Four Forest Restoration Initiative, Rim Country EIS

Inventoried Roadless Area Specialist Report

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Inventoried Roadless Areas (IRAs) are a special area designation found within the project boundary. The project area contains 8 inventoried roadless areas totaling 17,290 acres within the forests and districts. An overview map of existing Inventoried Roadless Areas is included in chapter 1 (volume 1 of this EIS). The tables and maps below highlight the location of each IRA within the project boundary, acreage within the project area and associated scenic integrity objective.

The 2001 Roadless Area Conservation Rule (2001 Roadless Rule) prohibits road construction and reconstruction and timber cutting, sale, and removal in inventoried roadless areas on National Forest System lands, with some exceptions (36 CFR 294). Exceptions for timber cutting, sale and removal are allowed provided they are used infrequently, generally of small diameter timber, and if the actions will maintain or improve one or more roadless characteristics. Use of exceptions is approved by a responsible official (36 CFR 294.13(b)(1)-(4)). On November 2, 2021, the Southwestern Region Regional Forester concurred that the activities proposed as part of the Rim Country Project qualify for a Roadless Rule exception under 36 CFR § 294.13 (b)1(ii) - Timber, (Ecosystem); and will protect and maintain the nine roadless area characteristics and approved the project to proceed within the IRAs under this exception (See Appendix B).

Stands within as well as outside IRAs are far outside the natural range of variation (NRV) in terms of composition, and structure, for the cover types included. Currently, composition lacks species diversity as a result of closed forest canopies inhibiting development of a grass/forb/shrub understory. Forest structure is outside the NRV in terms of basal area and trees per acre. For example, in the ponderosa pine type average basal area is 113 square feet per acre while the desired condition is from 20 to 90 square feet per acre. Also, in the ponderosa pine type, the current number of trees per acre is 807, while the desired condition is less than 250 trees per acre.

Most of these areas have not experienced their normal fire regimes in over 100 years, missing many fire intervals. The proposed action has been designed to modify fire behavior and allow cover types within IRAs to return to their normal fire regimes. Without action within these areas, they would continue to depart further from the desired condition and put at risk the values at risk within these IRAs as well as the areas around them.

Due to a history of fire suppression and a lack of active management, acres within IRAs are denser than their surrounding areas. Compared to the reference conditions and desired conditions for the project area (20 to 90 square feet of basal area), density in IRAs is extremely high (125 to 200 square feet of basal area), generally exceeding the areas outside for the IRAs. Stands at these densities, and their associated fuel loads, are at higher risk for uncharacteristic fire, increased susceptibility for insects and at a higher risk for drought-related mortality in the face of a changing climate.

Lack of fire and related effects has likely contributed to a compositional shift over time toward less fire resistant and more shade tolerant species like white fir. Increased density of forested cover types has reduced understory plant diversity, causing a dramatic change in understory composition from historically grass-forb-shrub communities to essentially unvegetated forest floor. Forests with altered composition are less resilient to disturbances like uncharacteristic fire, insects and drought. For additional information on vegetation characteristics in the Rim Country project area, consult the silviculture specialist report.

Table 1. Inventoried roadless areas and scenic integrity objectives

Forest	Inventoried Roadless Area	SIO Code	Within Project Area (Acres)
Apache-Sitgreaves	**Chevelon Canyon**	VH - Very High	3,736
		H - High	1,832
		M - Moderate	1
	Leonard Canyon	VH - Very High	399
		H - High	1,417
		M - Moderate	0
Coconino	**Barbershop Canyon**	VH - Very High	1,294
		H - High	17
		M - Moderate	0
	East Clear Creek	H - High	1,612
	Jacks Canyon	H - High	1,711
		M - Moderate	6
Tonto	**Hellsgate**	H - High	338
	Mazatzal	H - High	316
	Sierra Ancha Wilderness Contiguous	VH - Very High	3
		H - High	4,562
		M - Moderate	37
		VL - Very Low	10
Grand Total	**-**	**-**	**17,290**

Table 2. Acreage and percentage of land per inventoried roadless area per recreation opportunity spectrum class

Forest	Inventoried Roadless Area	ROS Code	Within Project Area (Acres)	Outside Project Area (Acres)
Apache-Sitgreaves	Chevelon Canyon	RN	0	
		SPM	1	
		SPNM	5,568	
	Leonard Canyon	RN		0
		SPM	0	0
		SPNM	1,816	1,253
Coconino	Barbershop Canyon	SPNM	1,310	
	East Clear Creek	RN	4	
		SPM	0	
		SPNM	1,608	
	Jacks Canyon	RN		0
		SPM	0	0
		SPNM	1,717	1,139
Tonto	Hellsgate	SPM	266	4,107
		SPNM	72	1,721
	Mazatzal	P		909

Forest	Inventoried Roadless Area	ROS Code	Within Project Area (Acres)	Outside Project Area (Acres)
		RN		56
		SPM	257	5,233
		SPNM	59	10,416
	Sierra Ancha Wilderness Contiguous	RN	421	102
		SPM	1	1,228
		SPNM	4,192	1,838
Grand Total			**17,291**	**28,001**

Chevelon Canyon IRA

The Chevelon Canyon IRA consists of 5,569 acres on the Apache-Sitgreaves National Forests, the entire IRA is within the project area. The IRA is within the natural landscape management area.

Characteristic 1: Because of its unroaded status, soil and water within the IRA are not impacted by sediment or contaminants associated with road prisms or road use. The Long Tom Canyon–Chevelon Canyon subwatershed has been designated a priority watershed within the USDA's Watershed Condition Framework. Air quality within the project area as a whole is primarily affected by wildfire and prescribed fire occurring outside the project area.

Characteristic 2: This IRA does not supply any municipal drinking water.

Characteristic 3: The portion of Chevelon Creek in the IRA is upstream of Chevelon Lake. It is managed by the state primarily as a blue-ribbon trophy coldwater fishery for brown and rainbow trout. Native fish management is a secondary management objective for the state. The riparian community along the stream consists primarily of box elder, ash, narrowleaf cottonwood, willow, Gambel oak, rose, and wild grape. Small benches or sand and gravel bars are found near the mouths of side canyons and support a variety of grasses, herbaceous cover, and low shrubs. The aquatic community includes sensitive Little Colorado sucker and other native species such as bluehead sucker, desert sucker and speckled dace. The stream provides habitat for threatened Chiricahua leopard frog and sensitive species such as roundtail chub, California floater and northern leopard frog, but these species are not currently present.

Woods Canyon Creek within the IRA is managed by the state primarily as a coldwater trout fishery for brown and brook trout. Speckled dace and sensitive Little Colorado sucker are present and habitat is available for bluehead sucker though the species is not present.

The IRA is adjacent to the general forest management area and Willow Springs/Horse Trap wildlife quiet area. Rare terrestrial wildlife species that are known to exist, or are likely to exist include Mexican spotted owl. One northern goshawk PFA (Post Fledgling Family Area) has portions of it within one-half mile of this IRA, with several nest stands also within one-half mile of the IRA portion in the Rim Country Project area. One Bald eagle nest is within one-half mile of the IRA, and two adjacent golden eagle active/historic nests are within this IRA. One Peregrine Falcon eyerie with several associated active/historic nests are within this IRA.

Characteristic 4: The threatened Mexican spotted owl and its critical habitat occur in the IRA. Habitat is available for threatened Chiricahua leopard frog, though the species is not known to occur in the IRA.

Characteristic 5: The IRA provides opportunities for activities of a semi-primitive non-motorized type. There are 0.8 miles of trails within the project area of the IRA.

Characteristic 6: The area does not serve any research function as a reference landscape, other than as a general example of an area lacking roads.

Characteristic 7: The primary scenic features are the primitive, steep-walled, and twisting canyons, with cliffs rising as high as 300 feet above deep pools in the stream channels. The vegetation diversity along the stream corridors adds to the scenic quality of the area. The entire IRA is in the project area with SIO classified as high to very high.

Characteristic 8: Many areas across the forest serve traditional cultural and/or sacred purposes. Specific locations associated with this are necessarily sensitive and are not disclosed in public documents. The project has been and would continue to be reviewed by governmental representatives of Native American groups with traditional ties to the project area.

Characteristic 9: Portions of the Chevelon Creek eligible wild and scenic river corridor are within the IRA.

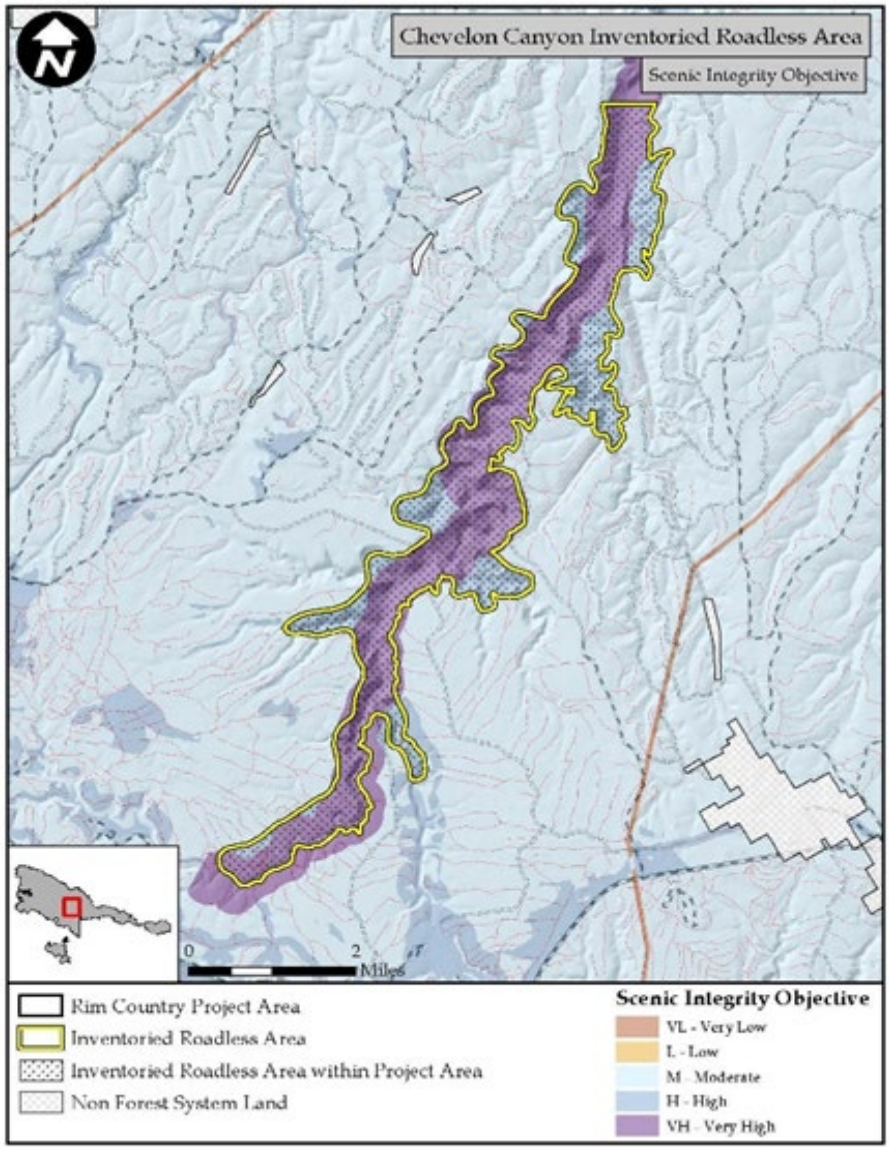


Figure 1. Chevelon Canyon IRA with SIO

Leonard Canyon IRA

The Leonard Canyon IRA consists of 3,069 acres on the Apache-Sitgreaves National Forests, 1,816 acres are within the project area. The IRA is within the natural landscape management area. It is adjacent to the Anderson Mesa and East Clear Creek management areas on the Coconino.

Characteristic 1: Because of its unroaded status, soil and water within the IRA are not impacted by sediment or contaminants associated with road prisms or road use. Air quality within the project area as a whole is primarily affected by wildfire and prescribed fire occurring outside the project area.

Characteristic 2: This IRA does not supply any municipal drinking water.

Characteristic 3: The steep-walled canyons in the IRA create complex environmental conditions with associated vegetation. The cottonwood-willow riparian forest along the stream channels consists primarily of box elder, ash, narrowleaf cottonwood, willow, Gambel oak, rose, and wild grape. Small benches or sand and gravel bars are found near the mouths of side canyons and support a variety of grasses, herbaceous ground cover, and low shrubs. Blumer's dock (*Rumex orthoneurus*) a sensitive plant species occurs in Leonard Canyon and in other canyons within the project area. The aquatic community within the creek and IRA includes threatened Little Colorado spinedace and sensitive Little Colorado sucker. Habitat is available for threatened Chiricahua leopard frog, bluehead sucker, and sensitive northern leopard frog. This area was the original source population for all of the stocking of Little Colorado spinedace in the Clear Creek drainage.

Rare terrestrial wildlife species that are known to exist or are likely to exist include Mexican spotted owl. One northern goshawk PFA is just over one-half mile away from this IRA in the Rim Country project area. No other federally listed or Forest Service sensitive terrestrial species occur in or near this IRA.

Characteristic 4: The threatened Mexican spotted owl and its critical habitat occur in the IRA. The threatened Little Colorado spinedace occurs within the IRA. Habitat is available for threatened Chiricahua leopard frog, though the species is not known to occur in the IRA.

Characteristic 5: The IRA provides opportunities for activities of a semi-primitive non-motorized type. There are 0.2 mile of trails within the project area of the IRA.

Characteristic 6: The area does not serve any research function as a reference landscape, other than as a general example of an area lacking roads.

Characteristic 7: The primary scenic features are primitive, steep-walled, and twisting canyons, with cliffs rising as high as 300 feet above deep pools in the stream channels. The vegetation diversity along the stream corridors adds to the scenic quality of the area. The natural beauty, wildlife, and remoteness of the area are the primary attractions. Scenery is a wild and scenic river ORV in East Clear Creek because of its beauty. A total of 59 percent of the IRA is in the project area with scenic integrity objective classified as high to very high.

Characteristic 8: Many areas across the Forest serve traditional cultural and/or sacred purposes. Specific locations associated with this are necessarily sensitive and are not disclosed in public documents. The Project has been and would continue to be reviewed by governmental representatives of Native American groups with traditional ties to the project area.

Characteristic 9: Portions of the Willow Creek, Leonard Canyon, and East Clear Creek eligible wild and scenic river corridors are within the IRA.

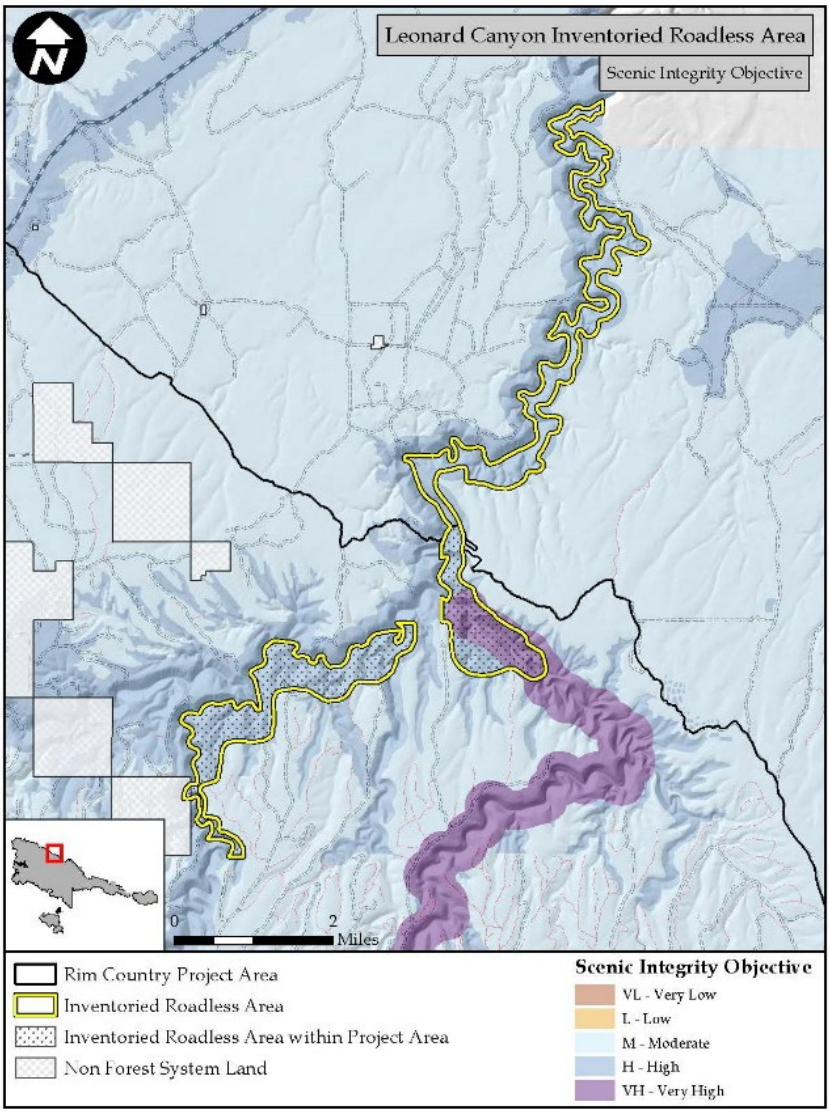


Figure 2. Leonard Canyon IRA with SIO

Barbershop Canyon IRA

The Barbershop Canyon IRA consists of 1,310 acres on the Coconino National Forest; the entire IRA is within the project area. The IRA is within the East Clear Creek management area.

Characteristic 1: Because of its unroaded status, soil and water within the IRA are not impacted by sediment or contaminants associated with road prisms or road use. Air quality within the project area as a whole is primarily affected by wildfire and prescribed fire occurring outside the project area.

Characteristic 2: This IRA does not supply any municipal drinking water.

Characteristic 3: Two southwestern region sensitive species: Bebb's willow (*Salix bebbiana*) and Arizona sneezeweed (*Helenium arizonica*) occur in Barbershop Canyon. Mexican spotted owl and its critical habitat occur in the IRA.

Threatened Little Colorado spinedace and sensitive Little Colorado sucker are present. Habitat is available for threatened Chiricahua leopard frog and sensitive northern leopard frog, but the species are not present.

Rare terrestrial wildlife species that are known to exist or are likely to exist include the threatened Endangered Species Act listed Mexican spotted owl and its critical habitat. Three northern goshawk PFA areas including one nest stand have portions within 0.5 mile of this IRA in the Rim Country project area. No other federally listed or Forest Service sensitive species occur in or near this IRA.

Characteristic 4: The threatened Mexican spotted owl and its critical habitat occur in the IRA. Threatened Little Colorado spinedace and sensitive Little Colorado sucker are present. Habitat is available for threatened Chiricahua leopard frog and sensitive northern leopard frog, but the species are not present.

Characteristic 5: The IRA provides opportunities for activities of a semi-primitive non-motorized type. There are 0.4 miles of trails within the project area of the IRA.

Characteristic 6: The area does not serve any research function as a reference landscape, other than as a general example of an area lacking roads.

Characteristic 7: The scenic integrity objective for the entire IRA is classified as high to very high.

Characteristic 8: Many areas across the Forest serve traditional cultural and/or sacred purposes. Specific locations associated with this are necessarily sensitive and are not disclosed in public documents. The project has been and would continue to be reviewed by governmental representatives of Native American groups with traditional ties to the project area.

Characteristic 9: Portions of the Barbershop Canyon eligible wild and scenic river corridor are within the IRA.

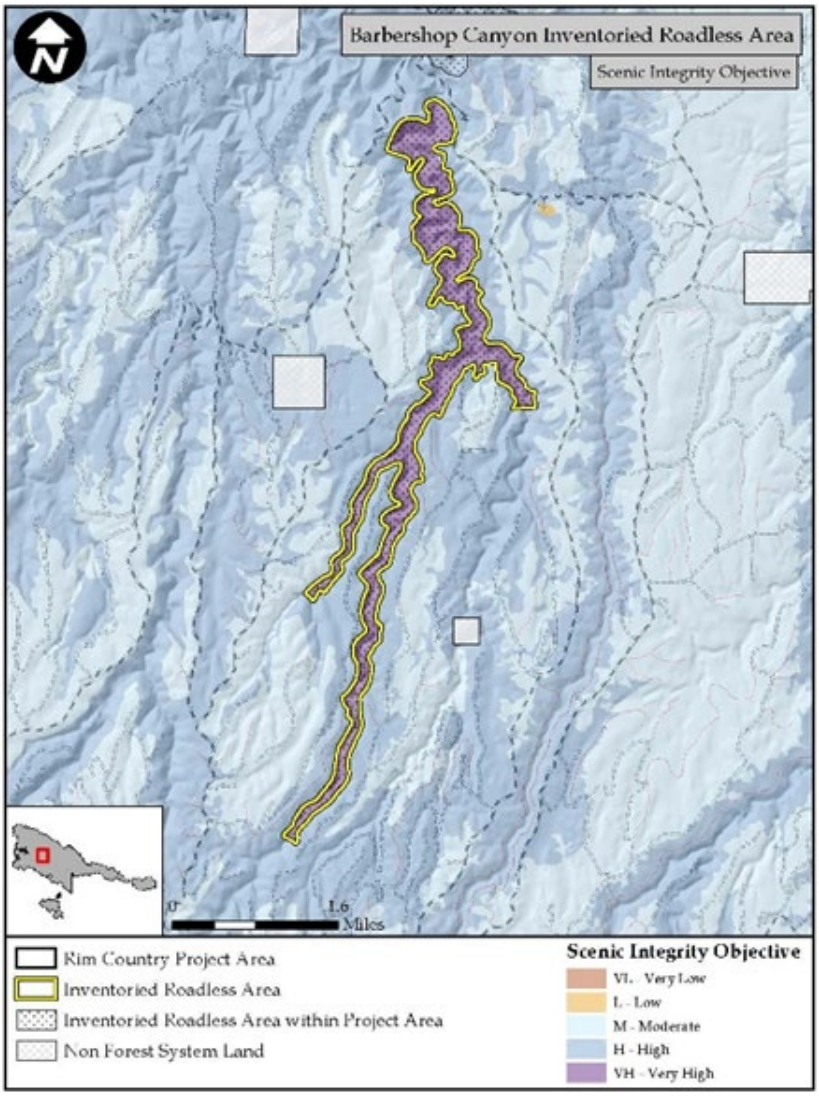


Figure 3. Barbershop Canyon IRA with SIO

East Clear Creek IRA

The East Clear Creek IRA consists of 1,612 acres in the Coconino National Forest. The entire IRA is within the project area. The IRA is within the East Clear Creek and pine belt management areas on the Coconino National Forest. It is adjacent to the Long Valley management area.

Characteristic 1: Because of its unroaded status, soil and water within the IRA are not impacted by sediment or contaminants associated with road prisms or road use. Air quality within the project area as a whole is primarily affected by wildfire and prescribed fire occurring outside the project area.

Characteristic 2: This IRA does not supply any municipal drinking water.

Characteristic 3: East Clear Creek Canyon passes through ponderosa pine forest, which grades into piñon-juniper woodland in the northern portions. The steep-walled canyons create complex environmental conditions with associated vegetation including dry mixed conifer forest. East Clear Creek below Blue Ridge Reservoir is within the IRA. It is managed by the state primarily as a native fishery and secondarily as sport fishery for rainbow trout. The cottonwood-willow riparian forest along the stream channels

consists primarily of box elder, ash, narrowleaf cottonwood, willow, Gambel oak, rose, and wild grape. Small benches or sand and gravel bars are found near the mouths of side canyons and support a variety of grasses, herbaceous ground cover, and low shrubs. One southwestern region sensitive species, cliff fleabane (*Erigeron saxatilis*) is present in East Clear Creek and within the project area.

The aquatic community within the creek and IRA includes threatened Little Colorado spinedace and two sensitive species: Little Colorado sucker and roundtail chub. Other native fish include bluehead sucker and speckled dace. Habitat is available for threatened Chiricahua leopard frog and sensitive northern leopard frog.

Rare terrestrial wildlife species that are known to exist or are likely to exist include the threatened Endangered Species Act listed Mexican spotted owl and its critical habitat and one northern goshawk PFA is just over one-half mile away from this IRA in the Rim Country project area. Two Peregrine Falcon nests are within one-half mile of this IRA in the Rim Country project area.

Characteristic 4: The threatened Mexican spotted owl and its critical habitat occur in the IRA. The threatened Little Colorado spinedace and designated critical habitat are present in the IRA. Habitat is available for threatened Chiricahua leopard frog, though the species is not known to occur in the IRA.

Characteristic 5: The IRA provides opportunities for activities of a semi-primitive non-motorized type (a small portion of the IRA is classified as Roaded Natural (RN)). There are 2.2 miles of trails within the project area of the IRA.

Characteristic 6: The area does not serve any research function as a reference landscape, other than as a general example of an area lacking roads.

Characteristic 7: Scenery is a WSR ORV in East Clear Creek because of its beauty. The entire IRA is in the project area with scenic integrity objective classified as high.

Characteristic 8: Many areas across the Forest serve traditional cultural and/or sacred purposes. Specific locations associated with this are necessarily sensitive and are not disclosed in public documents. The project has been and would continue to be reviewed by governmental representatives of Native American groups with traditional ties to the project area.

Characteristic 9: Portions of the East Clear Creek and Barbershop Canyon eligible wild and scenic river corridors are within the IRA. The area has unique geology.

