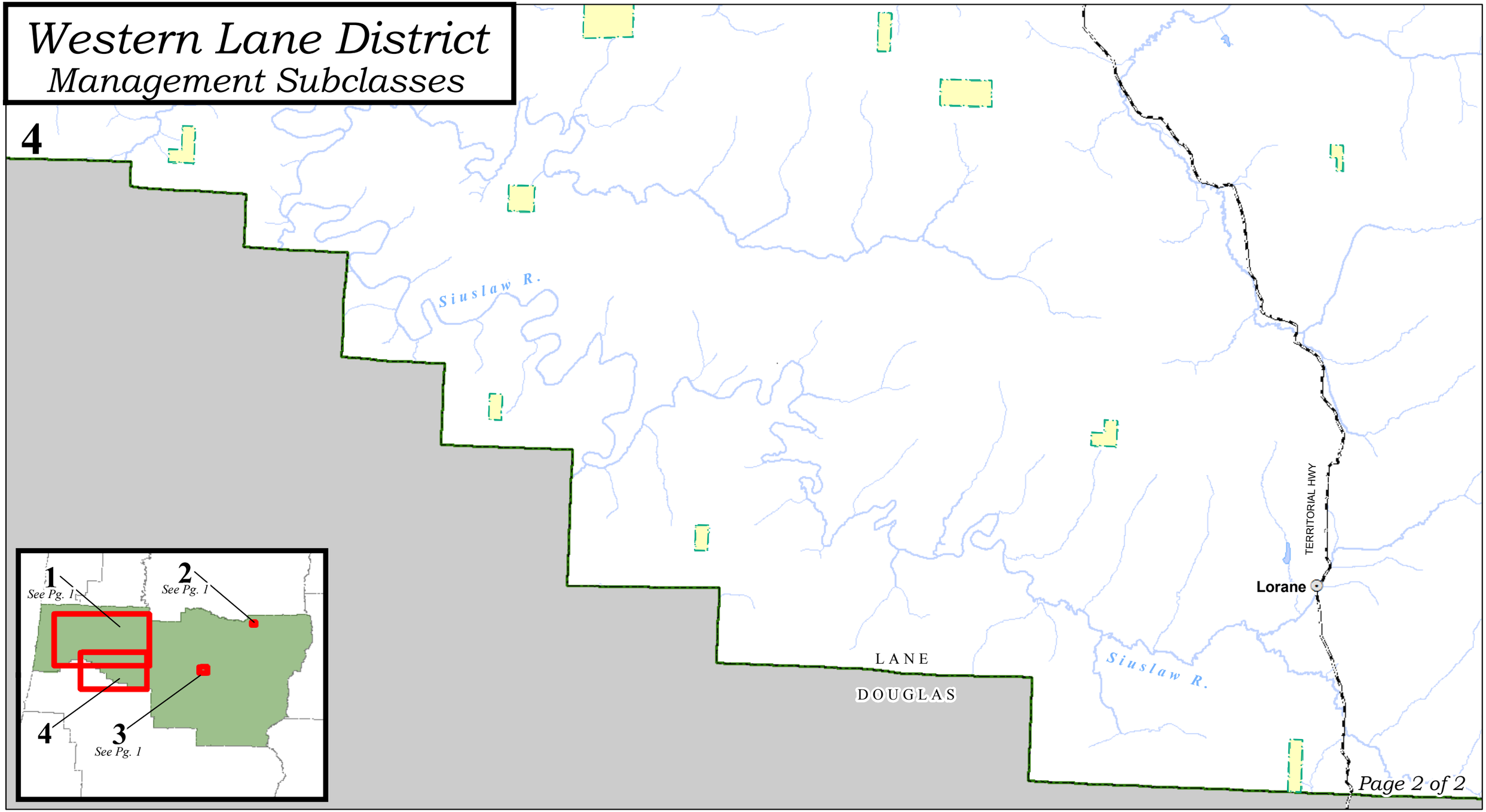

Special Use
- Administrative Sites
- Easements
- Research/Monitoring
- Transmission
- Operationally Limited