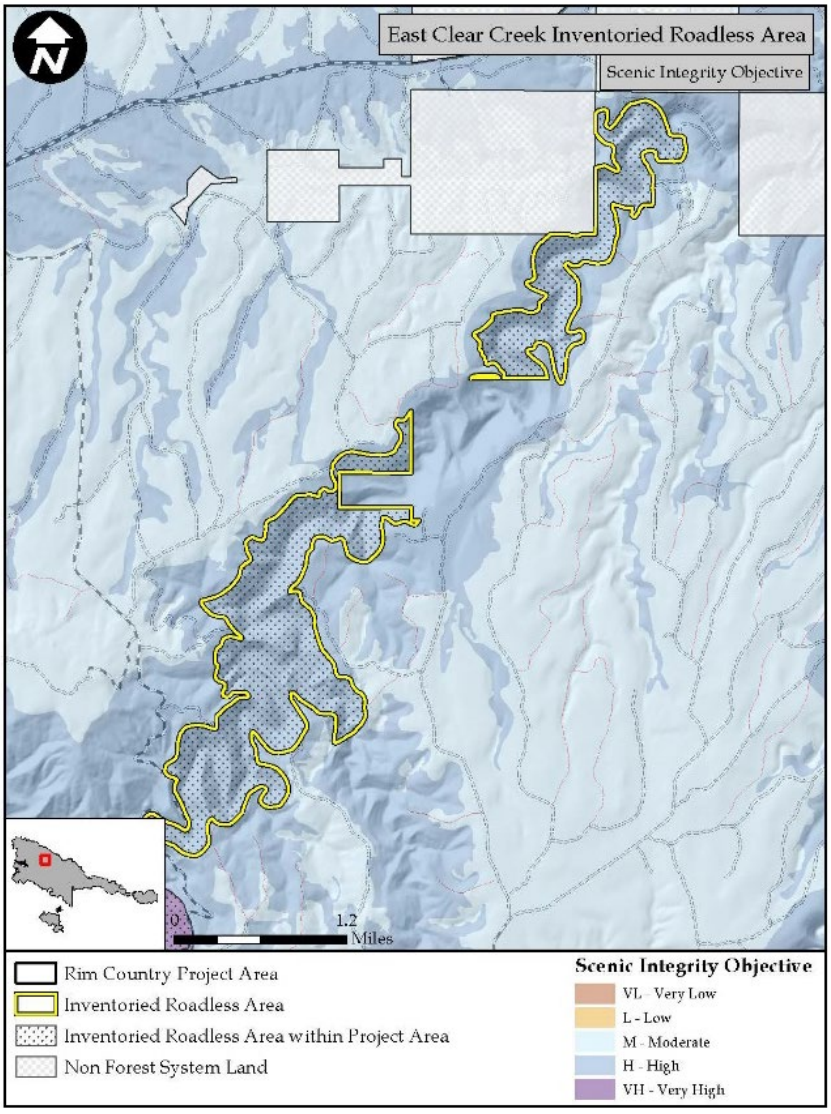


Figure 4. East Clear Creek IRA with SIO

Jacks Canyon IRA

The Jacks Canyon IRA consists of 2,855 acres in the Coconino National Forest; 1,717 acres are within the project area. The majority of the IRA is within the Anderson Mesa management area with a small sliver within the pine belt management area on the Coconino National Forest.

Characteristic 1: Because of its unroaded status, soil and water within the IRA are not impacted by sediment or contaminants associated with road prisms or road use. Air quality within the project area as a whole is primarily affected by wildfire and prescribed fire occurring outside the project area.

Characteristic 2: This IRA does not supply any municipal drinking water.

Characteristic 3: Habitat is available for threatened Chiricahua leopard frog, though the species is not known to occur in the IRA. The IRA is dominated by pinyon juniper, grassland, and ponderosa pine vegetation. A portion of the IRA is within the Anderson Mesa important bird area. Rare terrestrial wildlife species that are known to exist or are likely to exist include the threatened Endangered Species Act listed

Mexican spotted owl and its critical habitat. No other federally listed or Forest Service sensitive species occur in or near this IRA.

Characteristic 4: The threatened Mexican spotted owl and its critical habitat occur in the IRA. The threatened Little Colorado spinedace and designated critical habitat are present in the IRA. Habitat is available for threatened Chiricahua leopard frog, though the species is not known to occur in the IRA.

Characteristic 5: The IRA provides opportunities for activities of a semi-primitive non-motorized type. No trails are within the project area of the IRA.

Characteristic 6: The area does not serve any research function as a reference landscape, other than as a general example of an area lacking roads.

Characteristic 7: A total of 60 percent of the IRA is in the project area with scenic integrity objective classified as high. Mexican spotted owl and its critical habitat occur in the IRA.

Characteristic 8: Many areas across the Forest serve traditional cultural and/or sacred purposes. Specific locations associated with this are necessarily sensitive and are not disclosed in public documents. The project has been and would continue to be reviewed by governmental representatives of Native American groups with traditional ties to the project area.

Characteristic 9: None are applicable within the IRA.

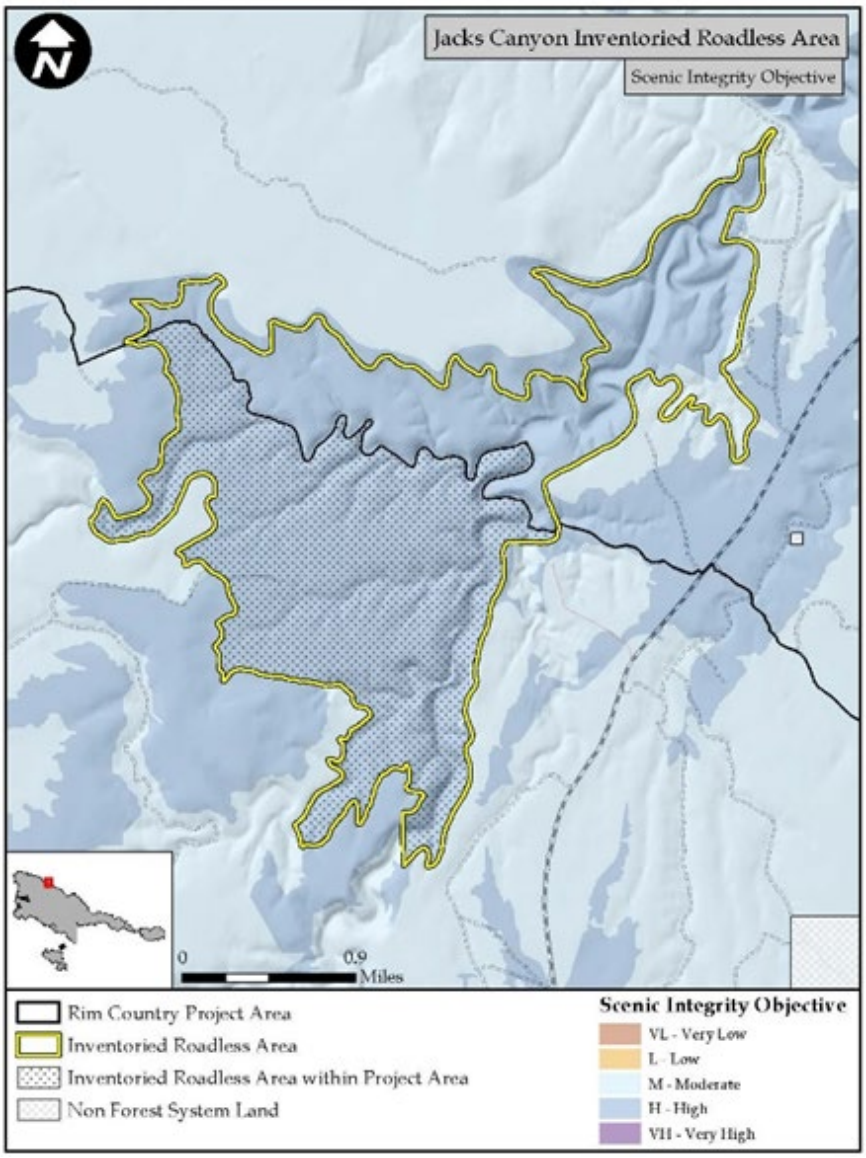


Figure 5. Jacks Canyon IRA with SIO

Hellsgate IRA

The Hellsgate IRA consists of 6,166 acres within the Tonto National Forest; 338 acres are within the project area. The IRA is within the 4FRI management area in the Tonto National Forest Land Management Plan.

Characteristic 1: Because of its unroaded status, soil and water within the IRA are not impacted by sediment or contaminants associated with road prisms or road use. A small section (0.13 mile) of Tonto Creek within the Hellsgate IRA has been identified as impaired for mercury and E. coli by the Arizona Department of Environmental Quality. A Total Daily Maximum Load (TMDL) has been developed for this reach for the E. coli impairment. Air quality within the project area as a whole is primarily affected by wildfire and prescribed fire occurring outside the project area.

Characteristic 2: This IRA does not supply any municipal drinking water.

Characteristic 3: Dominant vegetation communities include ponderosa pine, green oak (in drainages), and juniper woodland and chaparral as you move up slope. To the average forest visitor, the vegetation appears natural, reflects healthy ecosystem function, and shows little to no influence of previous human intervention. Very little fuels or timber management has occurred due to lack of road access. A small portion of Tonto Creek in the Hellsgate IRA is within the project area. Tonto Creek is a perennial creek that cuts a canyon through the wilderness making the terrain subject to steep elevation changes. This aquatic community includes sensitive desert sucker, Sonoran sucker, and headwater chub.

Rare terrestrial wildlife species that are known to exist or are likely to exist include the threatened Endangered Species Act listed Mexican spotted owl and its critical habitat. No other federally listed or Forest Service sensitive species occur in or near this IRA. Most of the Management Indicator Species (MIS) included in the Terrestrial Wildlife Specialist Report could occur in this IRA.

Characteristic 4: The threatened Mexican spotted owl and its critical habitat occur in the IRA.

Characteristic 5: The IRA provides opportunities for activities of a semi-primitive non-motorized and semi-primitive motorized type. No trails within the project area of the IRA.

Characteristic 6: The area does not serve any research function as a reference landscape, other than as a general example of an area lacking roads.

Characteristic 7: Only 5 percent of the IRA is in the project area with SIO classified as high.

Characteristic 8: Many areas across the Forest serve traditional cultural and/or sacred purposes. Specific locations associated with this are necessarily sensitive and are not disclosed in public documents. The Project has been and would continue to be reviewed by governmental representatives of Native American groups with traditional ties to the project area.

Characteristic 9: The IRA is adjacent to the Hellsgate Wilderness. Portions of the Tonto Creek (Upper) eligible wild and scenic river corridor are within the IRA.

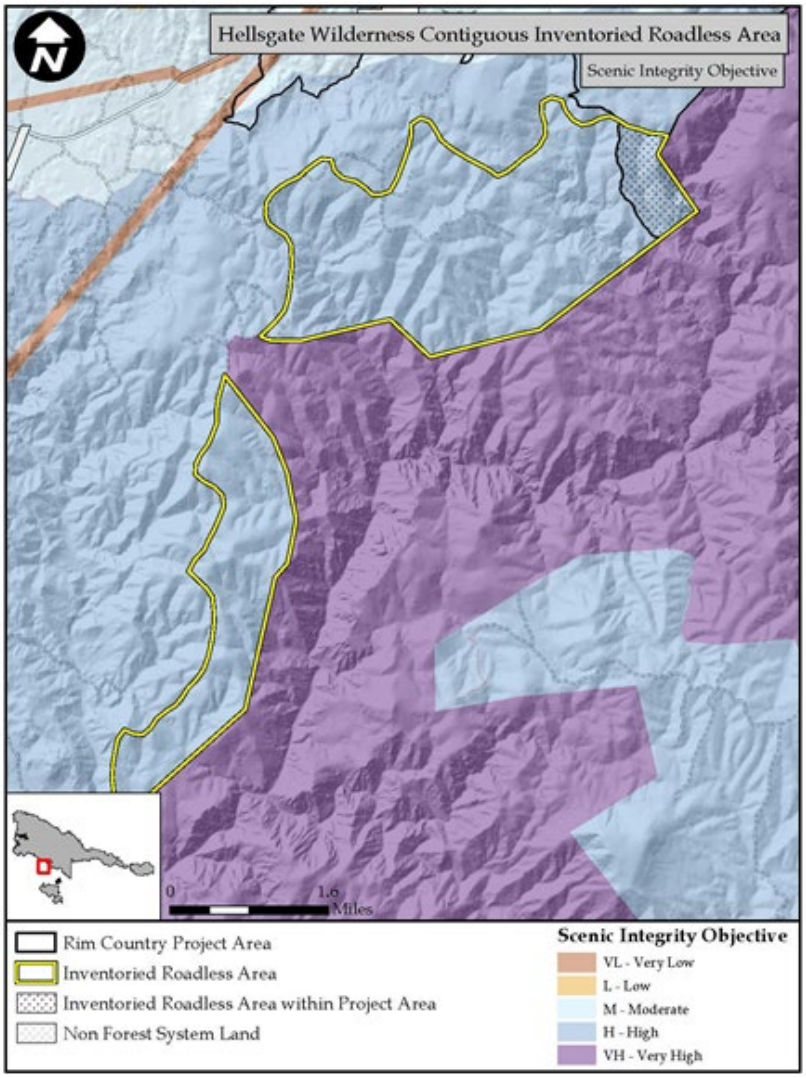


Figure 6. Hellsgate IRA with SIO

Mazatzal IRA

The Mazatzal IRA consists of 16,930 acres in the Tonto National Forest, 316 acres are within the project area. The IRA is within the 4D, 4F, 1E, and 1F management areas in the Tonto National Forest Land Management Plan. Portions of the Arizona National Scenic Trail pass through the IRA. The IRA is adjacent to the Mazatzal Wilderness.

Characteristic 1: Because of its unroaded status, soil and water within the IRA are not impacted by sediment or contaminants associated with road prisms or road use. Air quality within the project area as a whole is primarily affected by wildfire and prescribed fire occurring outside the project area. This IRA overlaps with the Class I airshed of the Mazatzal Wilderness Area.

Characteristic 2: This IRA does not supply any municipal drinking water.

Characteristic 3: Dominant plant communities include pinyon juniper woodlands with some ponderosa pine in the stream bottoms and some ash, cottonwood, and sycamore in the riparian areas. Arizona cypress is also in the area. Pine and Rock Creeks within the IRA have sensitive headwater chub and

desert sucker which are not unique to the area. The portion of the IRA within the project boundary does not contain any aquatic species. Rare terrestrial wildlife species that are known to exist or are likely to exist include the threatened Endangered Species Act listed Mexican spotted owl and its critical habitat. No known northern goshawk, peregrine, bald or golden eagles within a half mile of potions of the IRA within the Rim Country project area. Most of the Management Indicator Species (MIS) included in the Terrestrial Wildlife Specialist Report could occur in this IRA.

Characteristic 4: The threatened Mexican spotted owl and its critical habitat occur in the IRA.

Characteristic 5: The IRA provides opportunities for activities of a primitive, semi-primitive motorized, semi-primitive non-motorized type (a small portion of the IRA is classified as roaded natural). There are 0.7 miles of trails within the project area of the IRA. Portions of the Arizona National Scenic Trail pass through the IRA.

Characteristic 6: The area does not serve any research function as a reference landscape, other than as a general example of an area lacking roads.

Characteristic 7: Only 2 percent of the IRA is in the project area with SIO classified as high.

Characteristic 8: Many areas across the forest serve traditional cultural and/or sacred purposes. Specific locations associated with this are necessarily sensitive and are not disclosed in public documents. The project has been and would continue to be reviewed by governmental representatives of Native American groups with traditional ties to the project area.

Characteristic 9: The IRA is adjacent to the Mazatzal Wilderness.

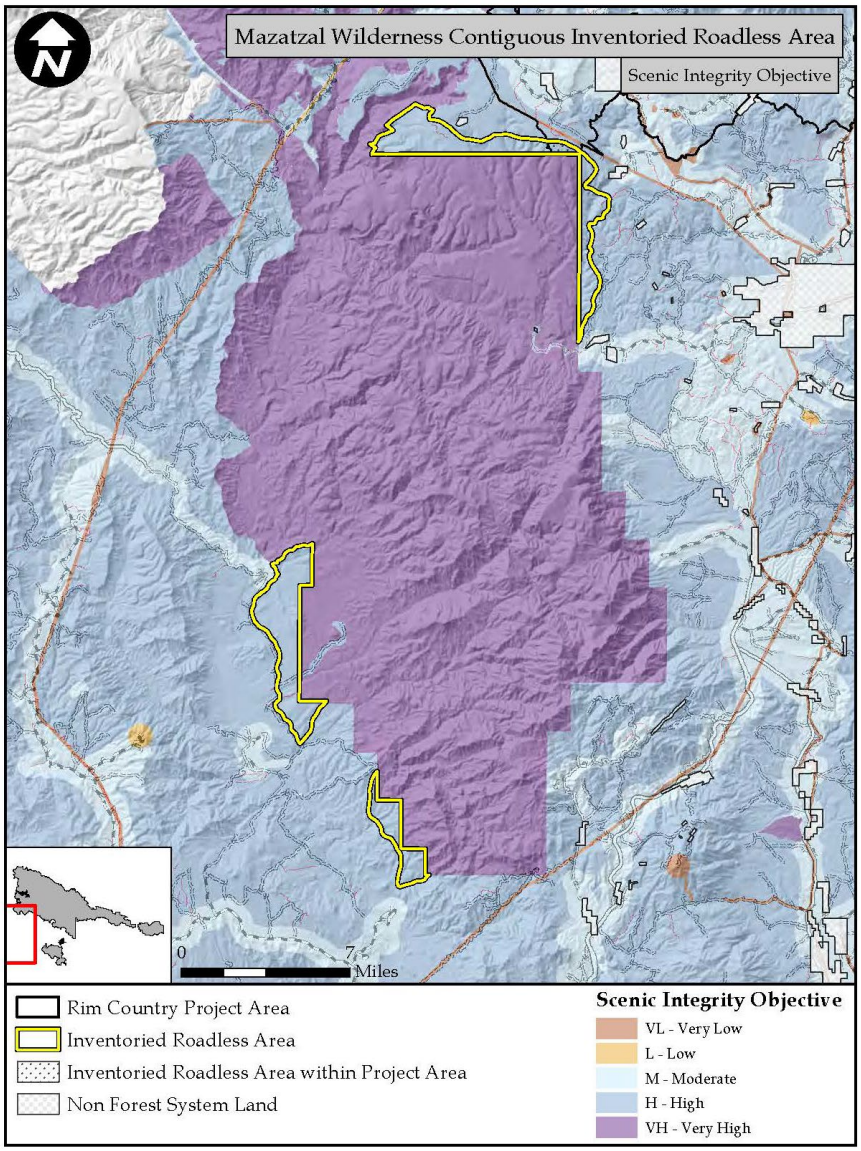


Figure 7. Mazatzal Wilderness Contiguous IRA with SIO

Sierra Ancha Wilderness Contiguous IRA

The Sierra Ancha Wilderness Contiguous IRA consists of 7,781 acres within the Tonto National Forest; 4,613 acres are within the project area. The IRA is within the 5D, 5E, 5F, and 5G management areas in the Tonto National Forest Land Management Plan. Little or no evidence of human influence is present on the landscape. Prevalence of improvements is rare or scattered.

Characteristic 1: Because of its unroaded status, soil and water within the IRA are not impacted by sediment or contaminants associated with road prisms or road use. Air quality within the project area as a whole is primarily affected by wildfire and prescribed fire occurring outside the project area. This IRA overlaps with the Class I airshed of the Sierra Ancha Wilderness Area.

Characteristic 2: This IRA does not supply any municipal drinking water.

Characteristic 3: The vegetation type is a dry mix conifer, wet mix conifer with aspen, ponderosa pine, and evergreen oak. Plant communities consist of juniper grass, pinyon grass, pinyon juniper woodland, chaparral and brush, as well as some riparian communities including cottonwood, sycamore, alder, and ash. There are known occurrences of bloomers dock (sensitive species). Rare terrestrial wildlife species that are known to exist or are likely to exist include the threatened Endangered Species Act listed Mexican spotted owl and its critical habitat. Two Peregrine falcon territories occur within one-half mile of the portions of the IRA that are within the Rim Country project area. No known northern goshawk, bald or golden eagles occur within a half mile of potions of the IRA within the Rim Country project area. Most of the management indicator species (MIS) included in the Terrestrial Wildlife Specialist Report could occur in this IRA.

Characteristic 4: The threatened Mexican spotted owl and its critical habitat occur in the IRA.

Characteristic 5: The IRA provides opportunities for activities of a semi-primitive motorized, semi-primitive non-motorized type, and roaded natural. There are 7.6 miles of trails within the project area of the IRA.

Characteristic 6: The area does not serve any research function as a reference landscape, other than as a general example of an area lacking roads.

Characteristic 7: This area is characterized by high cliffs and abrupt changes in elevation, which ranges from 3,500 to 4,000 feet. There are unique or outstanding landscape features in this area, including scenery which includes cliffs and cliff dwellings. A total of 59 percent of the IRA is in the project area with 4,562 acres in high SIO.

Characteristic 8: Many areas across the Forest serve traditional cultural and/or sacred purposes. Specific locations associated with this are necessarily sensitive and are not disclosed in public documents. The project has been and would continue to be reviewed by governmental representatives of Native American groups with traditional ties to the project area.

Characteristic 9: A small sliver of the Pueblo Canyon eligible wild and scenic river corridor is within the IRA. Portions of the Sierra Ancha Experimental Forest and the proposed Upper Forks Parker Creek RNA are within the IRA. The IRA is adjacent to the Sierra Ancha Wilderness.

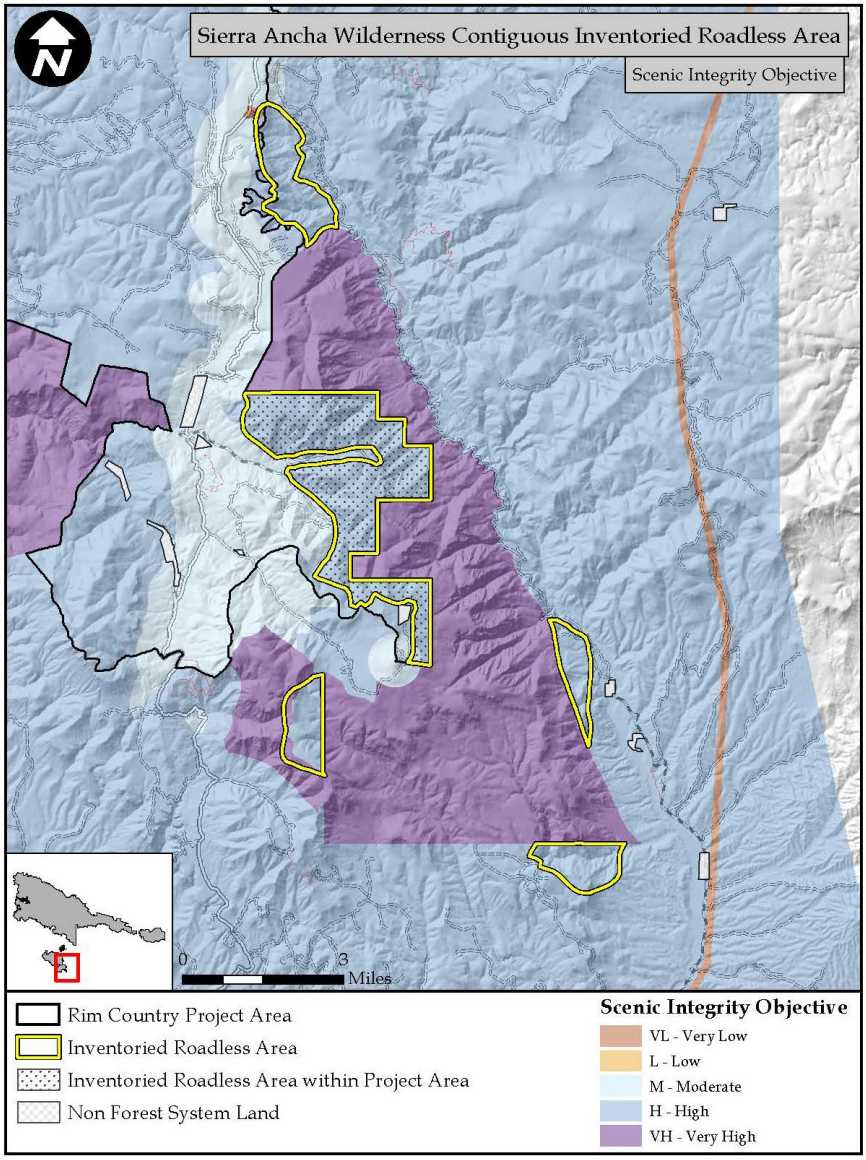


Figure 8. Sierra Ancha Wilderness Contiguous IRA with SIO

Assumptions

- No temporary roads or road rebuilding/reconstruction would occur per design feature RS013.
- No in-woods processing sites or rock pit expansion are proposed in IRAs.
- No cable operations are proposed in IRAs per design feature RS013.
- The cutting of timber for removal is expected to be infrequent because operations in the IRAs would be of limited scope and duration intermittently over a 20-year or more time span. It is expected that re-entry into the IRAs for product removal would not be necessary because first entry would put forested stands on a trajectory toward the natural range of variation.
- Restoration activities would focus on cutting smaller diameter live, standing trees (5-16 inches).

- The Rim Country Project would use a condition-based management approach for mechanical and aquatic treatments within IRAs. Condition-based management ensures that the right treatment is applied to the right location to meet desired conditions most effectively. The approach does not assign specific treatments to specific areas, but rather assigns treatments to a set of conditions that occur on the landscape. Appendix D of the FEIS contains the Rim Country Implementation Plan. The plan outlines procedures for condition-based management and the old and large tree implementation plans. IRAs would be evaluated for resource protection considerations when activities are within IRAs be consistent with the 2001 Roadless Area Conservation Rule Exception Criteria (Appendix D, Implementation Plan Checklist and Section D, Decision Tree Modifiers), requirement of additional notification and approvals including line officer approval and coordination with the Regional Inventoried Roadless Area Lead (Appendix D, Implementation Plan Checklist FEIS), and incorporation design features (Appendix C of FEIS). Treatments in Inventoried Roadless Areas shall be designed to maintain the overall roadless character of inventoried roadless areas. Additionally, in accordance with the Old and Large Tree Implementation Plans (Appendix D of FEIS), removal of old and large trees would be rare. Exceptions for removal of old and large trees are outlined in the plans, however exceptions for removal of old trees would be rare.
- For mechanical treatments, a single entry with chainsaw falling crews, feller bunchers, log skidders, trucks and/or similar equipment would be necessary and could last multiple seasons depending on the size of the mechanical operation. Another entry would be necessary for each prescribed fire activity and would require the use of hand crews, ATVs, engines, trucks, and/or similar equipment. Entry for prescribed fire operations would occur separately from mechanical operations. Any subsequent prescribed fire operations would occur seasons after initial entry, depending on fuel accumulation and predicted fire behavior. Re-entry into the IRAs for product removal would not be necessary.
- The amendment exception for treatment of slopes over 40 percent is incorporated into the analysis.

Methodology and Indicators

The analysis focuses on effects with regards to the nine Roadless Characteristics listed in 36 CFR § 294.22. These characteristics are also the analysis indicators as well as acres of treatments in IRAS.

Roadless Characteristics

(1) High quality or undisturbed soil, water, and air;
(2) Sources of public drinking water;
(3) Diversity of plant and animal communities;
(4) Habitat for threatened, endangered, proposed, candidate, and sensitive species, and for those species dependent on large, undisturbed areas of land;
(5) Primitive, semi-primitive non-motorized, and semi-primitive motorized classes of dispersed recreation;
(6) Reference landscapes;
(7) Natural appearing landscapes with high scenic quality;
(8) Traditional cultural properties and sacred sites; and
(9) Other locally identified unique characteristics.

Environmental Consequences

Fire Hazard Index and Potential Fire Type within IRAs

The following figures will be referred to throughout the analysis. They portray the fire hazard index and potential fire type by alternative for each of the IRAs.

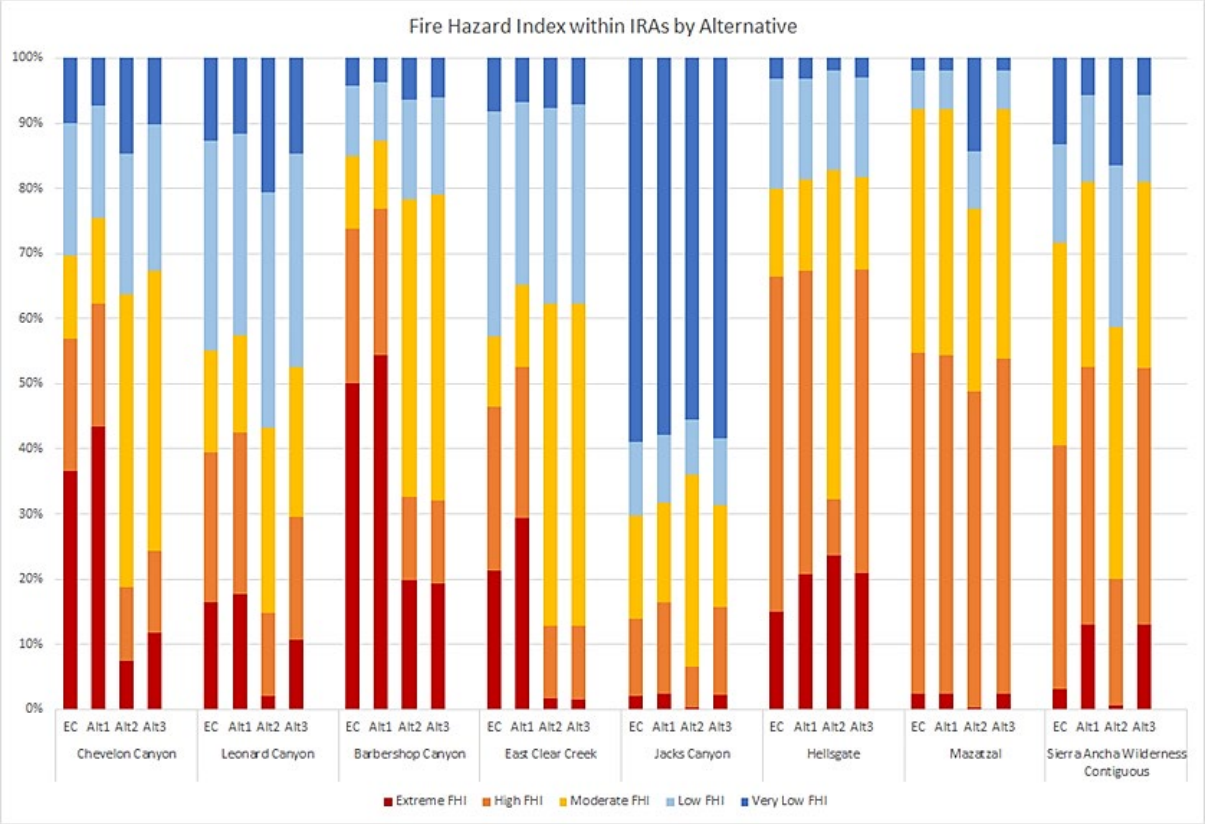


Figure 9. Fire hazard index by IRA for Alternatives 1, 2 and 3

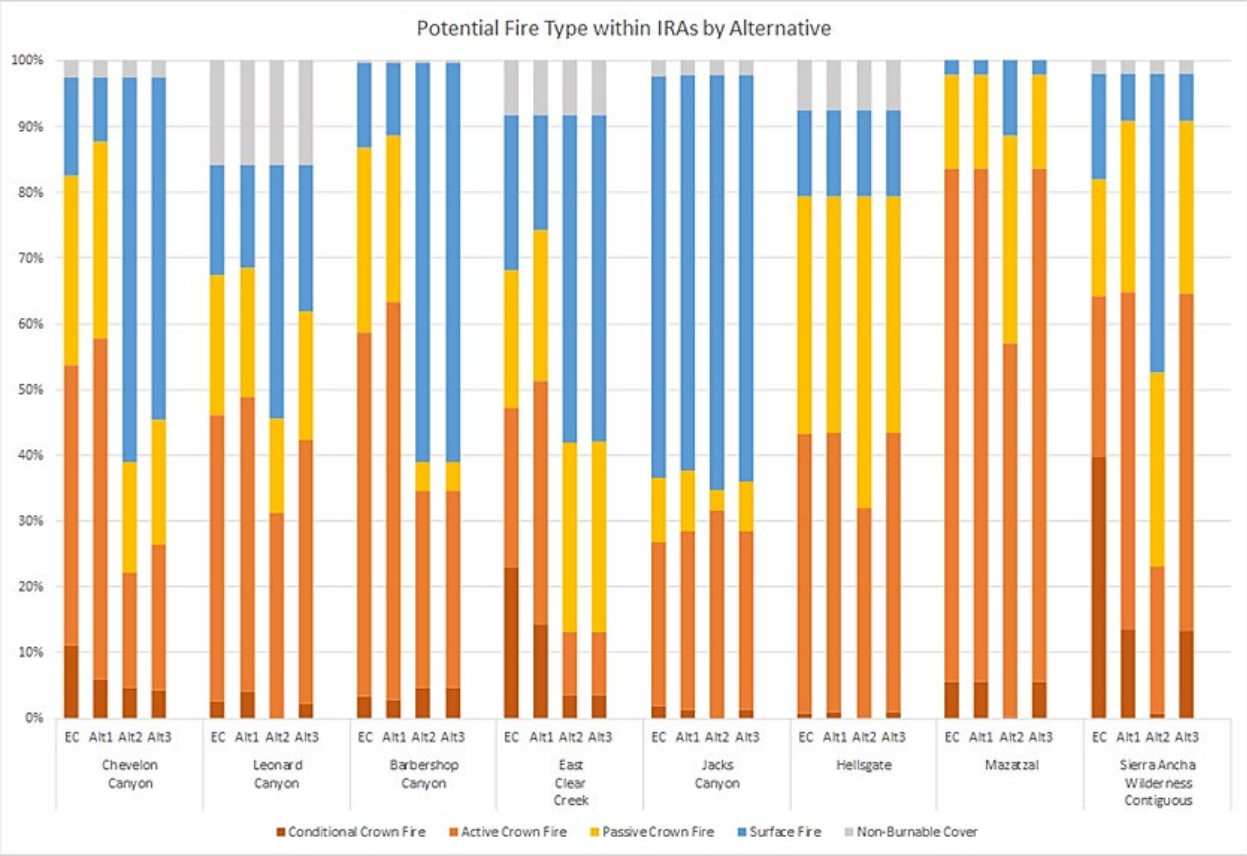


Figure 10. Potential fire behavior by IRA for Alternatives 1, 2, and 3

Alternative 1 – No Action

Under Alternative 1, the Rim Country Project would not be implemented; therefore, no new impacts to the IRAs from project implementation would occur. Potential negative impacts to the characteristics 1, 3, 4, 5, and 7 could result from not addressing the existing stand conditions within the IRA, specifically the increased risk of uncharacteristic wildfire. As shown in Figure 9, fire hazard index is especially high in Barbershop Canyon (over 50 percent), Chevelon Canyon (over 40 percent) with no treatment over 20 years. Shown in Figure 10, potential for fire behavior in Barbershop Canyon (over 60 percent), Chevelon Canyon (over 50 percent), Mazatzal (over 80 percent), and Sierra Ancha Wilderness Contiguous (over 60 percent) is highest for active crown fire. Potential impacts of large, severe wildfires to IRA characteristics could include loss of riparian vegetation thereby decreasing bank stability and resulting in excessive erosion and sediment production, loss of habitat for terrestrial and aquatic species health, impacts to the scenic integrity of the IRAs, and safety risks to public recreational uses. Overall, there could be potential negative impacts to the characteristics 1, 3, 4, 5, and 7 from not addressing the existing stand conditions within the IRAs, specifically the increased risk of uncharacteristic wildfire.

Effects Common to Both Action Alternatives

Restoration activities would focus on cutting smaller diameter live, standing trees (5 to 16 inches). As stated in the Rim Country Old Tree Implementation Plan (Appendix D of the FEIS), old trees would be retained, with few exceptions, regardless of their diameter, within the Rim Country analysis area. Removal of old trees would be rare. Exceptions would be made for threats to human health and safety, and those rare circumstances where the removal of an old tree is necessary in order to prevent additional

habitat degradation that would be caused by forest thinning and burning operations. Old trees would not be cut for forest health reasons or to balance age or size class distributions. Large post-settlement trees, would be retained with the exceptions outlined in the Rim Country Large Tree Implementation Plan (Appendix D of the FEIS) such as encroachment within seeps and springs, wet meadows, grasslands, aspen stands, conifers encroaching into riparian areas, etc.

The project would maintain characteristics 5, 7, 8, and 9. Characteristics 1, 2, 3, and 4 would be improved as described in the analysis below. Particularly, characteristics 3 and 4 for terrestrial and aquatics species would be improved. Mechanical thinning would improve habitat characteristics beneficial for the Mexican spotted owl (from the Mexican spotted owl Recovery Plan) while also protecting Mexican spotted owl habitat from high-severity wildfire. Treatment in IRAs is especially important to ensure continuity of restoration treatments, especially because IRAs represent areas that have high departure from desired conditions and pose a risk to values around them.

Treatments would promote resiliency in forested areas during wildfires by reducing the potential for high-severity fire behavior within IRAs. Post adverse wildfire watershed effects increase with the percentage of the watershed that burns at moderate to high severity (Cannon 2010; Neary 2011). The potential of damage from wildfires would be reduced in IRAs, especially within East Clear Creek, Barbershop, Sierra Ancha Wilderness Contiguous, Jacks Canyon, and Chevelon Canyon.

General and heavy stream restoration and road decommissioning would be the same under both action alternatives. Benefits to IRA character would be felt in Chevelon Canyon, Leonard Canyon, Barbershop Canyon, East Clear Creek, Hellsgate, Mazatzal, and Sierra Ancha Wilderness Contiguous IRAs (See Table 3). Decommissioning of roads within the IRA would prove beneficial to all applicable roadless characteristics (1, 3, 4, 5, and 7) by mitigating all impacts associated with the existing unauthorized road segment. Stream restoration impacts are described in Characteristic 1, 3, and 4 below.

In most cases, the project's anticipated effects for each resource area are not expected to be different when crossing the boundary into the IRAs, therefore the analysis in other resource sections for specific actions would be similar.

Characteristic 1

Soils: Effects to soils are described within the soils and watershed section of the FEIS. Mechanical thinning with IRAs would cause soil compaction, puddling, displacement, erosion, loss of soil organic matter, short-term changes in soil moisture content or retention, changes in nutrient cycles, changes in soil fauna, and introduction of invasive and noxious weeds. Thinning of forest cover on soils currently characterized as unsatisfactory would improve soil conditions over the long-term by improving soil moisture and allowing greater sunlight penetration to the forest floor (for example sunflecks) resulting in an increase in grasses, forbs and shrubs in the forest understory where litter is currently the dominant soil cover (Griffis et al. 2000). The increased herbaceous vegetation would reduce soil erosion rates by providing vegetative ground cover that would intercept rain before it can reach soil surfaces and detach and entrain soil particles in runoff. Woody debris from forest thinning (slash) would be lopped and scattered where doing so would not result in excessive fuel loads, further mitigating potential adverse effects to soils and watershed resources. Finer litter and woody debris that is incidental to forest vegetation treatments (such as needles, leaves, twigs, cones, bark, etc.) would also remain on the ground following mechanical treatments to protect soil surfaces from wind and water erosion.

Water: Effects to water and riparian resources are described within the Water and Riparian section in Volume 1 of the FEIS. As described in Chapter 3 of the Rim Country FEIS, moving existing conditions toward desired conditions through implementation of the action alternatives would improve the state of

the physical and biological processes both in the areas affected and within a watershed that effect soil and hydrologic functions supportive of ecosystems.

Mechanical thinning treatments would promote resiliency during uncharacteristic wildfires by reducing the potential for high-severity burning of upland and riparian vegetation. Loss of vegetation from high-severity fires can decrease soil stability resulting in excessive erosion and sediment production affecting water quality of downgradient and downstream waterbodies. Resource protection measures for mechanical treatments would be implemented to minimize nonpoint source pollution as outlined in the 2019 Intergovernmental Agreement (memorandum of understanding) between the Arizona Department of Environmental Quality and the Southwestern Region of the Forest Service. Design features related to mechanical vegetation treatments are expected to minimize effects to resources and nonpoint source pollution. The project includes establishment and limitations within Aquatic Management Zones (SW001-SW-006), erosion control (SW022-SW023, SW025, SW40), spreading treatments in time and space within a watershed (SW054) as well as for skid trails (SW020-21, SW28-SW030, SW032-33, SW041, SW046), yarding (SW036), stream crossings (SW031), ground-disturbance limitations (SW039, SW045-SW049), protected areas (SW044) and landings (SW038, SW047) are expected to reduce effects. The project also includes a design feature to protect herbaceous regrowth post-treatment from livestock grazing if necessary (RM004, SW012).

Prescribed fire treatments would reduce fuel loading that continues to increase in both living biomass and woody detritus through natural forest ingrowth and tree encroachment into existing openings, resulting in increased risk of high-severity wildfire. A dense forest litter layer (duff) has displaced much of the herbaceous vegetation which provides even greater benefits to soil hydrologic function due to fine root turnover, increased fine litter, improved soil porosity and aggregate stability, and increased water holding capacity. Increased water turbidity, and downstream flooding would be more widespread in an uncontrolled wildfire situation than under prescribed fire conditions where the size and intensity of the fire can be controlled. Design features (Appendix C of the FEIS) related to prescribed fire are expected to minimize the potential effects described above. The project includes limitations within Aquatic Management Zones (SW007 and SW-008), spreading treatments in time and space within a watershed (SW054), fireline criteria (FE008, SW050-51, TR002), riparian criteria (SW053), general fire (FE003, FE007) and cumulative impacts (FE011) which are expected to reduce potential impacts. The project also includes design features to protect herbaceous regrowth post-treatment from livestock grazing if necessary (RM004, SW012).

Water quality would likely benefit from road decommissioning of Forest Service system roads and unauthorized routes being used for motorized travel that continue to discharge runoff and sediment to project area streams, especially where the roads are poorly located in stream bottoms, have inadequate drainage structure, and are hydrologically connected to the stream network. Appendix C of the FEIS has specific soil and water design features to minimize nonpoint source pollution from road decommissioning and other road activities (SW056-SW058).

Implementation of restoration activities described in the Aquatic and Watershed Condition- Based Management Approach could promote conditions for desirable water quality and quantity characteristics across the project area. Restoration activities include a range of treatment types from heavy mechanical stream reconstruction to building of small wood and rock stabilization structures. Also included are riparian planting and protection, spring restoration, and vegetation treatments including thinning and prescribed fire just to name a few others. Long-term water quality would benefit from promotion of soil and channel stability with improved dissipation of stream energy, water storage, and more stable flow regimes through maintenance or improved riparian vegetation conditions. Reduction of canopy cover near riparian areas would stimulate the development of understory vegetation including deciduous woody riparian vegetation (for example aspens, willows and cottonwoods). Increased infiltration resulting from

the vegetative treatments promotes infiltration of excess moisture into sub-surface storage increasing groundwater levels supporting riparian vegetation and spring flow. Short-term inputs of sediment are expected from these ground-disturbing activities, however Appendix C of the FEIS has design features to minimize point and nonpoint source pollution and protect riparian resources. Reducing heavy equipment impacts are addressed in AQ008, AQ011, AQ030, SW063, SW065-68, SW070, to reduce direct impacts and sedimentation. Reducing impacts to riparian vegetation is covered by AQ014, AQ035, AQ037, SI001, SI003, SI023, and SW008-9, while protecting stream shade is included in AQ032-34. There are also design features for mimicking stream reference conditions (SW055), site rehabilitation (SW059-63) and stockpiling materials from uplands for use in streams (SI007).

There are four design features to prevent pollutants from entering riparian areas, waterbodies and aquatic habitats which minimizes the potential effects. These measures range from checking for leaks daily to refueling and staging areas being outside aquatic management zones (AQ003, SW015-16, and SW074).

As described in Water and Riparian Resources Section in Chapter 3 of the Rim Country FEIS, the action alternatives would move areas currently not meeting desired conditions with respect to stable soil and hydrologic regimes to those supporting improved water quality and quantity and riparian systems. Moving toward these desired conditions contributes to healthy watersheds and clean downstream drinking water which is consistent the social and ecological values and characteristics of inventoried roadless areas.

Air: Effects to air are described fully within the air quality section of the FEIS (volume 2). Air quality impacts would come primarily from prescribed fire. Areas treated with prescribed fire would produce lower emissions per acre than untreated acres burned by wildfire. All prescribed fire treatments would comply with National Ambient Air Quality Standards. Implementation of the project would comply with the federal Clean Air Act and at the state level with the Arizona Department of Environmental Quality's regulations that require the project to not cause exceedances of the National and State Ambient Air Quality Standards in populated areas.

Characteristic 2

None of the IRAs supply any municipal drinking water, therefore this characteristic is not analyzed.

Characteristic 3

Terrestrial Species: Effects to terrestrial wildlife species are described fully within the terrestrial wildlife section of the FEIS. Mechanical thinning in IRAs has the potential to effect terrestrial wildlife species in the short-term, with long-term benefits that outweigh brief disturbance. Short-term effects include noise disturbance, alteration of understory and habitat that cause animals to leave the area. Design features related to mechanical vegetation treatments are expected to minimize the potential effects described above.

Prescribed burning has the potential for negative short-term effects to upland vegetation and harm to individual terrestrial species if present. Short-term effects would result if these activities occur within species habitat from firelines (ground disturbance), removal or reduction of vegetation, and altered water quality downstream from ash. Generally herbaceous vegetation recovers quickly after low and moderate intensity prescribed fire. Long-term effects of prescribed burning are expected to be positive for terrestrial wildlife species and habitats. Reduced fuel loading would protect these areas from the effects of uncharacteristic wildfire in the future and returning frequent fire to the ecosystem is a restoration activity that this project hopes to achieve to preserve these areas for the future.

Numerous wildlife design features (Appendix C of FEIS) have been added to the project to protect the Mexican spotted owl, northern goshawk, and bald and golden eagles that would minimize effects to these

species in IRAs as well as the entire project area. These include buffers from noise from mechanical equipment as well as seasonal restrictions. Other raptorial bird species, wolves and bats have design features that would minimize disturbance to these species of terrestrial wildlife.

For Forest Service Sensitive Species, the terrestrial wildlife section determined that individuals of some species could be affected by proposed activities but that no species would trend toward Federal listing as a result of the proposed alternatives. On the Tonto, management indicator species were analyzed in the terrestrial wildlife section with no species trends affected by the proposal. The same determinations are true for implementation in the IRAs within Rim Country project.

Plant Species: Impacts to Bebb's willow and Arizona sneezeweed, and Blumer's dock are present within the botany section of the FEIS. Overall, impacts to these species would not effect this IRA character due to inclusion of design features (Appendix C of FEIS).

Aquatic Species: Effects to aquatic species are described within the aquatics species section of the FEIS. Mechanical thinning within aquatic management zones could have negative effects to species and their habitats from reduced riparian vegetation cover and ground disturbance leading to increased sedimentation to streams in the short term (less than 5 years). Elevated sedimentation above current levels could negatively impact aquatic habitat, species, and water quality; particularly fish eggs and early life history stages that occur on or within substrate as well as the aquatic macroinvertebrate community structure. Habitat is impacted by increased fines and embeddedness to spawning substrates which can lead to loss of habitat quality and reduced reproductive success. However, herbaceous ground cover would reestablish and should increase given reduced conifer canopy cover and increased sunlight reaching the ground. There is the potential of impacts to individual frogs in the form of harm or modification of behavior during implementation. Indirectly, frogs may avoid or move out of these areas while work is occurring causing displacement or disruption of social and feeding behavior. These effects have the potential to reduce the health or reproductive capability of individuals.

Design features related to mechanical vegetation treatments are expected to minimize the potential effects described above. The project includes spreading treatments in time and space within a watershed (SW054) as well as for skid trails (SW020-21, SW28, SW030, SW032-33, SW041, and SW046), yarding (SW036), and landings (SW038, SW047) are expected to reduce effects. The project also includes a design feature to protect herbaceous regrowth post-treatment from livestock grazing if necessary (RM004, SW012).

Prescribed burning has the potential for negative short-term effects to riparian vegetation and harm to individual frogs if present. Short-term effects would result if these activities occur within species habitat from firelines (ground disturbance), removal or reduction of vegetation, and altered water quality from ash. Generally herbaceous vegetation recovers quickly after low and moderate intensity prescribed fire. However, prior to this, there may be increased sedimentation into streams short term which may negatively affect habitat by increasing substrate embeddedness or potentially effecting eggs, larval fishes and tadpoles and aquatic insect prey base.

Long term effects of prescribed burning are expected to be positive for aquatic species and habitats. Reduced fuel loading would protect these areas from the effects of uncharacteristic wildfire in the future. Large woody debris recruitment and streamside cover or structure can also improve with prescribed fire. Fire plays an important role in maintaining heterogeneity in riparian and aquatic systems that has been excluded similar to surrounding uplands (Gresswell 1999); therefore, restoring the fire regime would have some benefits to riparian condition.

Design features related to prescribed fire are expected to minimize the potential effects described above. The project includes spreading treatments in time and space within a watershed (SW054), fireline criteria

(FE008, SW050-51, and TR002), riparian criteria (SW053), general fire (FE003, FE007) and cumulative impacts (FE011) which are expected to reduce potential impacts. The project also includes a design feature to protect herbaceous regrowth post-treatment from livestock grazing if necessary (RM004, SW012).

Though the long-term effects of stream restoration projects are anticipated to be positive for species, some actions may result in a degree of short-term negative effects to aquatic species and their habitats. General stream restoration activities have little ground disturbance and no negative impacts to fish would occur as these activities occur in the riparian area and not the stream. Benefits of improved riparian vegetation include increased stream shading, bank stability, hiding cover for amphibians and reptiles, and improved riparian condition. Short term effects of heavy mechanical restoration generally include disturbance within the streams and nearby floodplains which may result in sediment plumes while work is occurring, temporary disturbance of occupied habitats and displacement of individuals, temporary reduction of riparian vegetation cover in the project area and change of channel structure. These impacts are considered short-term (a few weeks) and sediment should be moved downstream during the first high stream flow. Beneficial impacts of stream restoration of improved habitat, connectivity and stream function are immediate and long-term.

Multiple project design features are included in the project to reduce adverse impacts where feasible given the nature of these methods. Reducing heavy equipment impacts are addressed in AQ008, AQ011, AQ030, SW063, SW065-68, SW070, to reduce direct impacts and sedimentation. Reducing impacts to riparian vegetation is covered by AQ014, AQ035, AQ037, SI001, SI003, SI023, and SW008-9 while protecting stream shade is included in AQ032-34. There also design features for site rehabilitation (SW059-63) and stockpiling materials from uplands for use in streams (SI007).

There are four design features to prevent pollutants from entering riparian areas, waterbodies and aquatic habitats which minimizes the potential effects. These measures range from checking for leaks daily to refueling and staging areas being outside aquatic management zones (AQ003, SW015-16, and SW074). There is one design feature to prevent introduction of disease or aquatic invasive species to any stream or water body (AQ001).

Characteristic 4

Eight of the IRAs contain Mexican spotted owl habitat (either protected activity centers or recovery habitat). A total of 10,740 acres of treatment are proposed in IRAs in Mexican spotted owl habitat. Thinning and prescribed fire is proposed for 2,473 of those acres with the remainder proposed for prescribed fire only. Specific acreages by IRA are included in Table 3 below. General stream restoration is proposed on 23.3 miles of IRAs, in protected activity centers, in the project area. Of these miles, only 0.03 are proposed for heavy mechanical restoration. Short-term disturbance to Mexican spotted owls are expected, however, overall, the effects of treatments would benefit the Mexican spotted owl and its habitat. Treatments in IRAs would put forested stands on a trajectory toward the natural range of variation and making them more diverse, and resilient to disturbances such as fire, disease, insects and climate change. An increase in resiliency would improve IRA characteristic 4 as it pertains to the forest structure, composition, pattern and process thereby benefiting Mexican spotted owl habitat. Additional analysis for this species is located in the terrestrial wildlife section of the FEIS.