Focused
- Easements
- Research/Monitoring
- Transmission
- Energy and Minerals

- **Towns**
- **Roads**
- Streams, Large
- Streams, Medium
- Management Basins
- General Stewardship
- Adjacent District

N

0 1 2 3 4 5 Miles

1:63,360

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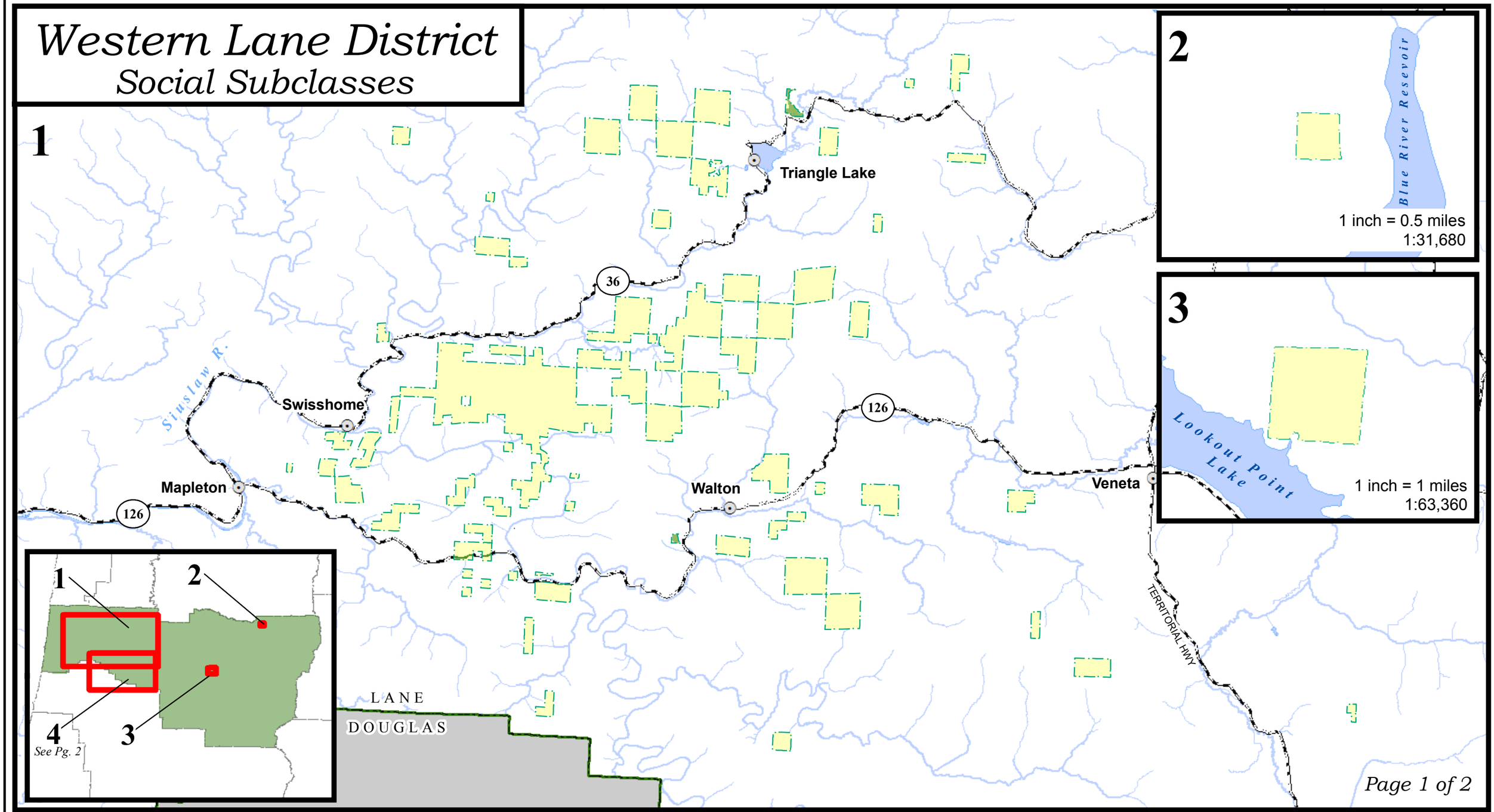
Western Lane District
Social Subclasses