The threatened Colorado spinedace and its critical habitat are present in four IRAs. Habitat for the threatened Chiricahua leopard frog is available, but the species is not present. Long term benefits from mechanical treatments include reduced uncharacteristic fire risk and road density. General stream restoration would have a long-term benefit of improves riparian vegetation structure and function, bank stability, and stream shade. Heavy mechanical stream restoration has negative impacts to individuals and increased sedimentation during implementation, but immediate and long-term benefits of improved

stream habitat and stream function. These activities provide for long term habitat, population viability and species recovery, therefore improving IRA characteristic 4. Addition analysis for these species is present in the aquatics section of the FEIS (volume 1).

Characteristic 5

The long-term inventoried roadless area characteristics are not expected to change as a result of vegetation management activities, or other proposed actions. Overall, proposed activities would have only limited, short-term impacts on the visitor experience. None of the proposed activities would result in a permanent change in the condition of the area or its potential to be included in future inventories. Long-term benefits to recreation setting due to forest restoration, more resilient forest conditions, and a reduced risk of severe wildfire in the future.

Proposed treatments would diminish the risk of large, highseverity, catastrophic fires that could result in forest closures. This could impact visitor's trip itineraries but would not change the recreation opportunity spectrum. No roads would be built as indicated in design features (Appendix C of FEIS). The proposed activities would help preserve the natural appearing character of the landscape and lessen the risk of loss in the event of a wildfire. The inventoried roadless character would be protected and possibly enhanced.

Portions of the Arizona Trail occur in the Mazatzal IRA. Design features (Appendix C of FEIS) specifically for the minimization of impacts to the Arizona Trail and recreationalists would reduce impacts. Specially, these design features include: coordination with recreation staff to provide additional scenic integrity guidelines (RS001), protection of the trail during prescribed burning control line establishment and mitigation of adverse effects (RS004), minimal marking of trees in the Arizona Trail corridor and avoiding using the Arizona trail as a boundary (RS006), meetings with the Arizona Trail Association in the planning stages (RS006), treatment of the edges of thinning areas to maintain scenic integrity (RS006), emphasis for slash treatment and road decommissioning (RS010), not allowing skid trails to be established (RS010), eliminating jackstraw treatments within the line of sight or 300 feet from the trail (RS012), notification of trail detour routes during operational closures (RS015), and slash treatment pull-back near national trails (RS016).

Characteristic 6

No treatments would occur within the Sierra Ancha Experimental Forest in the Sierra Ancha Wilderness Contiguous IRA. No treatments that would occur within the Upper Forks Parker Creek Research Natural Area in the Sierra Ancha Wilderness Contiguous IRA. Therefore, there would be no impacts to Characteristic 6.

Characteristic 7

IRA treatment alternatives would have short term direct impacts to roadless resources during project implementation such as increased presence of people and smoke, charred bark of standing trees and down logs, and a blackened appearance to the ground plane and burned understory plants with prescribed fire treatment. Burn piles would also be evident on the landscape in the short term until they are burned for all action alternatives. The visual effects would be reduced within two years, with the regeneration of ground cover plants and the deposition of forest litter over the burned sites.

The conventional mechanical treatments typically have moderate short-term effects on scenery. There would be a low to moderate effect on scenic quality during and immediately following mechanical treatment methods. The presence of skid trails, landings, or scattered slash would result in a moderate reduction of the scenic quality until harvesting activities are completed, and design features are implemented. The effects in these areas would be short-term (lasting 1 to 5 years after treatment) because

skid trails would be rehabilitated and activity-generated slash would be treated or removed to be utilized. The ground disturbance resulting from using machines to pile slash would be noticeable for one to three years after project completion, depending on how quickly the areas revegetate. Scraped trees would heal or scars would become less noticeable over time. Within inventoried roadless areas, mitigation would help maintain the roadless area characteristics of primitive, semi-primitive nonmotorized and semi-primitive motorized classes of dispersed recreation. Design features and the land management plans have criteria specific to IRA's and High Scenic Quality areas to help preserve the scenic integrity of the IRA's. Stumps are typically flush cut or left no more than eight inches high, slash would be treated, removed, and existing and natural barriers would be used as control lines to mitigate the effects on scenery. The effects for each treatment type are described in detail in the Chapter 3 Scenery section of the FEIS under Alternative 2 Mechanical Treatment and Burning. The effects would occur within each IRA and would vary in degree depending on the number of acres treated per treatment type highlighted in the tables below (Table 3 and

Table 4). An indirect effect of proposed activities could be displacement of visitors to untreated areas for recreation, mostly because of visuals. However, this effect would last for about 1 to 2 years after treatment activities when green-up would occur.

Visitors adjacent to the IRA treatment areas, including those on the boundary of wilderness and IRA treatment areas would expect to observe the presence of workers and the sights and sounds of project work occurring within the IRAs. The sounds of equipment may be audible until visitors travel further into the interior of adjacent wilderness or away from the IRA treatment areas. These effects are expected to be short term and only persist near the IRA treatment areas. Smoke from prescribed fire would likely be a short-term effect in these locations as well.

Management activities focus on restoring the characteristics of ecosystem composition and structure, such as to reduce the risk of uncharacteristic wildfire effects, within the range of variability that would be expected to occur under natural disturbance regimes of the current climatic period.

The proposed treatments would address the purpose and need of the project, resulting in a more diverse, and resilient and sustainable forest ecosystem with a reduction in risk of negative impacts from wildfire. The long-term forest health and resiliency would be most improved under Alternative 2 and Alternative 3 than Alternative 1 due to the development of a less homogenous forest, more diversity of species, and a mosaic of age classes. Short-term effects from prescribed fire and mechanical treatment to scenic quality would be apparent in the landscape as described above and below under Alternative 2. In the long term, treated areas would be more resilient to wildfire, and other natural disturbances, which would more likely maintain the quality of soil, water, and air in the future.

Characteristic 8

The effects to traditional cultural properties and sacred sites with the affected IRAs have not been identified yet. General effects to cultural resources are described in the Cultural Resources Specialist Report and the FEIS. The Tribal Relations section of the FEIS details the extensive tribal consultation that has occurred for this project and a list of the tribes consulted can also be found in this section.

Prior to project implementation, cultural resources inventories would be conducted. Tribal consultation would be conducted after the cultural resources inventories are complete and a determination has been made if there are cultural resources, or properties eligible as traditional cultural places, sacred sites or other sites or resources of tribal concern that would require mitigation. The Design Features (Appendix C of FEIS– CT001-CT019) and Implementation Plan (Appendix D of FEIS) would be followed to limit

potential effects to properties and resources of Tribal concern. Typical mitigation may include flag and avoid, hand treatments like lop and scatter and light burning.

Characteristic 9

Other than those described above for other unique characteristics, treatments within eligible wild and scenic rivers (see Characteristic 1: Water and 3: Aquatics) would be conducted to maintain the outstandingly remarkable values of the segments. Design features criteria specific to eligible wild and scenic rivers to help preserve the outstandingly remarkable values include locating landings, in-woods processing sites, and skid trails outside of eligible Wild and Scenic Rivers (RS010), placing emphasis on slash treatment in the eligible Wild and Scenic River corridors (RS010), removing, burning, or chipping debris and root wads (RS011), restrictions on stump heights (RS013), use of existing barriers or natural barriers for control lines (RS013), and limitation of tree cutting within eligible or suitable wild river segments on the Apache-Sitgreaves National Forests (RS022). Specifically, design feature RS021 states "All restoration activities within eligible or suitable wild and scenic river corridors would be designed to protect or enhance the free-flowing character and outstandingly remarkable values (ORVs) of rivers, and to maintain the rivers' current inventoried classifications (wild, scenic, or recreational), unless a suitability study is completed that recommends management for a less restrictive classification (See RS022)." No treatments would occur with wilderness areas. Important bird areas and wildlife quiet areas would be preserved by silvicultural and prescribed burn prescriptions that are designed to restore the habitat and preserve characteristics that are important to wildlife species that evolved there such as large trees and snags, canopy cover, course woody debris, with abundant shrub and herbaceous cover. Comprehensive restoration would further benefit these areas to restore riparian, stream channel, wet meadow, and other important features for wildlife species.

Alternative 2 – Modified Proposed Action

Table 3. Proposed treatments within IRAs for Alternative 2

Inventoried Roadless Area	Mechanical Thinning and Prescribed Fire (acres)	Prescribed Fire Only (acres)	General Stream Restoration (miles)	Heavy Mechanical Stream Restoration (miles)	Road Decommissioning (miles)
Chevelon Canyon	372	4,816	1.35	0.01	-
Leonard Canyon	725	1,083	10.14	-	-
Barbershop Canyon	460	850	12.13	-	-
East Clear Creek	552	1,058	9.79	0.06	-
Jacks Canyon	1,169	548	-	-	-
Hellsgate	338		0.11	-	-
Mazatzal	316		-	-	0.5
Sierra Ancha Wilderness Contiguous	3,366	1,247	-	-	0.08
Grand Total	**7,298**	**9,602**	**33.52**	**0.07**	**0.58**

See Appendix A for treatment maps for Alternative 2.

After treatment, the fire hazard index would be reduced in IRAs, especially within Barbershop Canyon, East Clear Creek, and Chevelon Canyon IRAs (Figure 9). Large wildfires in areas with high fire hazard indexes have a high potential to be difficult and dangerous to suppress and have a high potential for adverse post fire effects. As shown in Figure 10, once fully implemented, treatments are expected to reduce the potential for active and conditional crown fire and move the treated areas toward meeting desired conditions in all IRAs.

Alternative 3 – Focused Alternative

Table 4. Proposed Treatments within IRAs for Alternative 3

IRA Name	Mechanical & Prescribed Fire (Acres)	Prescribed Fire Only (acres)	General Stream Restoration (miles)	Heavy Mechanical Stream Restoration (miles)	Road Decommissioning (miles)
Chevelon Canyon	305	3,961	1.35	0.01	-
Leonard Canyon	339	428	10.14	-	-
Barbershop Canyon	460	850	12.13	-	-
East Clear Creek	552	1,058	9.79	0.06	-
Jacks Canyon	79	20	-	-	-
Hellsgate Wilderness Contiguous	2	-	0.11	-	-
Mazatzal Wilderness Contiguous	-	-	-	-	0.5
Sierra Ancha Wilderness Contiguous	20	5	-	-	0.08
Grand Total	**1,757**	**6,321**	**33.52**	**0.07**	**0.58**

See Appendix A for treatment maps for Alternative 3.

The main difference between Alternative 2 and Alternative 3 is the increased acreage in mechanical treatment. Alternative 2 has 7,298 acres of mechanical treatment and Alternative 3 has 1,757 acres. The inventoried roadless character would be protected and possibly enhanced, in IRAs that are treated (see Table 4). The proposed activities would help preserve the natural appearing character of the landscape and lessen the risk of loss in the event of a wildfire, in IRAs that are treated (Table 4). As shown in Figure 9, fire hazard index is reduced in IRAs where treatment would occur. Jacks Canyon, Hellsgate, Mazatzal, and Sierra Ancha Wilderness Contiguous IRAs would receive few to no mechanical and prescribed fire treatments, fire index as compared to Alternative 1 represents no change, to a very minimal change. The same is true for these IRAs for potential fire behavior as shown in Figure 10.

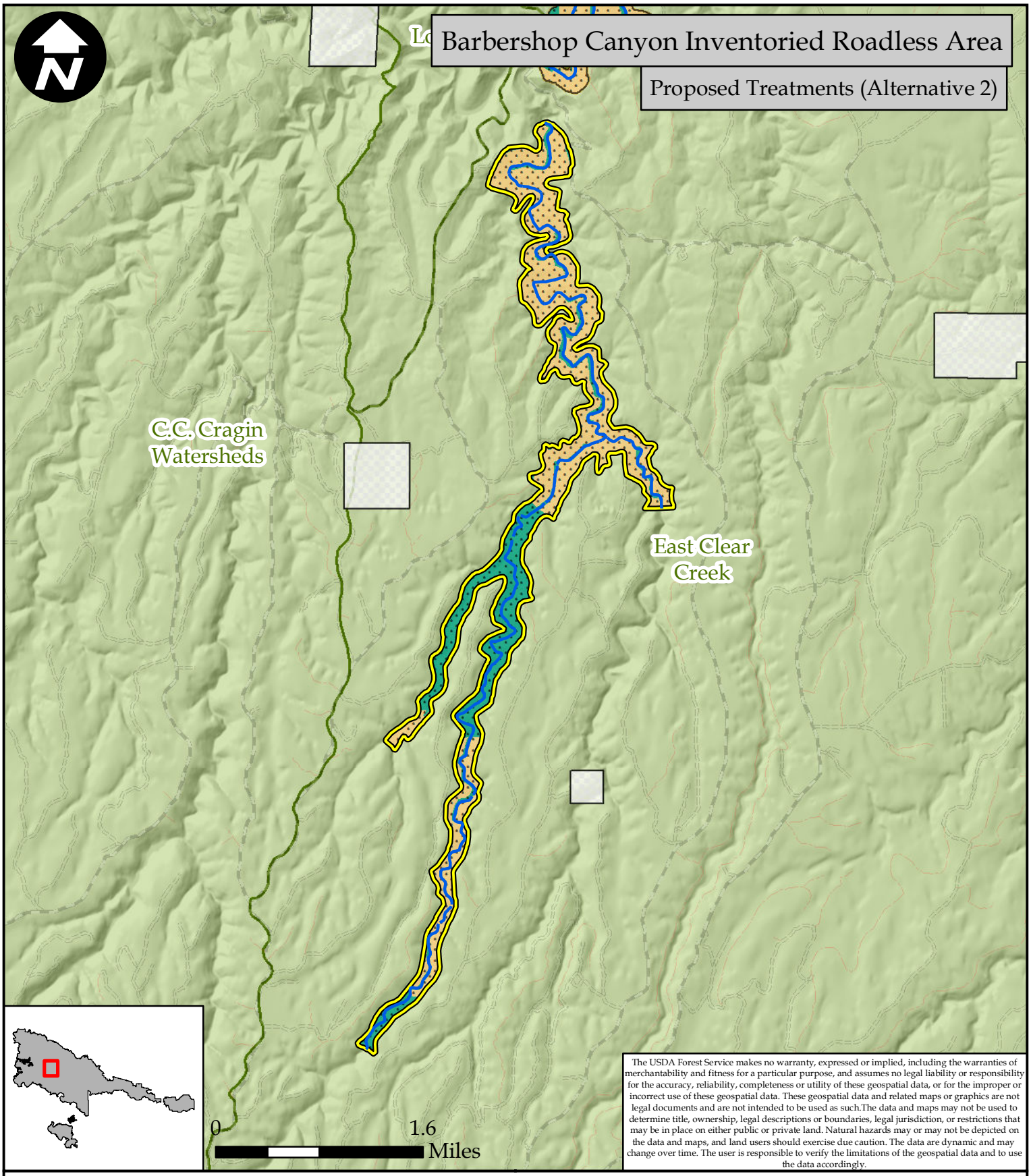
Appendix A – Treatment Maps and Tables

Table 5. Detailed treatment prescriptions by IRA for Alternative 2

	Apache-Sitgreaves		Coconino			Tonto			Grand Total
Proposed Treatments	**Chevelon Canyon**	**Leonard Canyon**	**Barbershop Canyon**	**East Clear Creek**	**Jacks Canyon**	**Hellsgate**	**Mazatzal**	**Sierra Ancha Wilderness Contiguous**	
Facilitative Operations Mechanical		258			1,075	129	254	565	2,282
Facilitative Operations Prescribed Fire Only	464	678			424			129	1,696
Grassland Restoration					53				53
MSO Recovery - Replacement Nest/Roost	52		245					73	370
PAC - Mechanical	31		4	0					35
Prescribed Fire Only	3,981	343	794	1,036	104			1,113	7,370
Riparian Prescribed Fire Only	198	62	56	22	20			5	363
Riparian Restoration	17	94	156	204	26	2		20	519
Severe Disturbance Area Treatment	8			330				1,339	1,678
Stand Improvement - High Site	9		2					78	89
Stand Improvement - Low Site								437	437
Stand Improvement - Moderate Site	8	74	0	12				317	411
Uneven-aged - High Site	100	34	36		14	207		274	665
Uneven-aged - Low Site	9	108	7	2			39	54	218
Uneven-aged - Moderate Site	138	157	11	4			24	200	533
Wet Meadow & Riparian Prescribed Fire Only	173								173
WUI & Infrastructure Protection								8	8
Grand Total	**5,188**	**1,808**	**1,310**	**1,610**	**1,717**	**338**	**316**	**4,613**	**16,900**

Table 6. Detailed treatment prescriptions by IRA for Alternative 3

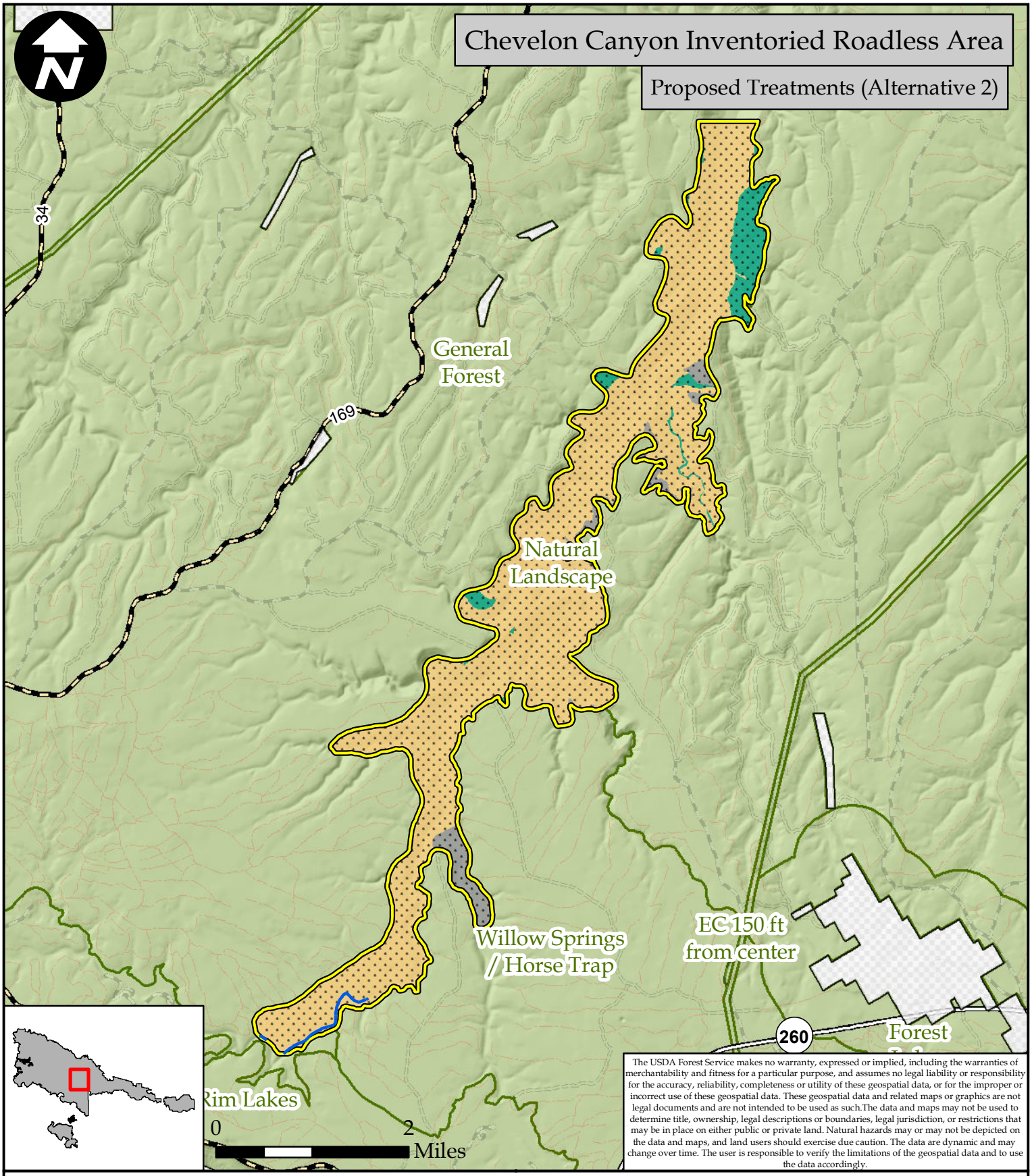
	Apache-Sitgreaves		Coconino			Tonto			Grand Total
Proposed Treatments	**Chevelon Canyon**	**Leonard Canyon**	**Barbershop Canyon**	**East Clear Creek**	**Jacks Canyon**	**Hellsgate**	**Mazatzal**	**Sierra Ancha Wilderness Contiguous**	
Facilitative Operations Mechanical		55							55
Facilitative Operations Prescribed Fire Only	269	269							537
Grassland Restoration					53				53
MSO Recovery - Replacement Nest/Roost	6		245						251
PAC - Mechanical	31		4	0					35
Prescribed Fire Only	3,321	97	794	1,036					5,248
Riparian Prescribed Fire Only	198	62	56	22	20			5	363
Riparian Restoration	17	94	156	204	26	2		20	519
Severe Disturbance Area Treatment	8			330					338
Stand Improvement - High Site	9		2						11
Stand Improvement - Low Site									
Stand Improvement - Moderate Site	7	32	0	12					51
Uneven-aged - High Site	85	34	36						155
Uneven-aged - Low Site	9		7	2					18
Uneven-aged - Moderate Site	132	124	11	4					271
Wet Meadow & Riparian Prescribed Fire Only	173								173
WUI & Infrastructure Protection									
Grand Total	**4,265**	**767**	**1,310**	**1,609**	**99**	**2**		**25**	**8,078**



- Rim Country Project Area
- Selected Inventoried Roadless Area
- Inventoried Roadless Area within Project Area
- Other Inventoried Roadless Areas
- Wilderness Area
- Non Forest System Land
- Management Area

Proposed Treatments within IRA

- Mechanical & Prescribed Fire
- Prescribed Fire Only
- N/A
- Heavy Mechanical Stream Restoration
- General Stream Restoration


Chevelon Canyon Inventoried Roadless Area
Proposed Treatments (Alternative 2)
34
169
General Forest
Natural Landscape
Willow Springs / Horse Trap
EC 150 ft from center
260
Forest
Rim Lakes
0
2
Miles
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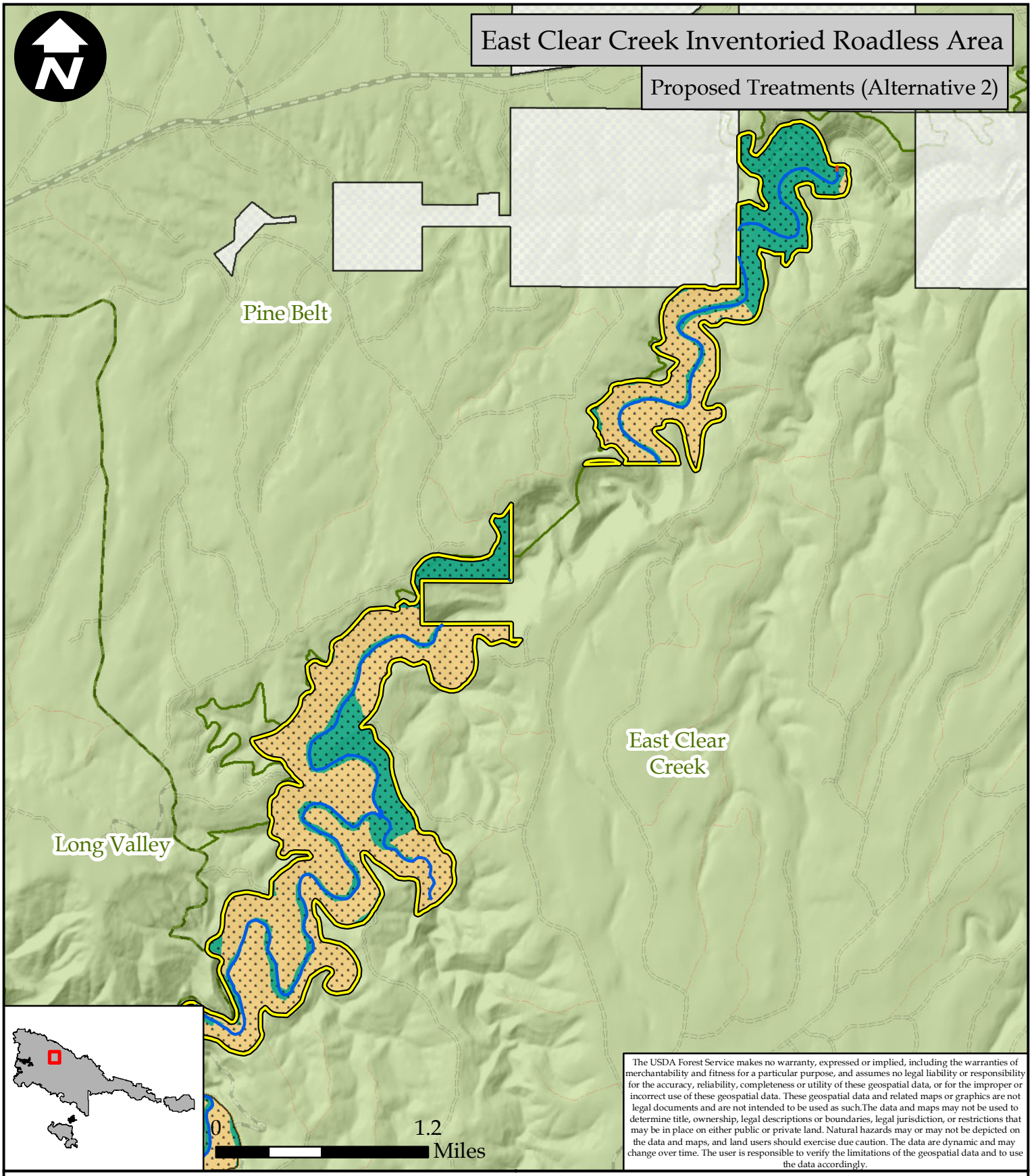
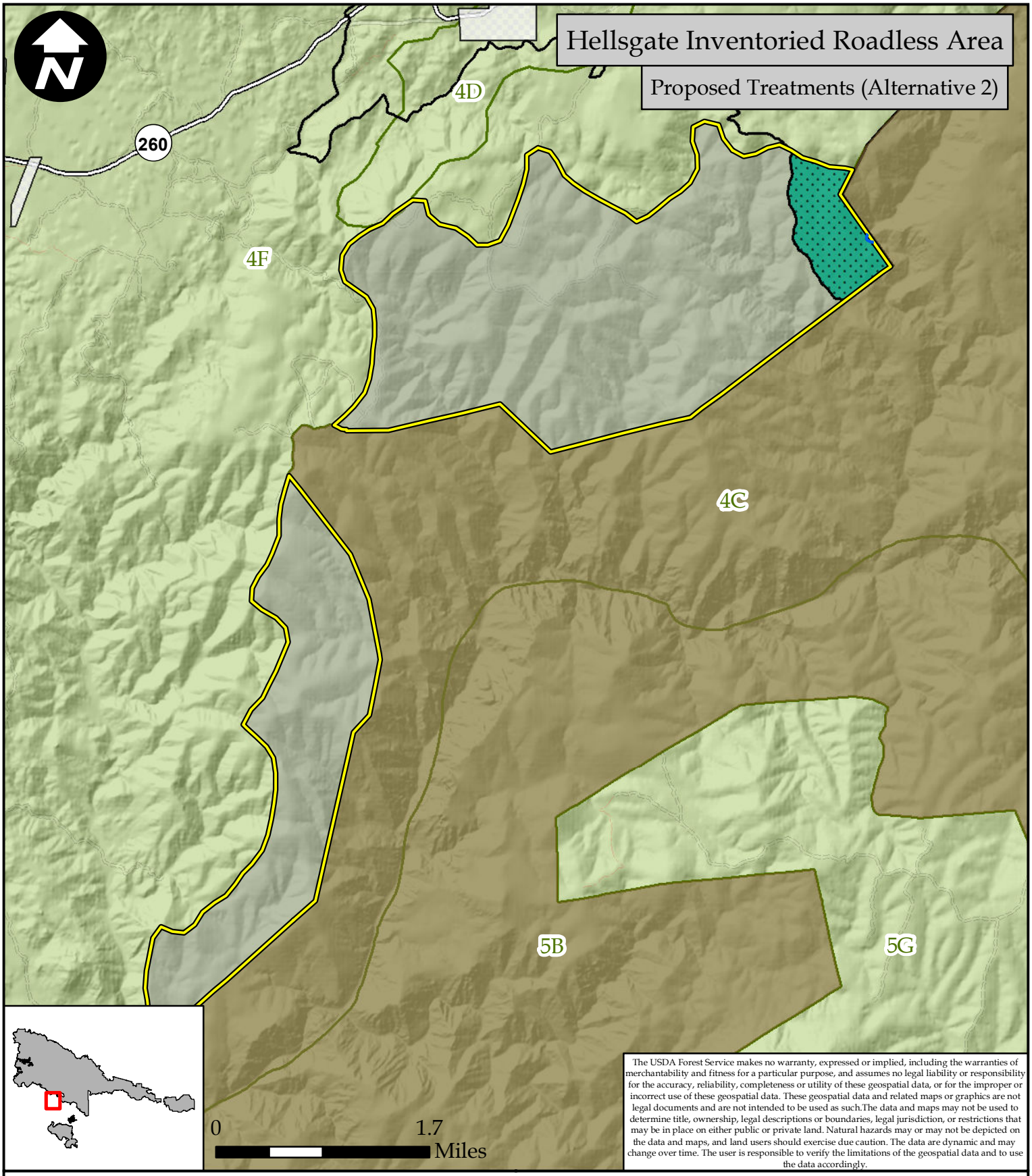
Rim Country Project Area
Selected Inventoried Roadless Area
Inventoried Roadless Area within Project Area
Other Inventoried Roadless Areas
Wilderness Area
Non Forest System Land
Management Area
Proposed Treatments within IRA
Mechanical & Prescribed Fire
Prescribed Fire Only
N/A
Heavy Mechanical Stream Restoration
General Stream Restoration