Special Use
- Recreation
- Visual

Focused
- Cultural Resources
- Domestic Water Use
- Visual
- Recreation

- **Towns**
- **Roads**
- Streams, Large
- Streams, Medium
- Management Basins
- General Stewardship
- Adjacent District

N

0 1 2 4 6 8 10 Miles

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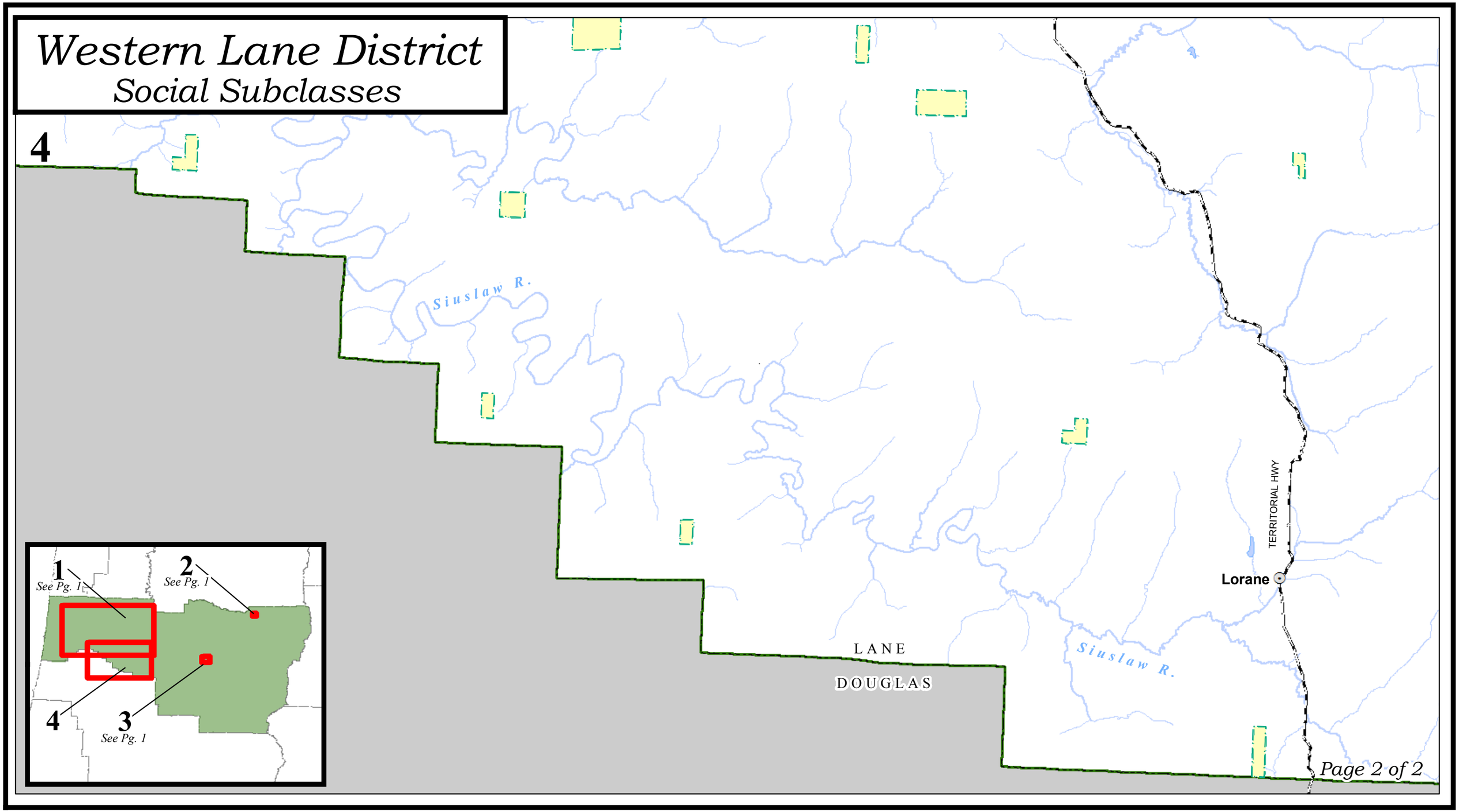
Western Lane District
Social Subclasses



Special Use
- Recreation
- Visual

Focused
- Cultural Resources
- Domestic Water Use
- Visual
- Recreation

- **Towns**
- **Roads**
- Streams, Large
- Streams, Medium
- Management Basins
- General Stewardship
- Adjacent District

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Appendix A

SOC Limiting Factors Coarse Evaluation and Additional Strategies.

Common Name	Limiting Factors (LF)*	FMP Strategies that Protects or Maintains LF or Habitat	Additional SOC Strategies to address LF
Cascades frog	Montane species vulnerable to genetic isolation. Experiencing substantial reductions in southern parts of range (*e.g.*, CA). Sensitive to waterborne pathogens.	Aquatic and Riparian Management Strategies	None at this time
Clouded salamander	Limited range (occurs primarily in Oregon). Loss of large logs.	Landscape Management Concepts 1-3 and Management Strategies 1-4, particularly LMS 3 (retention of snags and downed wood in harvest units)	None at this time
Coastal tailed frog	Limited range (PNW endemic), Low reproductive rate. Low dispersal ability. Sedimentation & increases in water temperature.	Aquatic and Riparian Management Strategies	None at this time
Northern red-legged frog	Loss of egg-laying habitat. Predation & competition from bullfrogs and invasive fish.	Aquatic and Riparian Management Strategies	None at this time
Southern torrent salamander	Limited dispersal. Sensitive to drying & changes in stream flow.	Aquatic and Riparian Management Strategies	None at this time
Western toad	Loss of breeding habitat, siltation, and recreational impacts.	Protect wetlands, road BMPs reduce siltation	None at this time
Northern Pacific pond turtle	Loss of aquatic & nesting habitats (conversion and invasive species). Road Mortality. Predation.	Aquatic and Riparian Management Strategies	Site Plans for riparian areas at known sites
Western painted turtle	Loss of aquatic & nesting habitats (conversion and invasive species). Predation.	Aquatic and Riparian Management Strategies	Site Plans for riparian areas at known sites
American peregrine falcon	Disturbance at nests.	Landscape Management Concept 2 - Landscape Design (maintain unique habitats and those of species at risk)	Site Plans near active nests
Bald eagle	Loss of large nest trees.	Landscape Management Concepts and Strategies; Aquatic and Riparian Management Strategies	Site Plan/FPA Rules
Band-tailed pigeon	Reduction in quality and number of mineral sites. Large area requirements.	Landscape Management Concepts and Strategies; Aquatic and Riparian Management Strategies	Site Plan/FPA Rules
Common nighthawk	Loss and degradation of nesting habitat due to changes in hydrology and wildfire. Increased predation pressure and reductions in aerial insect abundance.	Landscape Management Concepts and Strategies; Aquatic and Riparian Management Strategies	Site Plans near active nests
Great blue heron	Sensitive to disturbance at nesting rookeries.	Landscape Management Concepts and Strategies; Aquatic and Riparian Management Strategies	Site Plan/FPA Rules
Lewis' woodpecker	Population declines & local extirpation; habitat loss and degradation; loss of old cottonwood snags; competition with starlings for nest cavities.	Landscape Management Concepts 1-3 and Management Strategies 1-4, particularly LMS 3 (retention of snags and downed wood in harvest units).	Modified Practice: Focus or increase snag retention in upland areas in occupied areas; Site Plans