- Rim Country Project Area
- Selected Inventoried Roadless Area
- Inventoried Roadless Area within Project Area
- Other Inventoried Roadless Areas
- Wilderness Area
- Non Forest System Land
- Management Area

Proposed Treatments within IRA

- Mechanical & Prescribed Fire
- Prescribed Fire Only
- N/A
- Heavy Mechanical Stream Restoration
- General Stream Restoration



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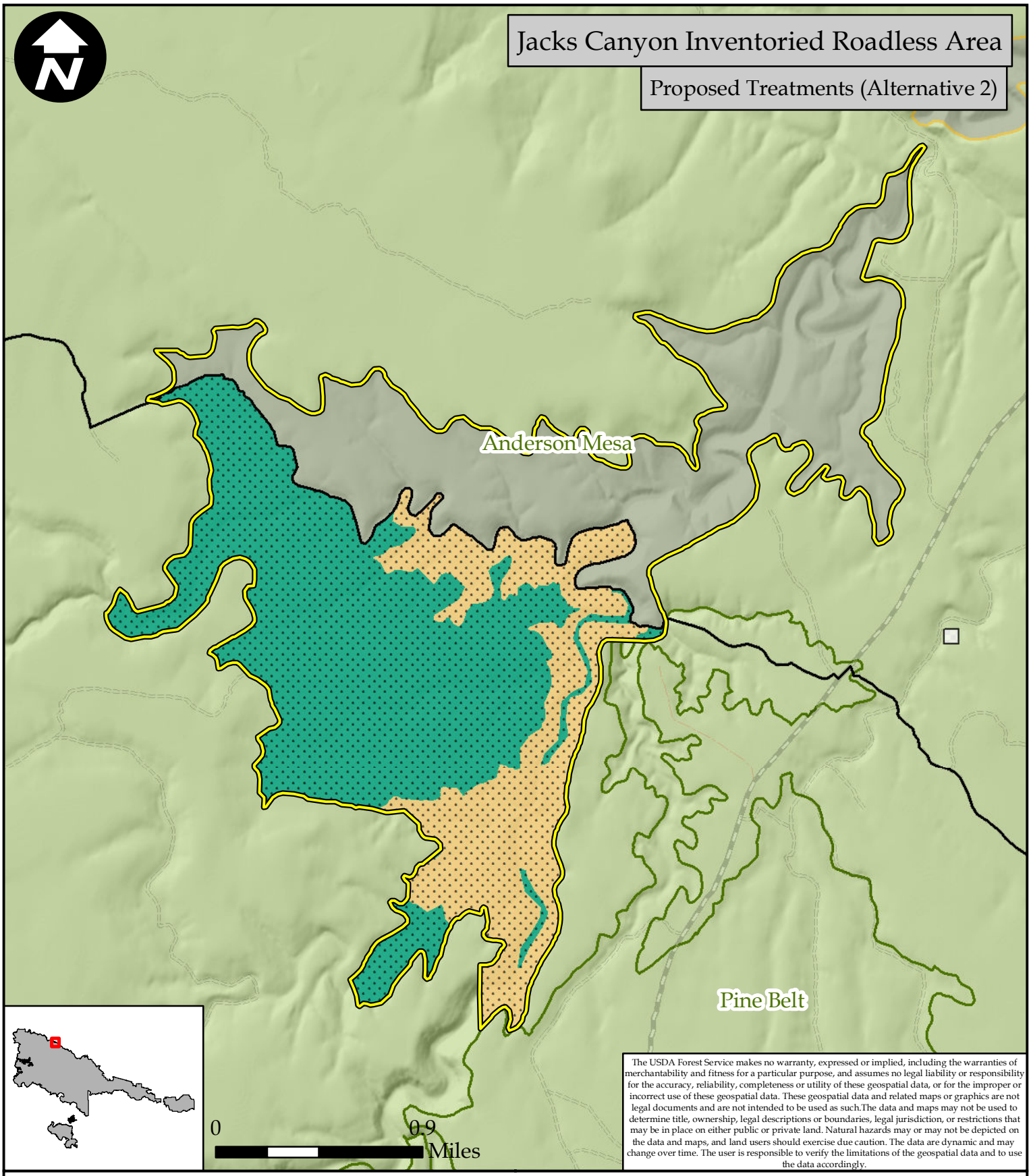
- Rim Country Project Area
- Selected Inventoried Roadless Area
- Inventoried Roadless Area within Project Area
- Other Inventoried Roadless Areas
- Wilderness Area
- Non Forest System Land
- Management Area

Proposed Treatments within IRA

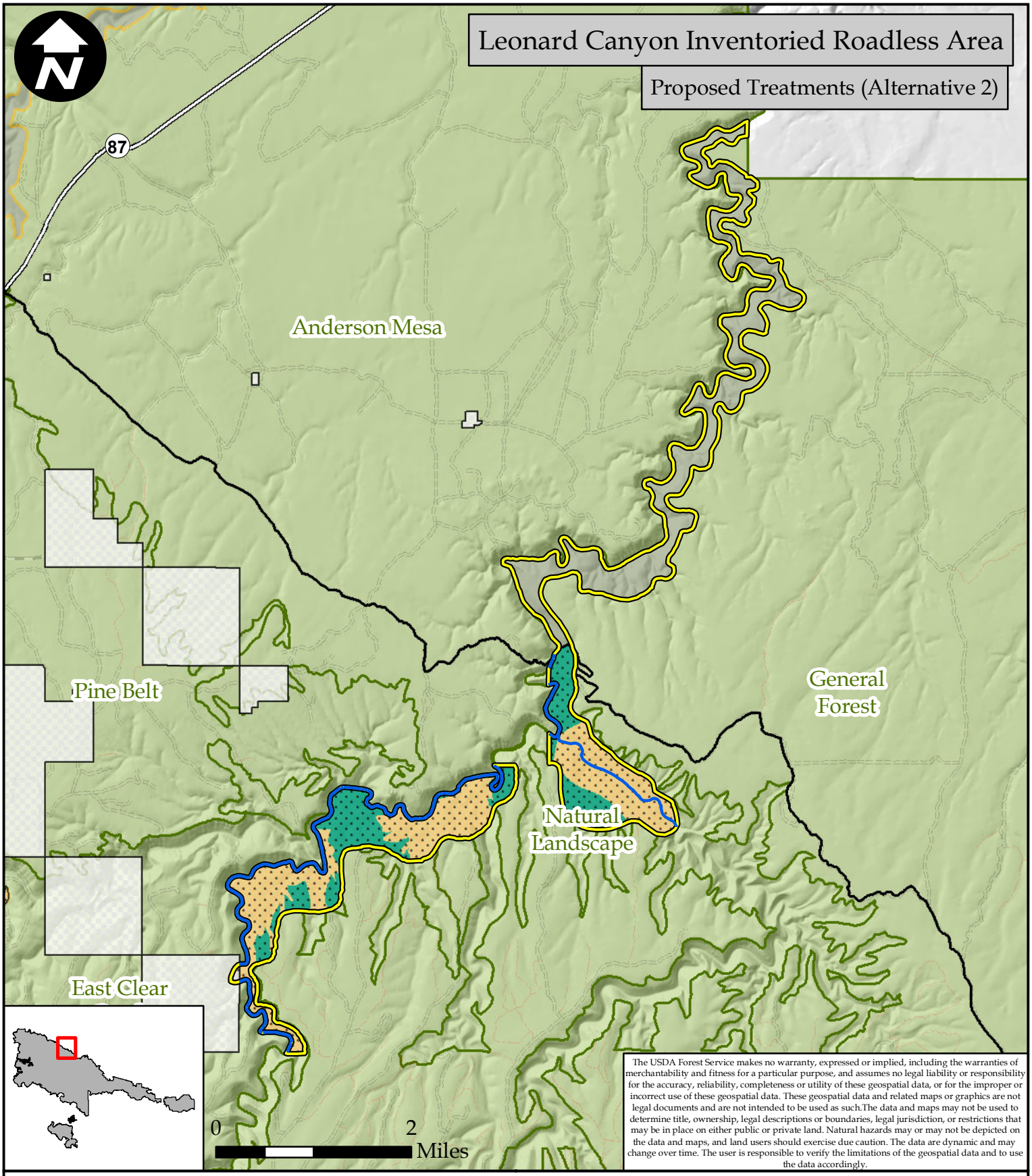
- Mechanical & Prescribed Fire
- Prescribed Fire Only
- N/A
- Heavy Mechanical Stream Restoration
- General Stream Restoration



- Rim Country Project Area
- Selected Inventoried Roadless Area
- Inventoried Roadless Area within Project Area
- Other Inventoried Roadless Areas
- Wilderness Area
- Non Forest System Land
- Management Area

Proposed Treatments within IRA

- Mechanical & Prescribed Fire
- Prescribed Fire Only
- N/A
- Heavy Mechanical Stream Restoration
- General Stream Restoration


Leonard Canyon Inventoried Roadless Area
Proposed Treatments (Alternative 2)
87
Anderson Mesa
Pine Belt
General Forest
Natural Landscape
East Clear
0
2
Miles
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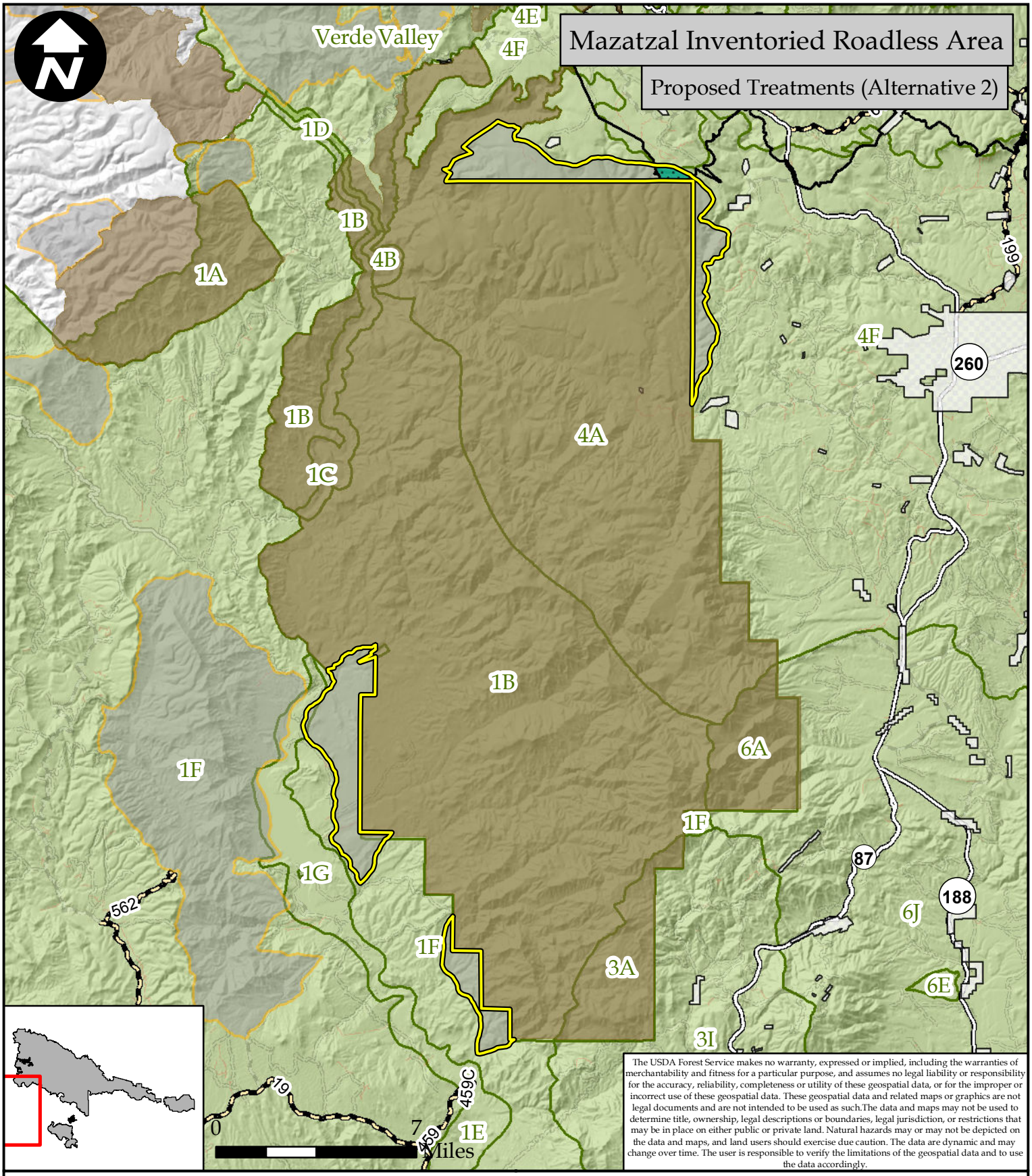
Rim Country Project Area
Selected Inventoried Roadless Area
Inventoried Roadless Area within Project Area
Other Inventoried Roadless Areas
Wilderness Area
Non Forest System Land
Management Area
Proposed Treatments within IRA
Mechanical & Prescribed Fire
Prescribed Fire Only
N/A
Heavy Mechanical Stream Restoration
General Stream Restoration



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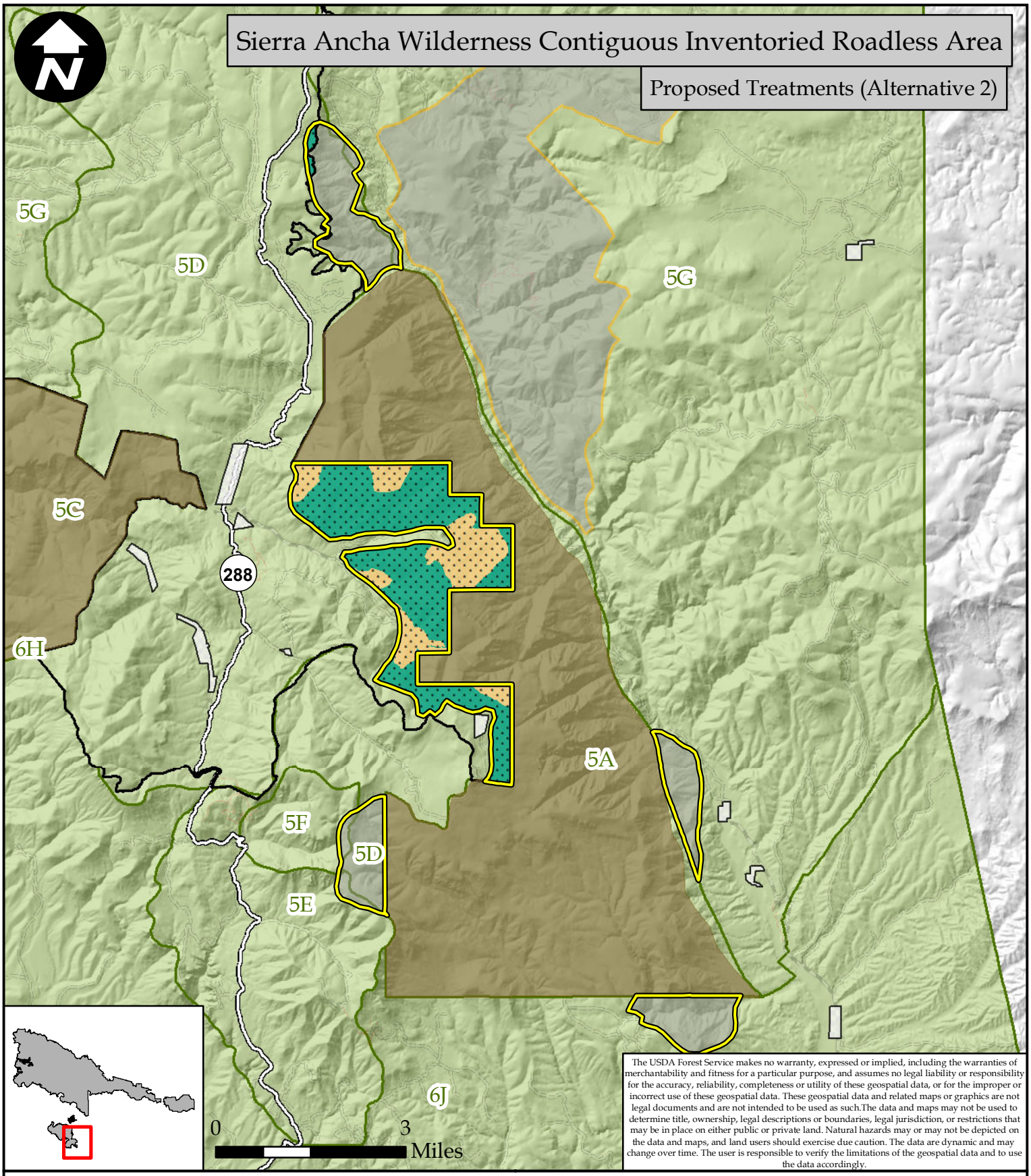
- Rim Country Project Area
- Selected Inventoried Roadless Area
- Inventoried Roadless Area within Project Area
- Other Inventoried Roadless Areas
- Wilderness Area
- Non Forest System Land
- Management Area

Proposed Treatments within IRA

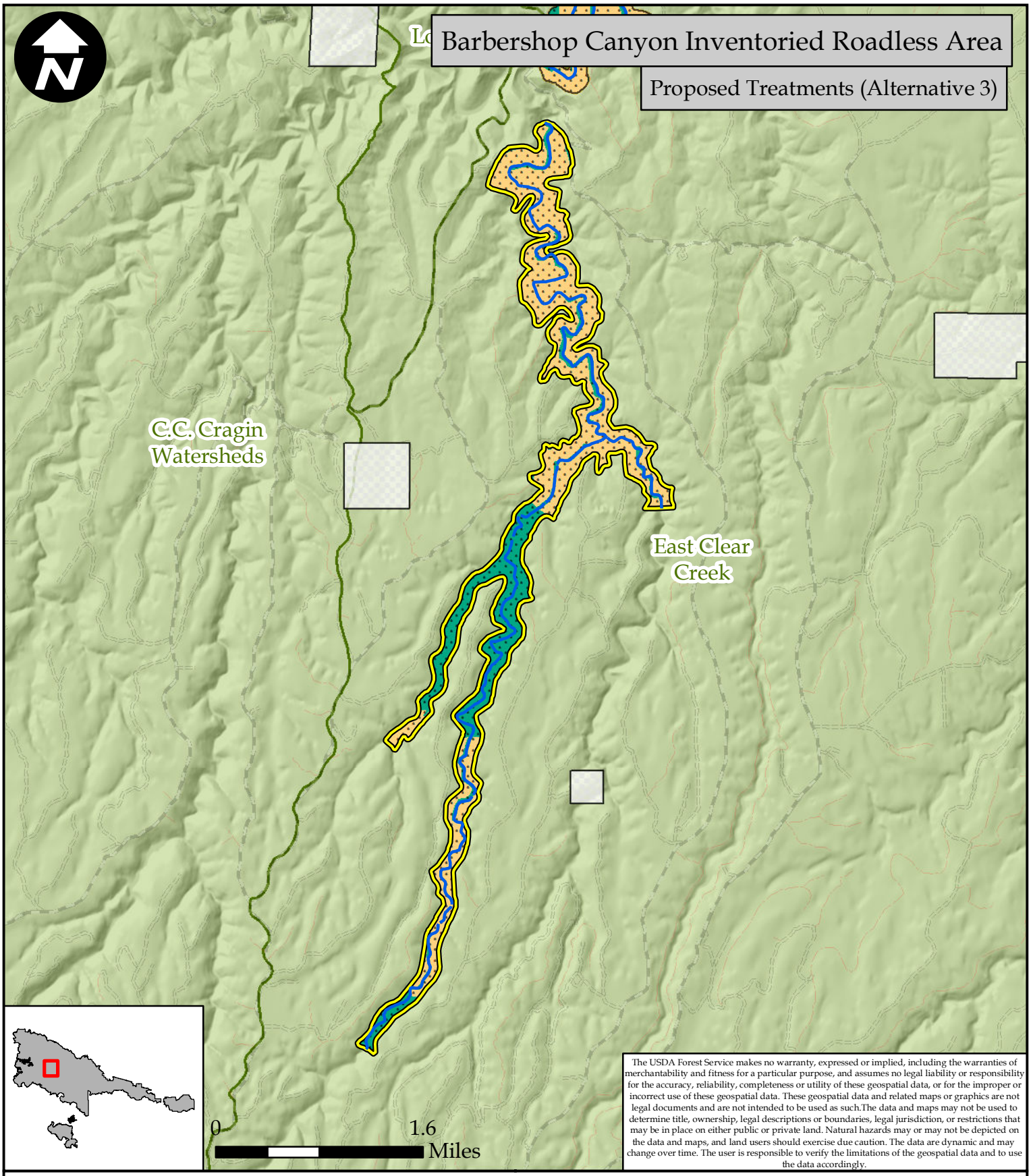
- Mechanical & Prescribed Fire
- Prescribed Fire Only
- N/A
- Heavy Mechanical Stream Restoration
- General Stream Restoration



Rim Country Project Area
Selected Inventoried Roadless Area
Inventoried Roadless Area within Project Area
Other Inventoried Roadless Areas
Wilderness Area
Non Forest System Land
Management Area