Common Name	Limiting Factors (LF)*	FMP Strategies that Protects or Maintains LF or Habitat	Additional SOC Strategies to address LF
Marbled murrelet	Reductions in late seral forest; low reproductive output & success. Habitat loss due to severe fire.	Landscape Management Concepts and Strategies; Aquatic and Riparian Management Strategies; State Forests Marbled Murrelet Operational Policy (1.1) and associated Procedures and Guidance	None at this time
Northern goshawk	Large area requirements. Affected by reductions in amount of late successional and closed canopy forest.	Landscape Management Concepts and Strategies	Site Plan (already in existing SOC policy for other districts)
Northern spotted owl	Declining. Large home range. Reduction in late seral habitat. Habitat loss to severe fire.	Landscape Management Concepts and Strategies; State Forests Northern Spotted Owl Operational Policy (1.2) and associated Procedures and Guidance	None at this time
Olive-sided flycatcher	Relatively large area requirements. Increased predation rates in harvest units or fragmented forest.	Landscape Management Concepts and Strategies	Modified Practice: Structural retention strategies (number and location of green trees and snags) could be modified in known nest stands.
Osprey	Large snags and broken-topped trees in close proximity to water. Sensitive to disturbance at nest sites.	Aquatic and Riparian Management Strategies	Site Plan/FPA Rules
Purple martin	Loss of nesting cavities. Competition with starlings for nest cavities, adequate aerial prey base.	Landscape Management Concepts 1-3 and Management Strategies 1-4, particularly LMS 3 (retention of snags in harvest units)	Modified Practice: Focus on retention of snags with specific characteristics (low, skinny) in upland areas of clearcuts (within 3 miles of large water bodies)
Western bluebird	Habitat loss & degradation. Competition from non-native birds for cavities.	Landscape Management Concepts 1-3 and Management Strategies 1-4, particularly LMS 3 (retention of snags in harvest units)	Modified Practice: Focus on retention of snags with specific characteristics in upland areas of clearcuts
Willow flycatcher	Declining populations, loss of nesting habitat.	Landscape Management Concepts and Strategies; Aquatic and Riparian Management Strategies	Modified Practice: Consider gap creation, heavy thinning, and intentional development of complex early seral habitat
California myotis	Reduction of large snags, patchy distribution, low populations.	Landscape Management Concepts 1-3 and Management Strategies 1-4, particularly LMS 3 (retention of snags in harvest units)	None at this time
Fringed myotis	Disturbance at roosts, patchy distribution, reduction in snags.	Landscape Management Concepts 1-3 and Management Strategies 1-4, particularly LMS 3 (retention of snags in harvest units)	None at this time
Hoary bat	Habitat loss.	Landscape Management Concepts 1-3 and Management Strategies 1-4, particularly LMS 3 (retention of snags in harvest units)	None at this time
Long-legged myotis	Reduction of late seral conifer, loss of hollow trees and tall, newly dead snags, loss of healthy riparian habitat, untimely bridge replacement.	Landscape Management Concepts 1-3 and Management Strategies 1-4, particularly LMS 3 (retention of snags in harvest units); Riparian Management Strategies	None at this time
Pacific fisher	Large home range, low rate reproduction, specific denning habitat.	Landscape Management Concepts 1-3 and Management Strategies 1-4; Riparian Management Strategies	None at this time
Pacific marten	Low survival in fragmented forests. Road mortality. Predation.	Landscape Management Concepts 1-3 and Management Strategies 1-4; Riparian Management Strategies	None at this time
Red tree vole	Small home range, limited dispersal ability, low reproduction rate.	Landscape Management Concepts and Strategies	None at this time.

Common Name	Limiting Factors (LF)*	FMP Strategies that Protects or Maintains LF or Habitat	Additional SOC Strategies to address LF
Ringtail	Habitat loss & fragmentation.	Landscape Management Concepts 1-3 and Management Strategies 1-4, particularly LMS 3 (retention of snags in harvest units); Riparian Management Strategies	None at this time
Silver-haired bat	Reduction of late seral conifer forests, loss of hollow trees and tall, newly dead snags.	Landscape Management Concepts 1-3 and Management Strategies 1-4, particularly LMS 3 (retention of snags in harvest units)	None at this time
Townsend's big-eared bat	Highly sensitive to disturbance at roosts; highly specific roost requirements (dependent on uncommon or at risk structures for habitat). Pesticides and related prey reduction.	Cultural resource protection may protect against destruction of some mines/buildings but not against disturbance	Site Plans for any mine or cave roosts or building maternal roosts
Coastal Cutthroat, Oregon Coast	Habitat fragmentation or actions that increase population isolation. Water Quality. Alterations of hydrology and watershed function. Loss of estuarine habitat for rearing. Ocean productivity.	Aquatic and Riparian strategies 1– 7 and riparian buffer strategies in Appendix J	None at this time
Coastal Cutthroat, Willamette (Upper Willamette)	Habitat fragmentation or actions that increase population isolation. Water Quality. Alterations of hydrology and watershed function. Loss of estuarine habitat for rearing. Ocean productivity.	Aquatic and Riparian strategies 1– 7 and riparian buffer strategies in Appendix J	None at this time
Coho, Coastal	Stream complexity. Water quality. Fish passage. Riparian condition. Altered watershed processes. Marine Survival.	Aquatic and Riparian strategies 1– 7 and riparian buffer strategies in Appendix J	None at this time
Lamprey, Western Brook	Reduced water quality. Passage barriers. Altered flow patterns. Dredging. Rapid water drawdowns. Marine survival.	Aquatic and Riparian strategies 1– 7 and riparian buffer strategies in Appendix J	None at this time
Lamprey, Pacific	Reduced water quality. Passage barriers. Altered flow patterns. Dredging. Rapid water drawdowns. Marine survival.	Aquatic and Riparian strategies 1– 7 and riparian buffer strategies in Appendix J	None at this time
Lamprey, River	Unknown	Aquatic and Riparian strategies 1– 7 and riparian buffer strategies in Appendix J	None at this time

* Limiting Factors information taken from the 2016 Oregon Conservation Strategy (ODFW 2016).

Appendix B

References

CLAMS. 2005. *Intrinsic Potential for Coastal Coho*. Coastal Landscape Analysis and Modeling Study (CLAMS), October 31, 2005. Available through: Oregon Department of Fish and Wildlife.

CLAMS. 2008. *Intrinsic Potential for Lower Columbia Coho and Steelhead*. Coastal Landscape Analysis and Modeling Study (CLAMS), September 25, 2008. Available through: Oregon Department of Fish and Wildlife.

E&S Environmental Chemistry Inc., K.U. Snyder, T.J. Sullivan, D. L. Moore, R. B. Raymond, E. H. Gilbert. 2003. *Trask River Watershed Analysis*. Available from Oregon Department of Forestry. 2600 State Street. Salem, Or 97301

FMP 2010. *Northwest Oregon State Forests Management Plan January 2001 Plan, Structure Classes and Habitat Conservation Plan references revised April 2010,* Oregon Department of Forestry, FINAL PLAN

Franklin, J. F., and C. T. Dyrness. 1973. Natural Vegetation of Oregon and Washington. USDA Forest Service, Pacific Northwest Research Station, Portland, OR. General Technical Report PNW-8.

Governor‘s Natural Resources Office. 1999. Oregon Plan for Salmon and Watersheds. Office of the Governor, Salem, OR.

Hibbs, D., and D. DeBell, R. Tarrant, editors. 1994. The Biology and Management of Red Alder. Oregon State University Press, Corvallis, OR.