Proposed Treatments within IRA

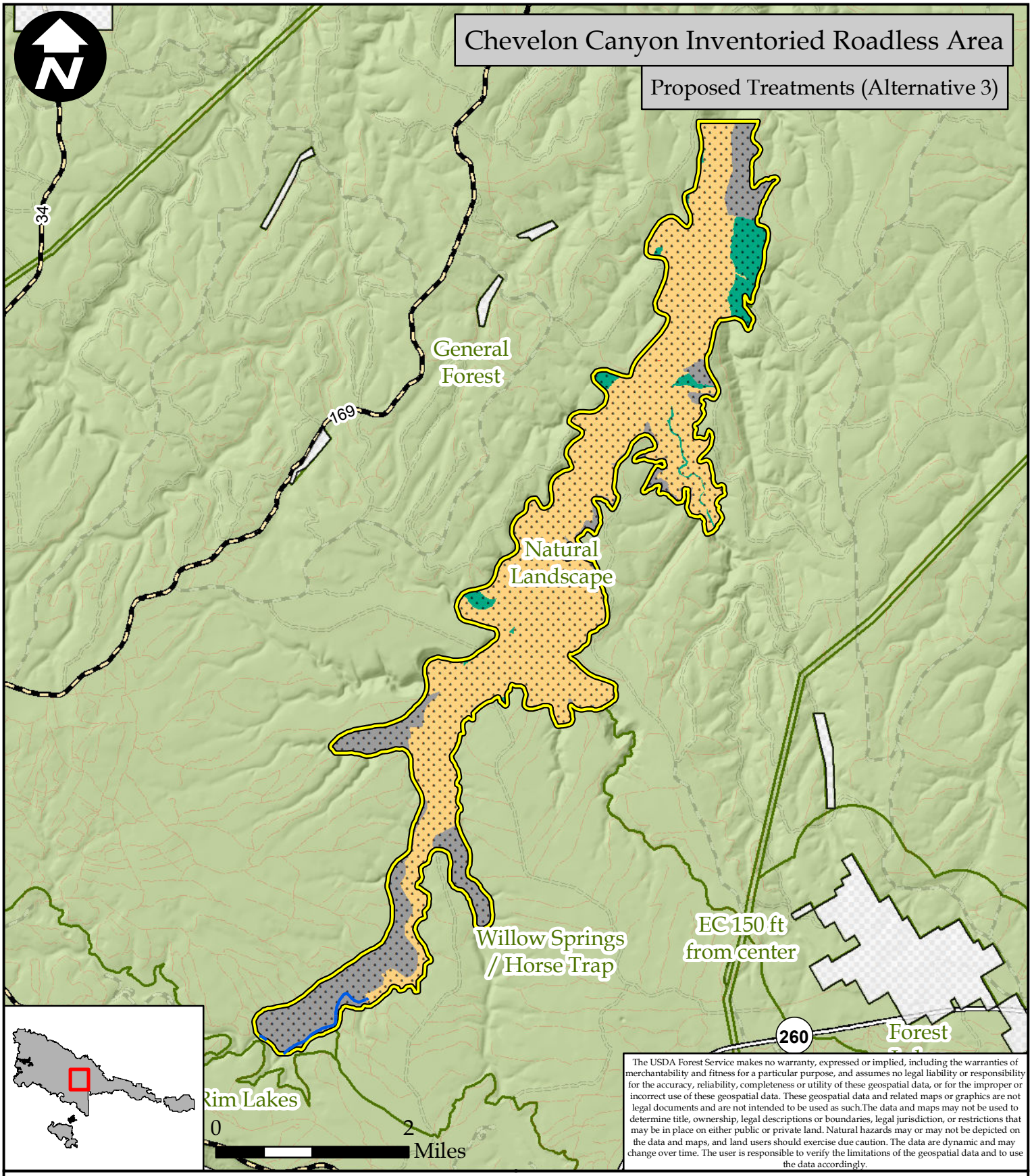
Mechanical & Prescribed Fire
Prescribed Fire Only
N/A
Heavy Mechanical Stream Restoration
General Stream Restoration



- Rim Country Project Area
- Selected Inventoried Roadless Area
- Inventoried Roadless Area within Project Area
- Other Inventoried Roadless Areas
- Wilderness Area
- Non Forest System Land
- Management Area

Proposed Treatments within IRA

- Mechanical & Prescribed Fire
- Prescribed Fire Only
- N/A
- Heavy Mechanical Stream Restoration
- General Stream Restoration


Chevelon Canyon Inventoried Roadless Area
Proposed Treatments (Alternative 3)
34
169
260
General Forest
Natural Landscape
Willow Springs / Horse Trap
EC 150 ft from center
Forest
Rim Lakes
0
2
Miles
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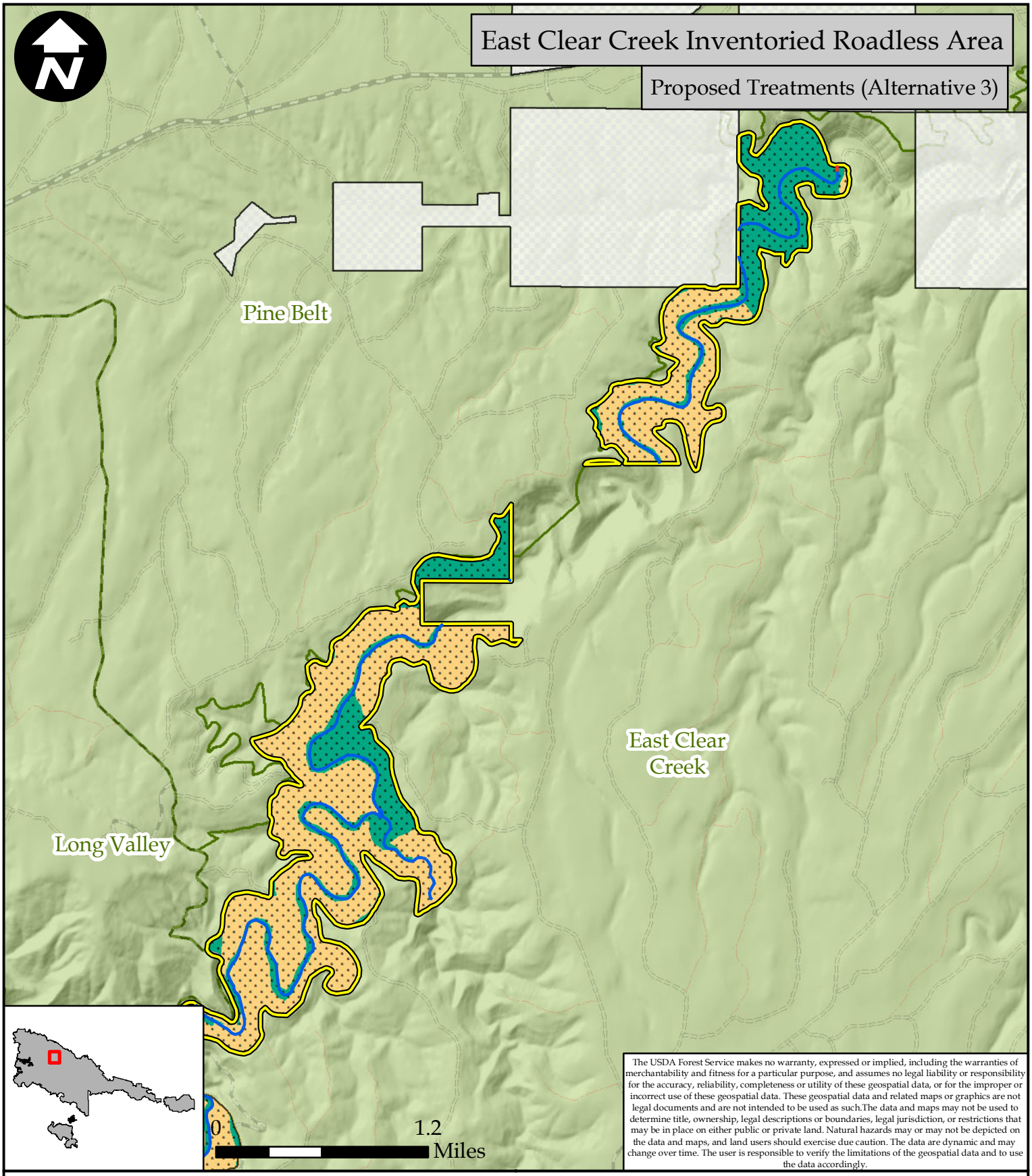
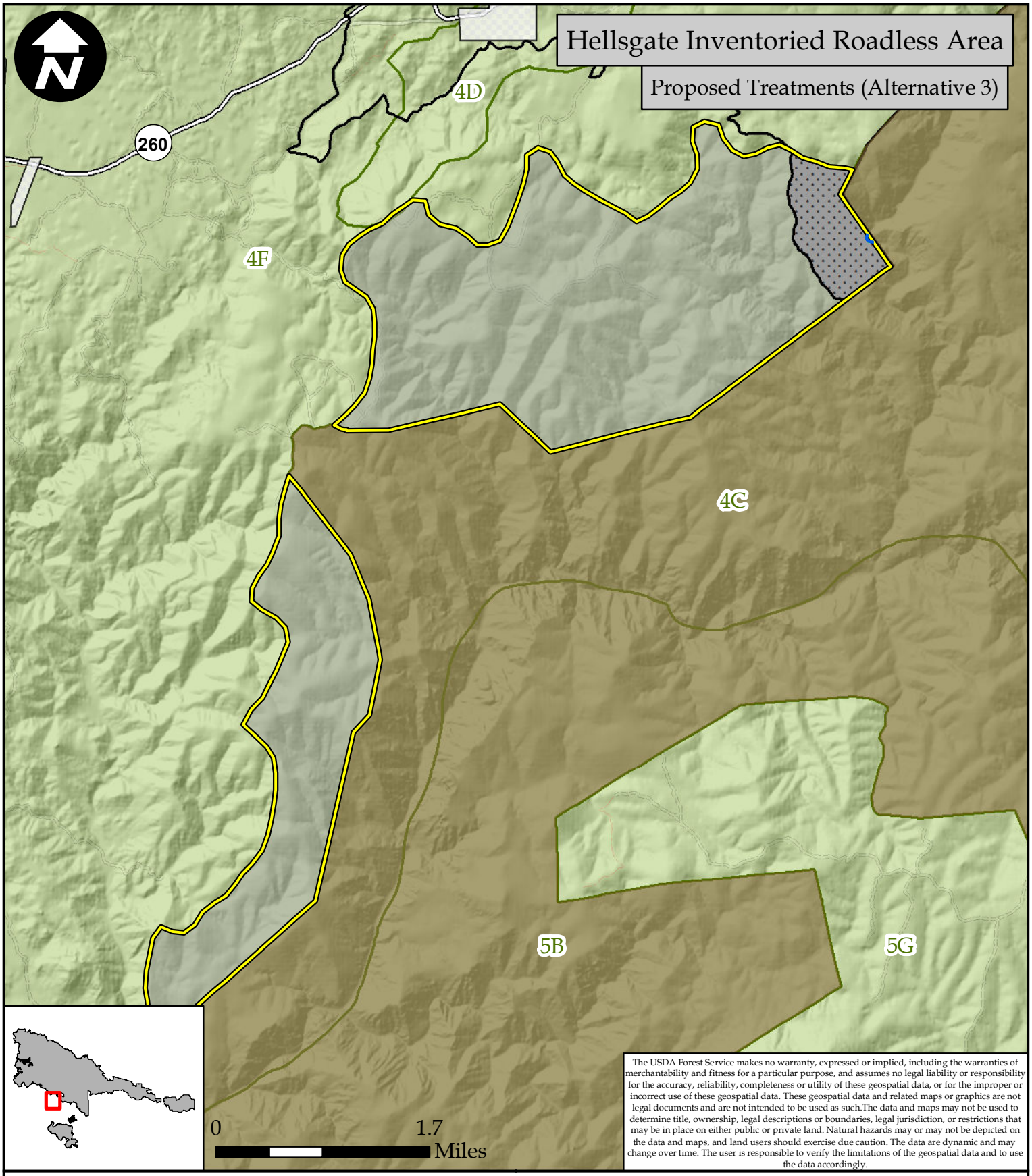
Rim Country Project Area
Selected Inventoried Roadless Area
Inventoried Roadless Area within Project Area
Other Inventoried Roadless Areas
Wilderness Area
Non Forest System Land
Management Area
Proposed Treatments within IRA
Mechanical & Prescribed Fire
Prescribed Fire Only
N/A
Heavy Mechanical Stream Restoration
General Stream Restoration



- Rim Country Project Area
- Selected Inventoried Roadless Area
- Inventoried Roadless Area within Project Area
- Other Inventoried Roadless Areas
- Wilderness Area
- Non Forest System Land
- Management Area

Proposed Treatments within IRA

- Mechanical & Prescribed Fire
- Prescribed Fire Only
- N/A
- Heavy Mechanical Stream Restoration
- General Stream Restoration



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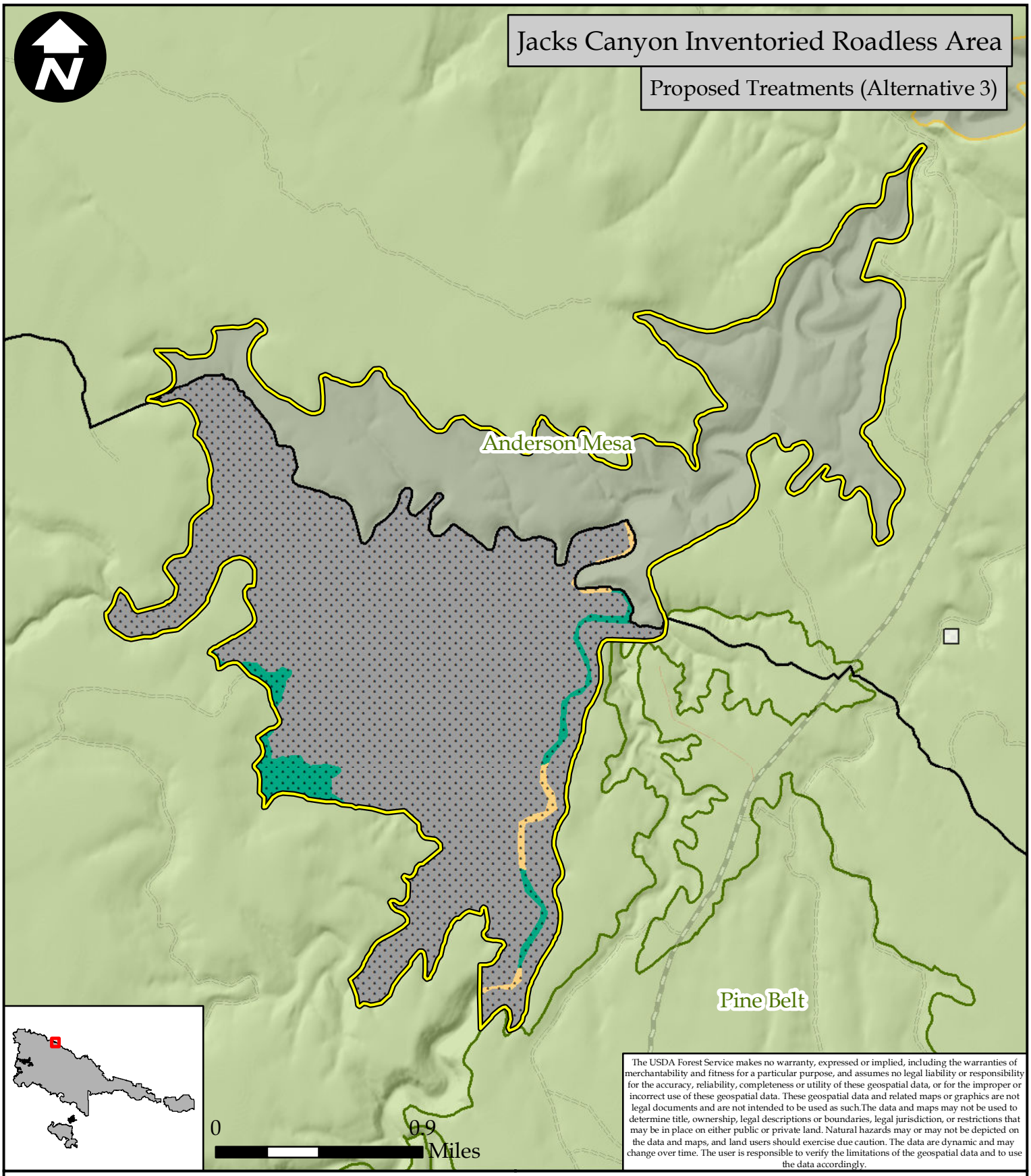
- Rim Country Project Area
- Selected Inventoried Roadless Area
- Inventoried Roadless Area within Project Area
- Other Inventoried Roadless Areas
- Wilderness Area
- Non Forest System Land
- Management Area

Proposed Treatments within IRA

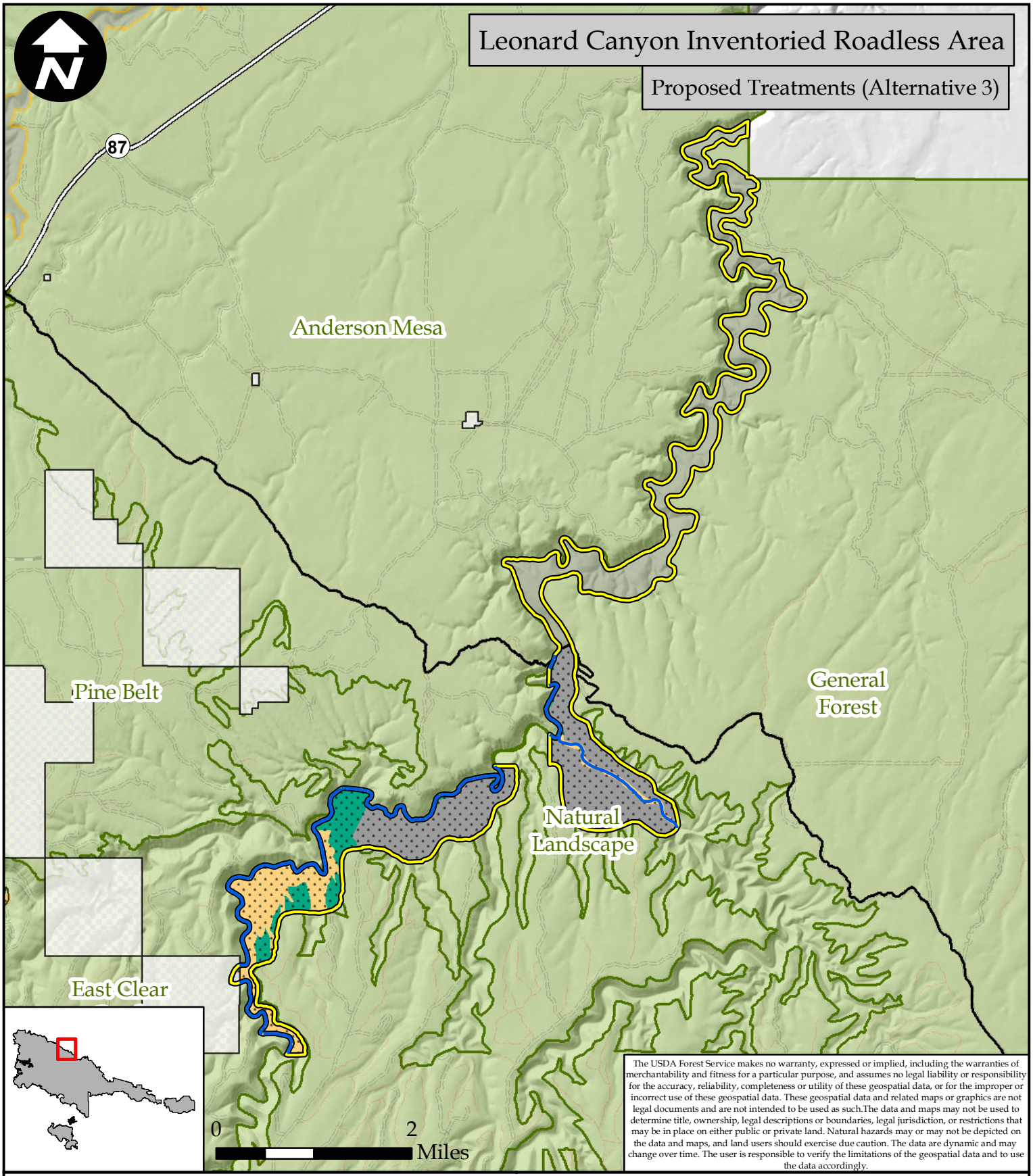
- Mechanical & Prescribed Fire
- Prescribed Fire Only
- N/A
- Heavy Mechanical Stream Restoration
- General Stream Restoration



- Rim Country Project Area
- Selected Inventoried Roadless Area
- Inventoried Roadless Area within Project Area
- Other Inventoried Roadless Areas
- Wilderness Area
- Non Forest System Land
- Management Area

Proposed Treatments within IRA

- Mechanical & Prescribed Fire
- Prescribed Fire Only
- N/A
- Heavy Mechanical Stream Restoration
- General Stream Restoration


Leonard Canyon Inventoried Roadless Area
Proposed Treatments (Alternative 3)
87
Anderson Mesa
Pine Belt
General Forest
Natural Landscape
East Clear
0
2
Miles
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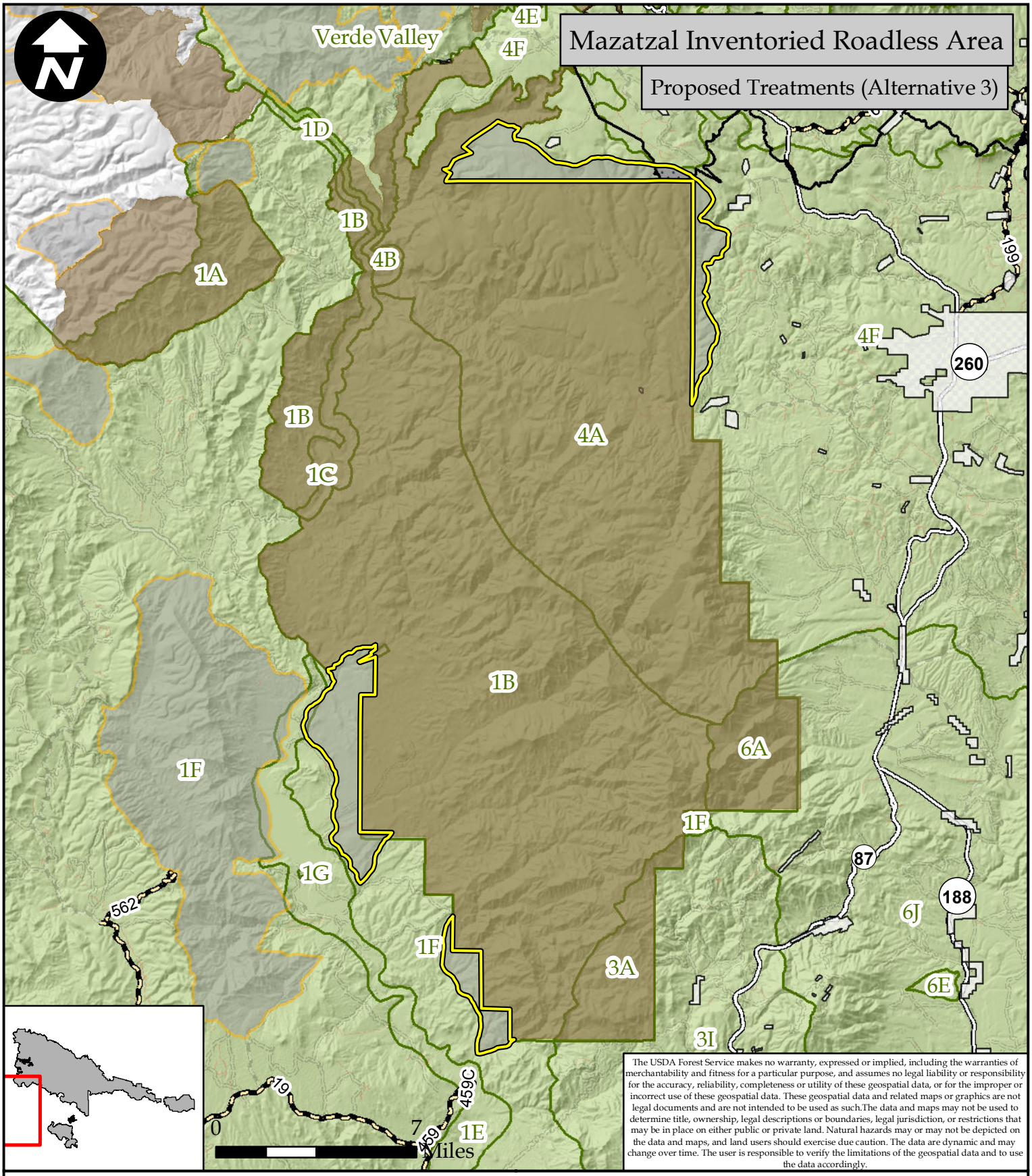
Rim Country Project Area
Selected Inventoried Roadless Area
Inventoried Roadless Area within Project Area
Other Inventoried Roadless Areas
Wilderness Area
Non Forest System Land
Management Area
Proposed Treatments within IRA
Mechanical & Prescribed Fire
Prescribed Fire Only
N/A
Heavy Mechanical Stream Restoration
General Stream Restoration



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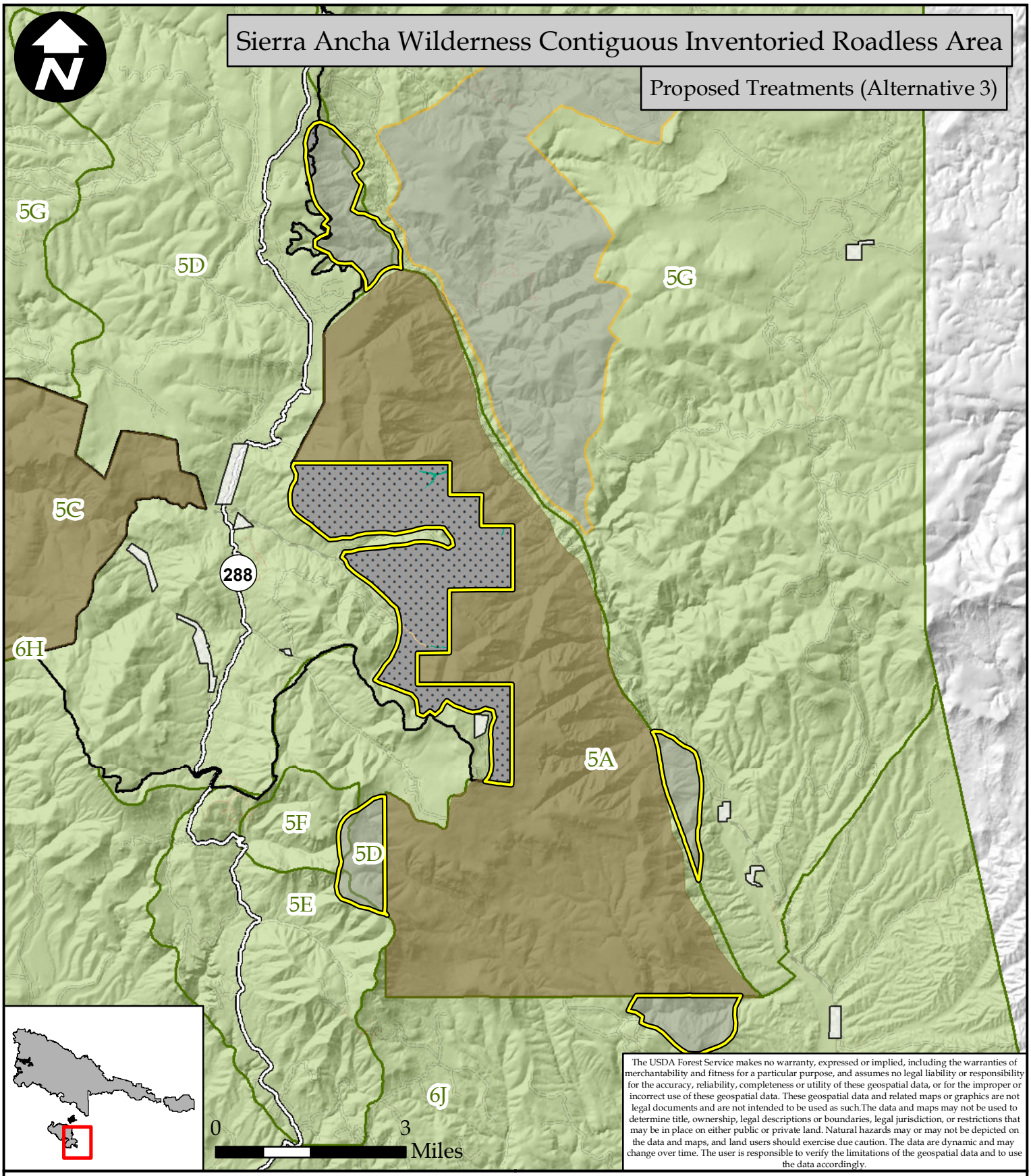
- Rim Country Project Area
- Selected Inventoried Roadless Area
- Inventoried Roadless Area within Project Area
- Other Inventoried Roadless Areas
- Wilderness Area
- Non Forest System Land
- Management Area

Proposed Treatments within IRA

- Mechanical & Prescribed Fire
- Prescribed Fire Only
- N/A
- Heavy Mechanical Stream Restoration
- General Stream Restoration


Sierra Ancha Wilderness Contiguous Inventoried Roadless Area
Proposed Treatments (Alternative 3)
5G
5D
5G
5C
288
6H
5A
5F
5D
5E
6J
0
3
Miles
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Rim Country Project Area
Selected Inventoried Roadless Area
Inventoried Roadless Area within Project Area
Other Inventoried Roadless Areas
Wilderness Area
Non Forest System Land
Management Area
Proposed Treatments within IRA
Mechanical & Prescribed Fire
Prescribed Fire Only
N/A
Heavy Mechanical Stream Restoration
General Stream Restoration

Appendix B – Regional Forester Briefing Paper

Rim Country Project Introduction and Project Summary

Ponderosa pine forest stretches almost continuously from the south rim of the Grand Canyon, across the Mogollon Rim, to the White Mountains in eastern Arizona. These forests are overgrown with thin, unhealthy trees raising the threat of unnaturally severe wildfire. The Four Forest Restoration Initiative (4FRI) was created to accelerate an ambitious restoration program across 2.4 million acres on four national forests (Apache-Sitgreaves, Coconino, Kaibab, and Tonto) in the Southwestern Region.

4FRI was one of the first Collaborative Forest Restoration Program projects awarded funding in 2010. Beginning shortly there Thereafter, the first 4FRI Environmental Impact Statement (EIS) analyzed treatments in the northern portion of the Coconino National Forest (NF) and the southern portion of the Kaibab NF and the Record of Decision (ROD) was signed in 2015. The Rim County Project is the second analysis within the 4FRI project area and covers 1,240,000 acres on the Mogollon Rim and Red Rock Districts of the Coconino National Forest (NF), the Black Mesa and Lakeside Districts of the Apache-Sitgreaves NFs, and the Payson and Pleasant Valley Districts of the Tonto NF. The Final EIS and Draft ROD are expected to be released in December 2021.

The purpose of the 4FRI Rim Country Project is to reestablish and restore forest structure and pattern, forest health, and composition and diversity in in vegetation cover types to conditions within the natural range of variation, thus moving the project area toward the desired conditions. One outcome of restored vegetation cover types is increased ecosystem resiliency. Resilience is the ability of an ecosystem to survive natural disturbances such as fire, insects, disease, and climate change without changing its inherent function (FSH 1909.12,05; SER 2004). This project is needed to: increase forest and grassland resilience and sustainability, reduce hazards associated with undesirable fire effects, improve terrestrial and aquatic species habitat, improve the condition and function of streams and springs, restore woody riparian vegetation, preserve cultural resources, support sustainable forest products industries, and improve the motorized transportation system and provide for a more sustainable road system where poorly located roads are relocated or obliterated. To meet the purpose and need for action, the Apache-Sitgreaves, Coconino, and Tonto National Forests are proposing a suite of restoration activities on approximately 991,060 acres over a period of 20 years or when activities can be funded or completed.

Rim Country Project Treatments with Inventoried Roadless Areas

Of the 991,060 acres proposed for restoration activities within the Rim Country Project, in IRAs 16,900 acres (1.7% of the project area) are proposed for treatment under the Modified Proposed Alternative. **This 2001 Roadless Area Conservation Rule Analysis Briefing paper will focus on the treatments within IRAs, rather than the treatments proposed for the entire project.** The Rim Country Project proposes to conduct timber cutting, sale, and removal, prescribed fire, stream restoration, and road decommissioning within IRAs in the Rim Country Project area. Under the 2001 Roadless Rule, timber cutting, sale, and removal is prohibited, this briefing paper is requesting an exception to complete these activities in IRAs.

Affected Inventoried Roadless Areas

The project area includes portions of 8 inventoried roadless areas (IRA) totaling 45,292 acres, of which 16,900 acres are within the project area (Table 1).

Table 1. Rim Country Project IRA Summary

Forest	IRA Name	IRA Acres	Acres Proposed for Treatment	Percent of IRA Proposed for Treatment
Apache-Sitgreaves NFs, Black Mesa District	Chevelon Canyon IRA	5,569 acres	5,188 acres	93%
	Leonard Canyon IRA	3,069 acres	1,808 acres	59%
Coconino NF, Mogollon Rim District	Barbershop Canyon IRA	1,310 acres	1,310 acres	100%
	East Clear Creek IRA	1,612 acres	1,612 acres	100%
	Jacks Canyon IRA	2,855 acres	1,717 acres	60%

Forest	IRA Name	IRA Acres	Acres Proposed for Treatment	Percent of IRA Proposed for Treatment
Tonto NF	Hellsgate IRA (Payson District)	6,166 acres	338 acres	6%
	Mazatzal IRA (Cave Creek and Payson Districts)	16,930 acres	316 acres	2%
	Sierra Ancha Wilderness Contiguous IRA (Pleasant Valley and Tonto Basin Districts)	7,781 acres	4,613 acres	59%

Land Management Plan Allocations, Special Designations within and Adjacent to IRAs

The Land Management Plans (LMP) have been reviewed and additional IRA-specific LMP plan components apply to work in the affected IRA and have been considered and included in the proposal.

Chevelon Canyon IRA: is within the natural landscape management area on the Apache-Sitgreaves NF. It is adjacent to the general forest management area and Willow Springs/Horse Trap wildlife quiet area. Portions of the Chevelon Creek eligible wild and scenic river corridor are within the IRA. The IRA provides opportunities for activities of a semi-primitive non-motorized type. Scenic Integrity Objective (SIO) is classified as high to very high.

Leonard Canyon IRA: is within the natural landscape management area on the Apache-Sitgreaves NF. It is adjacent to the Anderson Mesa and East Clear Creek management areas on the Coconino. Portions of the Willow Creek, Leonard Canyon, and East Clear Creek eligible wild and scenic rivers corridors are within the IRA. The IRA provides opportunities for activities of a semi-primitive non-motorized type. SIO classified as high to very high.

Barbershop Canyon IRA: is within the East Clear Creek management area on the Coconino NF. Portions of the Barbershop Canyon eligible wild and scenic river corridor are within the IRA. The southern portion of the Barbershop Canyon IRA is within the Mogollon Rim Snow Melt Draws important bird area. The IRA provides opportunities for activities of a semi-primitive non-motorized type. SIO classified as high to very high.

East Clear Creek IRA: is within the East Clear Creek and Pine Belt Management areas on the Coconino NF. It is adjacent to the Long Valley management area. Portions of the East Clear Creek and Barbershop Canyon eligible wild and scenic river corridors are within the IRA. The IRA provides opportunities for activities of a semi-primitive non-motorized type (a small portion of the IRA is classified as roaded natural. SIO classified as high.

Jacks Canyon IRA: is within the Anderson Mesa management area with a small sliver within the pine belt management area on the Coconino NF. A portion of the IRA is within the Anderson Mesa important bird area. The IRA provides opportunities for activities of a semi-primitive non-motorized type. SIO classified as high.

Hellsgate IRA: is within the 4F management area in the current Tonto NF Forest Plan. Portions of the Tonto Creek (Upper) eligible wild and scenic river corridor are within the IRA. The IRA is adjacent to the Hellsgate Wilderness. The IRA provides opportunities for activities of a semi-primitive non-motorized and semi-primitive motorized type. SIO classified as high.

Mazatzal IRA: is within the 4D, 4F, 1E, and 1F management areas in the current Tonto NF Forest Plan. Portions of the Arizona National Scenic Trail pass through the IRA. The IRA is adjacent to the Mazatzal Wilderness. The IRA provides opportunities for activities of a primitive, semi-primitive motorized, semi-primitive non-motorized type (a small portion of the IRA is classified as roaded natural.

Sierra Ancha Wilderness Contiguous IRA: is within the 5D, 5E, 5F, and 5G management areas in the current Tonto NF Forest Plan. A small sliver of the Pueblo Canyon eligible wild and scenic river corridor is within the IRA. Portions of the Sierra Ancha Experimental Forest and the proposed Upper Forks Parker Creek Recommended Natural Area (RNA) are within the IRA. The IRA is adjacent to the Sierra Ancha Wilderness. The IRA provides opportunities for activities of a semi-primitive motorized, semi-primitive non-motorized type, and roaded natural. SOI is high.

The Scenic Integrity (SI) and Recreation Opportunity Spectrum (ROS) for each IRA is shown in Tables 3 and 4 in the Attachment 2.

Modified Proposed Action Alternative for Treatment in IRAs

In IRAs in the project area, 16,900 acres are proposed for treatment under the Modified Proposed Alternative. Treatments in IRAs are summarized in Table 1. No temporary roads would be built within IRAs and road reconstruction or road realignment would be prohibited.

Mechanical Thinning: A total of 7,298 acres of mechanical thinning are proposed to occur in eight inventoried roadless areas. Restoration activities would focus on cutting smaller diameter live, standing trees (5-18 inches) and retaining larger and older trees. An estimated 28,238 CCF would be removed from the 8 inventoried roadless areas (See table 2 below). The treatment prescription descriptions mapped to occur within IRAs are detailed in Table 3 below. Acres of the detailed treatment prescriptions are presented in Table 4 in Attachment 2. The Rim Country Project would amend the 1987 Tonto Land Management Plan for treatment of slopes over 40%. Treatment of slopes over 40% could occur within IRAs.

All mechanical thinning treatments in IRAs would be conducted using the Implementation Plan (Appendix D of the FEIS) that details treatment constraints for retention of old and large trees and use of the condition-based management approach. As stated in the Implementation Plan, before project implementation, IRAs would be evaluated for special management considerations that include additional notification and approvals, scenic characteristics that need to be maintained, and prohibition of temporary roads, road reconstruction, or road realignment. Additionally, in accordance with the Old and Large Tree Implementation Plans (Appendix D of the FEIS), removal of old and large trees would be rare. Exceptions for removal of old and large trees are outlined in the plans (see also exceptions details further below).

The Rim Country Project would use a condition-based management approach for mechanical and aquatic treatments within IRAs. Condition-based management ensures that the right treatments is applied to the right location to meet desired conditions most effectively. The approach does not assign specific treatments to specific areas, but rather assigns treatments to a set of conditions that occur on the landscape.

The cutting of timber for removal is expected to be infrequent because operations in the IRAs would be of limited scope and duration over a 20-year or more time span. Re-entry into the IRAs for product removal would not be necessary. Weather factors limited operating periods, recent fire events, and available funding would dictate the amount and type of activities that might be applied in any given year. Implementation is intended to be carried out via a range of contracting mechanisms including commercial timber sales, stewardship contracts, and service contracts.

Though no temporary or permanent roads are a part of the proposed action, multiple entries into IRAs would be necessary to complete restoration activities. For mechanical treatments, a single entry with chainsaw falling crews, feller bunchers, log skidders, trucks and/or similar equipment will be necessary and could last multiple seasons depending on the size of the mechanical operation. Another entry would be necessary for each prescribed fire activity and would require the use of hand crews, ATVs, engines, trucks, and/or similar equipment. Entry for prescribed fire operations would occur separately from mechanical operations. Any subsequent prescribed fire operations would occur seasons after initial entry, depending on fuel accumulation and predicted fire behavior. Re-entry into the IRAs for product removal would not be necessary. In addition to the actions described, land managers would also have the flexibility of managing naturally ignited wildland fires for the protection and enhancement of Forest values.

Other Treatments: A total of 9,602 acres of prescribed fire only is also proposed within 6 IRAs. Within 5 IRAs, approximately 33.5 miles of stream restoration would occur (see table 2). Additionally, there is a potential for approximately 0.58 miles of road to be decommissioned within two IRAs (see table 2).

Design Features Specific to IRAs

RS013:

- Temporary roads shall not be built in Inventoried Roadless Areas. No road realignment or reconstruction is allowed in Inventoried Roadless Areas;
- Strive to make stump heights 8 inches above ground (uphill side) or lower, with 12-inch heights the exception and rarely occurring;
- Slash must be treated or removed;
- Use existing barriers (roads) and natural barriers as control lines whenever possible; and
- Cable operations shall not be conducted in Inventoried Roadless Areas.

Table 2. Rim Country Treatments by IRA

Inventoried Roadless Area	IRA Size (acres)	Merchantable Volume (CCF)	Mechanical Thinning and Prescribed Fire (acres)	Prescribed Fire Only (acres)	General Stream Restoration (miles)	Heavy Mechanical Stream Restoration (miles)	Road Decommissioning (miles)
Chevelon Canyon	5,569	2,321	372	4,816	1.35	0.01	-
Leonard Canyon	3,069	1,104	725	1,083	10.14	-	-
Barbershop Canyon	1,310	2,253	460	850	12.13	-	-
East Clear Creek	1,612	1,097	552	1,058	9.79	0.06	-
Jacks Canyon	2,855	559	1,169	548	-	-	-
Hellsgate	6,166	2,754	338	-	0.11	-	-
Mazatzal	16,930	578	316	-	-	-	0.5
Sierra Ancha Wilderness Contiguous	7,781	17,572	3,366	1,247	-	-	0.08
Grand Total	**45,292**	**28,238**	**7,298**	**9,602**	**33.52**	**0.07**	**0.58**

Table 3. Detailed treatment prescriptions mapped to occur within IRAs

Treatment	Treatment Description
Stand improvement treatments	Includes mechanical and prescribed fire treatments that thin generally young, even-aged stands. Establishes tree groups and interspace/openings adjacent to tree groups. Treatments are ecologically responsive with post-treatment basal area ranges lower on sites with low productivity, moderate on sites with moderate site productivity, and highest on sites with high site productivity. Manages for improved tree vigor and growth by retaining the best growing dominant and co-dominant trees within each group and as many old and/or large trees as possible and establishes non-forested grass/forb interspace/openings between residual tree groups or individual randomly spaced trees. Begins conversion to uneven-aged structure.
Uneven-aged treatments	Includes mechanical and prescribed fire treatments designed to develop uneven-aged structure and a mosaic of interspaces and tree groups of varying sizes. Thins tree groups to an average of 20-90 BA in pine cover types and 30-120 BA in dry mixed conifer cover type and establishes non-forested grass/forb interspace/openings between residual tree groups or individual randomly spaced trees. Treatments are ecologically responsive with post-treatment basal area ranges lower on sites with low productivity, moderate on sites with moderate site productivity, and highest on sites with high site productivity. Manages to enhance growing space for younger trees, while retaining as many old or large trees as possible. Establishes regeneration where seedlings and saplings are underrepresented. Locates interspace/openings in currently non-forested areas and lacking pre-settlement evidence.
Facilitative Operations Mechanical:	Mechanical and prescribed fire treatments in non-target cover types to support the use of prescribed fire in cover types targeted for restoration. Includes mastication/chipping; lop and scatter; thinning/limbing; and moving, rearranging, or removal of jackpots or excessive surface fuels. Designed to improve safety, improve treatment effectiveness, expand burn windows, decrease undesirable fire behavior and effects, and minimize disturbance from fireline construction.
Facilitative Operations Prescribed Fire Only	Prescribed fire treatment in non-target cover types to support the use of prescribed fire in cover types targeted for restoration. Includes broadcast burning, jackpotting, pile burning, and blacklining. Designed to improve safety, improve treatment effectiveness, expand burn windows, decrease undesirable fire behavior and effects, and minimize disturbance from fireline construction.
Grassland and Wet Meadow Restoration	Includes a combination of restoration treatments, including mechanical and prescribed fire treatments to maintain riparian vegetation and habitat. Remove encroaching upland tree and shrub species. Remove noxious or invasive plants. Promote, protect, or plant

Treatment	Treatment Description
	native aquatic or riparian species. Prescribed fire to regenerate riparian species and reduce fuels accumulation.
Riparian Restoration	Includes a combination of restoration treatments, including mechanical and prescribed fire treatments to maintain riparian vegetation and habitat. Remove encroaching upland tree and shrub species. Remove noxious or invasive plants. Promote, protect, or plant native aquatic or riparian species. Prescribed fire to regenerate riparian species and reduce fuels accumulation. General stream restoration treatments include methods that could either be implemented by hand or using machinery such as a driving a vehicle to a site, pneumatic post pounder, or a gas-powered auger to plant native riparian species or build exclosure fences. Heavy mechanical treatments are those that require machinery such as a trackhoe or front-end loader to conduct instream habitat or floodplain restoration. Heavy mechanical treatments are those that require machinery such as a trackhoe or front-end loader to conduct instream habitat or floodplain restoration. Though disturbance may be initially higher with heavy machinery, project effects are often less noticeable soon after the project is completed. Projects that utilize hand methods often take a more natural approach and require several seasons of flow events or vegetation growth to produce measurable improvements to habitats.
WUI and Infrastructure Protection	Includes mechanical treatments that allow maintenance of a more open structure and/or lower fuel load than elsewhere in the project area, up to but not exceeding 70 percent interspace within a ½-mile buffer surrounding critical infrastructure (transmission lines and communication sites) and high value Forest Service infrastructure (buildings and recreation sites), and around non-Forest System lands where structures are present. Treatments are designed to: reduce fire transmission to and from communities, improve firefighter safety and effectiveness, increase evacuation time in emergencies, reduce ember production, increase decision space for fire managers, and allow for more frequent prescribed fires.
Severe Disturbance Area Treatment	Includes a combination of restoration treatments: reforestation, prescribed fire, lopping/scattering, mastication, and other mechanical methods. Objective is to identify treatments that would be effective in restoring the fuel structure that produces the types of fire to which ponderosa pine is dependent.
MSO Recovery – Replacement Nest/Roost treatments	Includes mechanical and prescribed fire treatments designed to develop uneven-aged structure, irregular tree spacing, and a mosaic of interspace and tree groups of varying size. Intent is to continue to develop replacement Nest/Roost where possible, and to develop a diverse mix of heterogeneous stand structures and densities to provide for owl dispersal and foraging.
PAC – Mechanical treatments	Includes mechanical and prescribed fire treatments outside core areas that thins to improve structure, maintain and develop large trees, and reduce hazard of high-severity fire in PACs. Designed to increase tree vigor and health, to promote irregular tree spacing, and to create canopy gaps more conducive to fire treatment (reduce fire risk). Retain old growth attributes, protect large oaks, and ensure snags and coarse woody debris post-treatment.
Prescribed Fire Only treatments	Includes prescribed burning to improve structure, maintain and develop large trees, and reduce risk of high-severity fire effects. Retain old growth attributes, protect large oaks, and ensure snags and coarse woody debris post-fire. Reduce conifer litter/duff at ground level to promote increased herbaceous species cover and species richness. Restore/regulate vegetation mosaics, including woody and herbaceous species.

Evaluation of Roadless Area Characteristics

Characteristic 1: High quality or undisturbed soil, water, or air resources.

These three key resources are the foundation upon which other resource values and outputs depend. Healthy watersheds provide clean water for domestic, agricultural, and industrial uses; help maintain abundant and healthy fish and wildlife populations; and are the basis for many forms of outdoor recreation.

- Is there an effect (e.g., short or long-term, adverse or beneficial, legally compliant, health or safety concern, reasonably foreseeable, reasonably close causal from action)? **Yes**
- Which direction is the effect? Improving, Stable, or Downward Trend? **Stable or Improving**

Characteristic 1: Soil

Soils throughout the project area were mapped as part of the Terrestrial Ecosystem Survey (TES) of each forest. This information is available at the respective Forest Supervisor's Offices.

Evaluation: The Tonto amendment for treatment of slopes over 40% is incorporated into this analysis. Potential effects related to mechanical and non-mechanical vegetation treatments (i.e., forest thinning), mechanical and non-mechanical piling of activity-related debris would include localized soil compaction, puddling, displacement, erosion,

loss of soil organic matter, short-term changes in soil moisture content or retention, changes in nutrient cycles, changes in soil fauna, and introduction of invasive and noxious weeds. Mechanical forest vegetation treatments have the potential to adversely affect water quality through introduction of sediment and additional nutrients from decomposing woody debris, particularly where mechanical vegetation treatments occur in areas adjacent to stream courses.

Thinning of forest cover on soils currently characterized as unsatisfactory would improve soil conditions over the long-term by improving soil moisture and allowing greater sunlight penetration to the forest floor (for example sunflecks) resulting in an increase in grasses, forbs and shrubs in the forest understory where litter is currently the dominant soil cover (Griffis et al., 2000). The increased herbaceous vegetation would reduce soil erosion rates by providing vegetative ground cover that would intercept rain before it can reach soil surfaces and detach and entrain soil particles in runoff. Woody debris from forest thinning (i.e., slash) would be lopped and scattered where doing so would not result in excessive fuel loads, further mitigating potential adverse effects to soils and watershed resources. Finer litter and woody debris that is incidental to forest vegetation treatments (i.e., needles, leaves, twigs, cones, bark, etc.) would also remain on the ground following mechanical treatments to protect soil surfaces from wind and water erosion.

At the watershed scale, it is possible that the greater areal extent of mechanical vegetation treatments would result in increased water yield from watersheds where large percentages of the watershed are mechanically treated in a short timeframe. However, any increases in water yield would be short lived (i.e., 5 to 10 years) since understory vegetation would increase and the water uptake by grasses, forbs and shrubs and warmer soil temperatures would soon offset evapotranspiration lost from forest thinning.

Characteristic 1: Water

A total of 105.7 miles of stream are within IRAs in the project area of which 54.9 are intermittent, 47.3 perennial, and the remainder ephemeral. Eight inventoried springs are located in the IRAs. A small section (.13 miles) of Tonto Creek within the Hellsgate IRA has been identified as impaired for Mercury and *E. Coli* by the Arizona Department of Environmental Quality. A Total Daily Maximum Load (TMDL) has been developed for this reach for the *E. Coli* impairment. The watersheds in which the IRAs are located feed into the Salt River and Little Colorado River drainage systems. The Long Tom Canyon–Chevelon Canyon subwatershed has been designated a priority watershed within the USDA's Watershed Condition Framework.

Evaluation: The Tonto amendment for treatment of slopes over 40% is incorporated into this analysis. As described in Chapter 3 of the Rim Country FEIS, moving existing conditions towards desired conditions through implementation of the action alternatives will improve the state of the physical and biological processes both in the areas affected and within a watershed that effect soil and hydrologic functions supportive of ecosystems.

Mechanical thinning treatments would promote resiliency during uncharacteristic wildfires by reducing the potential for high severity burning of upland and riparian vegetation. Loss of vegetation from high severity fires can decrease soil stability resulting in excessive erosion and sediment production affecting water quality of downgradient and downstream waterbodies. Resource protection measures for mechanical treatments would be implemented to minimize nonpoint source pollution as outlined in the 2019 Intergovernmental Agreement (MOU) between the Arizona Department of Environmental Quality and the Southwestern Region of the Forest Service. Design features related to mechanical vegetation treatments are expected to minimize effects to resources and nonpoint source pollution. The project includes establishment and limitations within Aquatic Management Zones (SW001-SW-006), erosion control (SW022-SW023, SW025, SW40), spreading treatments in time and space within a watershed (SW054) as well as for skid trails (SW020-21, SW28-SW030, SW032-33, SW041, SW046), yarding (SW036), stream crossings (SW031), ground-disturbance limitations (SW039, SW045-SW049), protected areas (SW044) and landings (SW038, SW047) are expected to reduce effects. The project also includes a design feature to protect herbaceous regrowth post-treatment from livestock grazing if necessary (RM004, SW012).

Prescribed fire treatments would reduce fuel loading that continues to increase in both living biomass and woody detritus through natural forest ingrowth and tree encroachment into existing openings, resulting in increased risk of high severity wildfire. A dense forest litter layer (i.e., duff) has displaced much of the herbaceous vegetation which provides even greater benefits to soil hydrologic function due to fine root turnover, increased fine litter, improved soil porosity and aggregate stability, and increased water holding capacity. Increased water turbidity, and downstream flooding would be more widespread in an uncontrolled wildfire situation than under prescribed fire conditions where the size and intensity of the fire can be controlled. Design features (Appendix C of the FEIS) related to prescribed fire are expected to minimize the potential effects described above. The project includes limitations within Aquatic Management Zones (SW007 and SW-008), spreading treatments in time and space within a watershed (SW054), fireline criteria (FE008, SW050-51, TR002), riparian criteria (SW053), general fire (FE003, FE007) and cumulative impacts (FE011) which are expected to reduce potential impacts. The project also includes design features to protect herbaceous regrowth post-treatment from livestock grazing if necessary (RM004, SW012).