Johnson, D.H and T.A. O’Neil (eds.) 2001. Wildlife-Habitat Relationships in Oregon and Washington. Corvallis, OR: Oregon State University Press. 736pp.

Olson, D.H., and K.M. Burnett. 2009. Design and management of linkage areas across headwater drainages to conserve biodiversity in forest ecosystems. Forest Ecology and Management 258: S117-S126.

Oregon Coast Coho Conservation Plan March 16, 2007. Prepared by Oregon Department of Fish and Wildlife in partnership with state and federal natural resource agencies. 63 pages.

Oregon Department of Agriculture. 2016. Noxious Weed Policy and Classification System.

Oregon Department of Fish and Wildlife. 2010b. Oregon Anadromous Fish Habitat Distribution.

Oregon Department of Fish and Wildlife. June 1997. North Coast Stream Project Guide to Restoration Site Selection Phase II. Portland, OR.

Oregon Department of Fish and Wildlife. February, 2016. The Oregon Conservation Strategy, Salem, OR.

Oregon Department of Forestry 2010. *Board of Forestry State Forests Performance Measure Report November 2010.* Oregon Department of Forestry State Forests Program. 2600 State Street Salem Oregon. 97310

Oregon Department of Forestry SOC 2010. *ODF Species of Concern Policy 1.3.0*. September 9, 2010.

Oregon Department of Forestry. 2013. Marbled Murrelet Operational Policies. State Forests Program, Salem, OR.

Oregon Department of Forestry. 1999. Draft Recreation Design Standards and Management Guidelines. State Forests Program, Salem, OR.

Oregon Department of Forestry. January 2006. Strategic Plan for Managing State Forests in Northwest Oregon Affected by Swiss Needle Cast. State Forests Program, Salem, OR.

Oregon Department of Forestry. July 2000, updated September, 2006. Forest Roads Manual. State Forests Program, Salem, OR.

Oregon Department of Forestry. April 2010. Northwest Oregon State Forests Management Plan. State Forests Program, Salem, OR.

Oregon Department of Forestry. 2013. Northern Spotted Owl Operational Policies. State Forests Program, Salem, OR.

Oregon Department of Forestry. May 2001. Interim State Forests Salmon Protection Policy. State Forests Program, Salem, OR.

Oregon Department of Forestry. State Forests Bulletin 17-02, *Northern Spotted Owl Policies for Western Lane District Lands within the Safe Harbor Agreement Area* (2016. May 2001. Interim State Forests Salmon Protection, State Forests Program, Salem, OR.

Oregon Department of Forestry. 2016. *Cultural Resource Policy*. State Forests Program, Salem, OR.

Pacific Seabird Group. 2000. Methods for Surveying for Marbled Murrelets in Forests: An Update to the Protocol for Land Management and Research. Pacific Seabird Group, Marbled Murrelet Technical Committee. Oregon State University, Corvallis, OR.

Safe Harbor Agreement for the Northern Spotted Owl with Oregon Department of Forestry in the Oregon Coast Range Study Area for the Barred Owl Removal Experiment (U.S. Fish and Wildlife Service September 2016).

Swiss Needle Cast Cooperative (Filip, G., and A. Kanaskie, K. Kavanaugh, G. Johnson, R. Johnson, D. Maquire). 1999. Silviculture and Swiss Needle Cast Draft Position Paper. Oregon Department of Forestry, Salem, OR. September 29, 1999.

Thies, W. G., and R. N. Sturrock. 1995. Laminated Root Rot in Western North America. USDA Forest Service, Pacific Northwest Research Station, Portland, OR.

USFWS (USDI Fish and Wildlife Service). 1990. The Procedures Leading to ESA Compliance for the Northern Spotted Owl. Portland, OR.

State of Oregon 2005. *Oregon Coastal Coho Assessment. Parts 1, 2, 3A and 3B*. Oregon Department of Fish and Wildlife. Salem, Oregon.