Water quality will likely benefit from road decommissioning of Forest Service system roads and unauthorized routes being used for motorized travel that continue to discharge runoff and sediment to project area streams, especially where the roads are poorly located in stream bottoms, have inadequate drainage structure, and are hydrologically connected to the stream network. Appendix C of the FEIS has specific soil and water design features to minimize nonpoint source pollution from road decommissioning and other road activities (SW056-SW058).

Implementation of restoration activities described in the Aquatic and Watershed Condition- Based Management Approach could promote conditions for desirable water quality and quantity characteristics across the project area. Restoration activities include a range of treatment types from heavy mechanical stream reconstruction to building of small wood and rock stabilization structures. Also included are riparian planting and protection, spring restoration, and vegetation treatments including thinning and prescribed fire just to name a few others. Long-term water quality would benefit from promotion of soil and channel stability with improved dissipation of stream energy, water storage, and more stable flow regimes through maintenance or improved riparian vegetation conditions. Reduction of canopy cover near riparian areas would stimulate the development of understory vegetation including deciduous woody riparian vegetation (e.g., aspens, willows and cottonwoods). Increased infiltration resulting from the vegetative treatments promotes infiltration of excess moisture into sub-surface storage increasing groundwater levels supporting riparian vegetation and spring flow. Short-term inputs of sediment are expected from these ground-disturbing activities, however Appendix C of the FEIS has design features to minimize point and nonpoint source pollution and protect riparian resources. Reducing heavy equipment impacts are addressed in AQ008, AQ011, AQ030, SW063, SW065-68, SW070, to reduce direct impacts and sedimentation. Reducing impacts to riparian vegetation is covered by AQ014, AQ035, AQ037, SI001, SI003, SI023, and SW008-9, while protecting stream shade is included in AQ032-34. There also design features for mimicking stream reference conditions (SW055), site rehabilitation (SW059-63) and stockpiling materials from uplands for use in streams (SI007).

There are four design features to prevent pollutants from entering riparian areas, waterbodies and aquatic habitats which minimizes the potential effects. These measures range from checking for leaks daily to refueling and staging areas being outside AMZs (AQ003, SW015-16, SW074).

As described in Water and Riparian Resources Section in Chapter 3 of the Rim Country FEIS, the action alternatives will move areas currently not meeting desired conditions with respect to stable soil and hydrologic regimes to those supporting improved water quality and quantity and riparian systems. Moving towards these desired conditions contributes to healthy watersheds and clean downstream drinking water which is consistent the social and ecological values and characteristics of inventoried roadless areas

Characteristic 1: Air

The Sierra Ancha Wilderness Contiguous and Mazatzal IRAS overlap the Class I airsheds of the Sierra Ancha and Mazatzal Wilderness Areas. Class I areas protected from human-caused degradation of air quality through the Prevention of Significant Deterioration (PSD) program. The PSD was established by the 1977 Clean Air Act amendments to preserve the clean air usually found in pristine areas while allowing controlled economic growth.

Evaluation: Air quality impacts would come primarily from prescribed fire. Areas treated with prescribed fire would produce lower emissions per acre than untreated acres burned by wildfire. All prescribed fire treatments would comply with National Ambient Air Quality Standards. Implementation of the project would comply with the federal Clean Air Act and at the state level with the Arizona Department of Environmental Quality's regulations that require the project to not cause exceedances of the National and State Ambient Air Quality Standards in populated areas.

There would not be a meaningful increase of dust or vehicle emissions in IRAs. In most circumstances vehicle and equipment emissions disperse rapidly and in the potential concentrations caused by only tens of vehicles or equipment would not cause NAAQS exceedances. Site-specific mitigation for fugitive dust is incorporated into ground-disturbing projects through implementation of best management practices (BMPs) and retention and replacement of ground cover. Specifically, using dust abatement methods during dry conditions when hauling and coordinating with the appropriate county (RS010), employing dust abatement when rock pits are in operation (TR013), skid trails, landings, and temporary roads would be closed, and erosion control measures would be implemented including scarification and seeding (SW040).

Characteristic 2: Sources of public drinking water.

National forests contain watersheds that are important sources of public drinking water. Careful management of these watersheds is crucial in maintaining the flow of clean water to a growing population.

- Is there an effect (e.g., short or long-term, adverse or beneficial, legally compliant, health or safety concern, reasonably foreseeable, reasonably close causal from action)? **No**
- Which direction is the effect? Improving, Stable, or Downward Trend? **Stable or Improving**

Evaluation: None of the IRAs supply any municipal drinking water.

Characteristic 3: Diversity of plant and animal communities.

Roadless areas are more likely than roaded areas to support greater ecosystem health, including a diversity of native and desired non-native plant and animal communities, due to the absence of disturbances caused by roads and accompanying activities. Roadless areas also may conserve native biodiversity by providing areas where nonnative invasive species are rare, uncommon, or absent serving, and by serving as a bulwark against the spread of nonnative invasive species.

- Is there an effect (e.g. short or long-term, adverse or beneficial, legally compliant, health or safety concern, reasonably foreseeable, reasonably close causal from action)? **Yes**
- Which direction is the effect? Improving, Stable, or Downward Trend? **Stable or Improving**

Characteristic 3: Terrestrial Wildlife

Terrestrial wildlife species that could occur in or near these IRAs include federally listed species such as the Mexican-spotted owl and its critical habitat, as well as the Mexican wolf (10j listed) though no wolf observations have occurred there. Yellow-billed Cuckoos could also occur here, though there are not current or historic observations. Regional Forest Sensitive species that occur in or near these IRA areas include Peregrine Falcon, Northern Goshawk, Bald and Golden Eagles, Navajo Mogollon Vole, Western red bat, spotted bat, Allen's lappet-browed bat, and Pale Townsends big-eared bat. All of the above species were evaluated using Natural Resource Manager (NRM) and Arizona Game and Fish Department (AZGFD) species databases. Species that occur in or near each IRA that are in 4 FRI Rim Country project area are discussed below.

Chevelon Canyon IRA: The IRA is adjacent to the general forest management area and Willow Springs/Horse Trap wildlife quiet area. Rare terrestrial wildlife species that are known to exist or are likely to exist include the threatened Endangered Species Act (ESA) listed Mexican Spotted Owl and its critical habitat (See table 5). One goshawk PFA (Post Fledgling Family Area) has portions of it within ½ mile of this IRA, with several nest stands also within ½ mile of the IRA portion in Rim Country. One Bald eagle nest is within ½ mile of the IRA, and 2 adjacent golden eagle active/historic nests are within this IRA. One Peregrine Falcon eyerie with several associated active/historic nests are within this IRA.

Leonard Canyon IRA: Rare terrestrial wildlife species that are known to exist or are likely to exist include the threatened Endangered Species Act (ESA) listed Mexican Spotted Owl and its critical habitat (See table 5). One goshawk PFA is just over ½ mile away from this IRA in the Rim Country project area. No other Federally listed or Forest Service sensitive species occur in or near this IRA.

Barbershop Canyon IRA: The southern portion of the Barbershop Canyon IRA is within the Mogollon Rim Snow Melt Draws important bird area. Rare terrestrial wildlife species that are known to exist or are likely to exist include the threatened Endangered Species Act (ESA) listed Mexican Spotted Owl and its critical habitat (See table 5). Three (3) goshawk PFA areas including one nest stand have portions within ½ mile of this IRA in the Rim Country project area. No other Federally listed or Forest Service sensitive species occur in or near this IRA.

East Clear Creek IRA: Rare terrestrial wildlife species that are known to exist or are likely to exist include the threatened Endangered Species Act (ESA) listed Mexican Spotted Owl and its critical habitat (See table 5). One goshawk PFA is just over ½ mile away from this IRA in the Rim Country project area. Two (2) Peregrine Falcon nests are within ½ mile of this IRA in the Rim Country project area.

Jacks Canyon IRA: Rare terrestrial wildlife species that are known to exist or are likely to exist include the threatened Endangered Species Act (ESA) listed Mexican Spotted Owl and its critical habitat (See table 5). No other Federally listed or Forest Service sensitive species occur in or near this IRA.

Hellsgate IRA: Rare terrestrial wildlife species that are known to exist or are likely to exist include the threatened Endangered Species Act (ESA) listed Mexican Spotted Owl and its critical habitat (See table 5). No other Federally listed or Forest Service sensitive species occur in or near this IRA. Most of the Management Indicator Species (MIS) included in the Terrestrial Wildlife Specialist Report could occur in this IRA.

Mazatzal IRAs: Rare terrestrial wildlife species that are known to exist or are likely to exist include the threatened Endangered Species Act (ESA) listed Mexican Spotted Owl and its critical habitat (See table 5). No known goshawk, peregrine, bald or golden eagles within a half mile of potions of the IRA within the Rim Country project area. Most of the Management Indicator Species (MIS) included in the Terrestrial Wildlife Specialist Report could occur in this IRA.

Sierra Ancha Wilderness Contagious IRA: Rare terrestrial wildlife species that are known to exist or are likely to exist include the threatened Endangered Species Act (ESA) listed Mexican Spotted Owl and its critical habitat (See table 5). Two (2) Peregrine falcon territories occur within ½ mile of the portions of the IRA that are within the Rim Country project area. No known goshawk, bald or golden eagles occur within a half mile of potions of the IRA within

the Rim Country project area. Most of the Management Indicator Species (MIS) included in the Terrestrial Wildlife Specialist Report could occur in this IRA.

Evaluation: Detailed information about project effects MSO and its critical habitat are within Characteristic 4 below. Effects to terrestrial wildlife from the action alternatives is analyzed in the Biological Assessment and Terrestrial Wildlife Specialist Report. Mechanical thinning in IRAs has the potential to effect terrestrial wildlife species in the sort-term, with long-term benefits that outweigh brief disturbance. Short-term effects include noise disturbance, alteration of understory and habitat that cause animals to leave the area.

Design features related to mechanical vegetation treatments are expected to minimize the potential effects described above (see Aquatics Evaluation below for specific design features).

Prescribed burning has the potential for negative short-term effects to upland vegetation and harm to individual terrestrial species if present. Short-term effects would result if these activities occur within species habitat from firelines (ground disturbance), removal or reduction of vegetation, and altered water quality downstream from ash. Generally herbaceous vegetation recovers quickly after low and moderate intensity prescribed fire. Long term effects of prescribed burning are expected to be positive for terrestrial wildlife species and habitats. Reduced fuel loading would protect these areas from the effects of uncharacteristic wildfire in the future and returning frequent fire to the ecosystem is a restoration activity that this project hopes to achieve to preserve these areas for the future.

Design features related to prescribed fire are expected to minimize the potential effects described above. These are discussed in the Aquatics Evaluation below and pertain to the terrestrial wildlife species effects in the IRAs in the Rim Country project area. Numerous Wildlife design features have been added to the project to protect the MSO, Goshawk, and Eagles that would minimize effects to these species in IRAs as well as the entire project area. These include buffers from noise from mechanical equipment as well as seasonal restrictions. Other raptorial bird species, wolves and bats have design features that would minimize disturbance to these species of terrestrial wildlife. These are listed in Appendix C of the FEIS and discussed in the Terrestrial Wildlife Specialist report.

For Forest Service Sensitive Species, the terrestrial Wildlife Specialist report determined that individuals of some species could be affected by proposed activities but that no species would trend towards federal listing as a result of the proposed alternatives in Rim Country. On the Tonto, MIS species were analyzed in the Terrestrial Wildlife Specialist report with no species trends affected by the proposal. The same determinations are true for implementation in the IRAs within Rim Country.

Characteristic 3: Plants

Overall, impacts to these species would not effect this IRA character due to inclusion of design features (Appendix C).

Barbershop Canyon IRA: Two southwestern region sensitive species; Bebb's willow (Salix bebbiana) and Arizona sneezeweed (Helenium arizonica) occur in Barbershop Canyon. Bebb's willow is part of the montane willow riparian forest. Arizona sneezeweed grows along meadow edges, ponds and wet areas and may be present in wetlands in the project area.

Evaluation: The proposed stream and spring restoration would improve the condition and function of streams and springs where Bebb's willow and Arizona sneezeweed would occur, thereby improving habitat conditions for the species.

Effects to Bebb's willow in Barbershop Canyon includes loss of individual plants or groups during mechanical treatments, prescribed fire, or stream restoration. Bebb's willow can be top killed during fire, leaving live portions underground but regrowth can be destroyed by browsing animals. This eventually kills the plant. Locating and protecting plants can mitigate this effect (BT002, BT004, SW071). Impacts associated with the project to Bebb's willow would not result in a downward trend toward federal listing or loss of viability.

Arizona sneezeweed individuals or groups may be affected during stream restoration but locating and avoiding plants can mitigate this effect. Indirectly, increased risk of weed invasion from noxious or invasive weeds within the habitat could occur. Incorporation of design features to prevent the establishment and spread of invasive weed populations would mitigate the effects (FE005, NW001-NW008). Impacts associated with the project to Arizona sneezeweed would not result in a downward trend toward federal listing or loss of viability.

East Clear Creek IRA: One southwestern region sensitive species, cliff fleabane (Erigeron saxatilis) is present in East Clear Creek and within the project area. Cliff fleabane typically grows on steep canyon walls.

Evaluation: The main effects from management activities proposed by the Rim Country project include activities that alter the vertical cliff habitats such as road construction and road realignment, these treatments are not proposed in IRAs, therefore no impacts to cliff fleabane are expected.

Leonard Canyon IRA: Blumer's dock (Rumex orthoneurus) occurs in Leonard Canyon and in other canyons within the project area.

Evaluation: The risk to Blumer's dock from management actions to restore aquatic habitats and stream channels include loss or damage of plants or loss of habitat. Ground disturbing activities such as moving soil would increase the risk of disturbance to individual plants and their habitat. Design features are expected to minimize the potential effects described above. The project includes consultation with biologists during pre-planning for all treatments to determine presence of federally listed or sensitive species (AQ018), protecting Southwestern Region sensitive plants and Species of Conservation Concern by including the plants within tree groups and using areas not occupied by the plants as interspaces (BT001), identification of at-risk species before implementation (BT005), avoiding plants to the extent possible (BT007), eliminating prescribed fire ignitions in AMZs (FE007), and protection of AMZs (SW001). Impacts associated with the project to Blumer's dock would not result in a downward trend toward federal listing or loss of viability. The proposed stream and spring restoration would improve the condition and function of streams and springs where Blumer's dock would occur, thereby improving habitat conditions for the species.

Characteristic 3: Aquatic Species

As with most aquatic habitats in the southwest, the Little Colorado basin contains a variety of aquatic habitat types and is prone to rather severe seasonal and yearly fluctuations in water quality and quantity. Little Colorado spinedace and sucker are unique to the Little Colorado basin.

Chevelon Creek IRA: The portion of Chevelon Creek in the IRA is upstream of Chevelon lake. It is managed by the state primarily as a blue-ribbon trophy coldwater fishery for brown and rainbow trout. Native fish management is a secondary management objective for the state. The riparian community along the stream consists primarily of box elder, ash, narrowleaf cottonwood, willow, Gambel oak, rose, and wild grape. Small benches or sand and gravel bars are found near the mouths of side canyons and support a variety of grasses, herbaceous cover, and low shrubs. The aquatic community includes sensitive Little Colorado sucker and other native species such as bluehead sucker, desert sucker and speckled dace. The stream provides habitat for threatened Chiricahua leopard frog and sensitive species such as roundtail chub, California floater and northern leopard frog, but these species are not currently present.

Woods Canyon Creek within the IRA is managed by the state primarily as a coldwater trout fishery for brown and brook trout. Speckled dace and sensitive Little Colorado sucker are present and habitat is available for bluehead sucker though the species is not present.

Leonard Canyon IRA: The steep-walled canyons create complex environmental conditions with associated vegetation. The cottonwood-willow riparian forest along the stream channels consists primarily of box elder, ash, narrowleaf cottonwood, willow, Gambel oak, rose, and wild grape. Small benches or sand and gravel bars are found near the mouths of side canyons and support a variety of grasses, herbaceous ground cover, and low shrubs. The aquatic community within the creek and IRA includes threatened Little Colorado spinedace and sensitive Little Colorado sucker. Habitat is available for threatened Chiricahua leopard frog, bluehead sucker, and sensitive northern leopard frog. This area was the original source population for all of the stocking of Little Colorado spinedace in the Clear Creek drainage.

East Clear Creek IRA: East Clear Creek below Blue Ridge Reservoir is within the IRA. It is managed by the state primarily as a native fishery and secondarily as sport fishery for rainbow trout. The cottonwood-willow riparian forest along the stream channels consists primarily of box elder, ash, narrowleaf cottonwood, willow, Gambel oak, rose, and wild grape. Small benches or sand and gravel bars are found near the mouths of side canyons and support a variety of grasses, herbaceous ground cover, and low shrubs. The aquatic community within the creek and IRA includes threatened Little Colorado spinedace and two sensitive species: Little Colorado sucker and roundtail chub. Other native fish include bluehead sucker and speckled dace. Habitat is available for threatened Chiricahua leopard frog and sensitive northern leopard frog. Designated critical habitat for Little Colorado spinedace is also present.

Barbershop IRA: Threatened Little Colorado spinedace and sensitive Little Colorado sucker are present. Habitat is available for threatened Chiricahua leopard frog and sensitive northern leopard frog, but the species are not present.

Hellsgate IRA: A small portion of Tonto Creek in the Hellsgate IRA is within the project area. This aquatic community includes sensitive desert sucker, Sonoran sucker, and headwater chub.

Mazatzal IRA: Pine and Rock Creeks within the IRA have sensitive headwater chub and desert sucker which are not unique to the area. The portion of the IRA within the project boundary does not contain any aquatic species.

Aquatics Evaluation: Effects to species and habitats are addressed in the Rim Country biological assessment and aquatic specialist report, incorporated hereafter by reference.

Mechanical thinning within aquatic management zones could have negative effects to species and their habitats from reduced riparian vegetation cover and ground disturbance leading to increased sedimentation to streams in the short term (<5 years). Elevated sedimentation above current levels could negatively impact aquatic habitat, species, and water quality; particularly fish eggs and early life history stages that occur on or within substrate as well as the aquatic macroinvertebrate community structure. Habitat is impacted by increased fines and embeddedness to spawning substrates which can lead to loss of habitat quality and reduced reproductive success. However, herbaceous ground cover would reestablish and should increase given reduced conifer canopy cover and increased sunlight reaching the ground. There is the potential of impacts to individual frogs in the form of harm or modification of behavior during implementation. Indirectly, frogs may avoid or move out of these areas while work is occurring causing displacement or disruption of social and feeding behavior. These effects have the potential to reduce the health or reproductive capability of individuals.

Design features related to mechanical vegetation treatments are expected to minimize the potential effects described above. The project includes spreading treatments in time and space within a watershed (SW054) as well as for skid trails (SW020-21, SW28, SW030, SW032-33, SW041, SW046), yarding (SW036), and landings (SW038, SW047) are expected to reduce effects. The project also includes a design feature to protect herbaceous regrowth post-treatment from livestock grazing if necessary (RM004, SW012).

Prescribed burning has the potential for negative short-term effects to riparian vegetation and harm to individual frogs if present. Short-term effects would result if these activities occur within species habitat from firelines (ground disturbance), removal or reduction of vegetation, and altered water quality from ash. Generally herbaceous vegetation recovers quickly after low and moderate intensity prescribed fire. However, prior to this, there may be increased sedimentation into streams short term which may negatively affect habitat by increasing substrate embeddedness or potentially effecting eggs, larval fishes and tadpoles and aquatic insect prey base.

Long term effects of prescribed burning are expected to be positive for aquatic species and habitats. Reduced fuel loading would protect these areas from the effects of uncharacteristic wildfire in the future. Large woody debris recruitment and streamside cover or structure can also improve with prescribed fire. Fire plays an important role in maintaining heterogeneity in riparian and aquatic systems that has been excluded similar to surrounding uplands (Gresswell 1999); therefore, restoring the fire regime would have some benefits to riparian condition.

Design features related to prescribed fire are expected to minimize the potential effects described above. The project includes spreading treatments in time and space within a watershed (SW054), fireline criteria (FE008, SW050-51, TR002), riparian criteria (SW053), general fire (FE003, FE007) and cumulative impacts (FE011) which are expected to reduce potential impacts. The project also includes a design feature to protect herbaceous regrowth post-treatment from livestock grazing if necessary (RM004, SW012).

Though the long-term effects of stream restoration projects are anticipated to be positive for species, some actions may result in a degree of short-term negative effects to aquatic species and their habitats. General stream restoration activities have little ground disturbance and no negative impacts to fish would occur as these activities occur in the riparian area and not the stream. Benefits of improved riparian vegetation include increased stream shading, bank stability, hiding cover for amphibians and reptiles, and improved riparian condition. Short term effects of heavy mechanical restoration generally include disturbance within the streams and nearby floodplains which may result in sediment plumes while work is occurring, temporary disturbance of occupied habitats and displacement of individuals, temporary reduction of riparian vegetation cover in the project area and change of channel structure. These impacts are considered short-term (a few weeks) and sediment should be moved downstream during the first high stream flow. Beneficial impacts of stream restoration of improved habitat, connectivity and stream function are immediate and long-term.

Multiple project design features are included in the project to reduce adverse impacts where feasible given the nature of these methods. Reducing heavy equipment impacts are addressed in AQ008, AQ011, AQ030, SW063, SW065-68, SW070, to reduce direct impacts and sedimentation. Reducing impacts to riparian vegetation is covered by AQ014, AQ035, AQ037, SI001, SI003, SI023, and SW008-9 while protecting stream shade is included in AQ032-34. There also design features for site rehabilitation (SW059-63) and stockpiling materials from uplands for use in streams (SI007).

There are four design features to prevent pollutants from entering riparian areas, waterbodies and aquatic habitats which minimizes the potential effects. These measures range from checking for leaks daily to refueling and staging areas being outside AMZs (AQ003, SW015-16, SW074). There is one design feature to prevent introduction of disease or aquatic invasive species to any stream or water body (AQ001).

Characteristic 4: Habitat for threatened, endangered, proposed, candidate, and sensitive species and species dependent on large undisturbed areas of land.

Roadless areas function as biological strongholds and refuges for many species, including terrestrial and aquatic plant and animal species. Many of the nation's species currently listed as threatened, endangered, or proposed for listing under the Endangered Species Act, and those listed by the Forest Service as sensitive, might have habitat within roadless areas.

- Is there an effect (e.g. short or long-term, adverse or beneficial, legally compliant, health or safety concern, reasonably foreseeable, reasonably close causal from action)? **Yes**
- Which direction is the effect? Improving, Stable, or Downward Trend? **Stable/Improving**

Characteristic 4: Terrestrial Wildlife

Terrestrial wildlife species that could occur in or near these IRAs include federally listed species such as the Mexican-spotted owl and its critical habitat, as well as the Mexican wolf (10j listed) though no wolf sightings have occurred in the IRAs. Yellow-billed Cuckoos could also occur here, though there are not current or historic observations. The threatened Endangered Species Act (ESA) listed Mexican Spotted Owl and its critical habitat occur in the Chevelon Canyon, Leonard Canyon, Barbershop Canyon, East Clear Creek, Jacks Canyon, and Sierra Ancha Wilderness Contagious IRAs. Proposed treatments in Mexican Spotted Owl Protected Activity Centers (PACs) are designed to improve habitat characteristics important to the species and to protect the PACs and nest core areas from the risk of high severity, prevailing wind-driven wildfire.

The FWS designated MSO critical habitat in 2004 (USDI FWS 2004). Critical habitat is defined as protected and recovery habitats within designated areas which contain the primary constituent elements (PCEs) necessary for conservation of the species (USDI FWS 2004). Critical habitat can include non-MSO habitat, including federally managed lands that do not function as owl habitat and private and state lands. Protected and recovery MSO habitat within designated critical habitat must be managed to maintain or enhance primary constituent habitat elements. PCEs in pine-oak and mixed conifer forests provide for MSO habitat needs including, but not limited to nesting, roosting, foraging, dispersing, and elements of prey habitat (USDI FWS 2004).

Evaluation: The Biological Assessment and Terrestrial Wildlife Specialist report analyzes the effects from the 4 FRI Rim Country project proposals to the MSO and its critical habitat. Mechanical thinning in IRAs has the potential to affect the MSO in the sort-term, with long-term benefits that outweigh brief disturbance. Short-term effects include noise disturbance, alteration of understory and habitat that cause owls to leave the area.

Improvement for MSO habitat is an objective of this project. Forest Vegetation Simulator (FVS) was used to model effects of treatments 10 and 20 years into the future. FVS analysis showed that habitat characteristics important to the MSO and its prey base; large trees and snags, diverse understory herbaceous and shrub layers, ample woody debris and downed logs, and canopy cover Are maintained or improved as a result of implementation of 4 FRI Rim Country.

A total of 10,740 acres of treatment are proposed in IRAs in MSO habitat. Thinning and prescribed fire is proposed for 2,473 of those acres with the remainder proposed for prescribed fire only, specific acreages by IRA are included in the table 5. General stream restoration is proposed on 23.3 miles of IRAs, in PACs, in the project area. Of these miles, only 0.03 are proposed for heavy mechanical restoration.

The Forest Service (FS) has submitted a Biological Assessment to our regulatory agency, The United State Fish and Wildlife Service (USFWS) on 04/26/2021. The USFS submitted a determination for the MSO and its critical habitat in the Rim Country 4FRI project of "May Affect, is Likely to Adversely Affect". The reasoning is that while timing restrictions would limit disturbance to breeding owls, the breadth and scope of the project is likely to result in minor short-term disturbance to the species and its habitat. As we have worked closely to plan this project with USFWS, the determination will be concurred upon and the USFWS Biological Opinion will have terms and conditions to avoid disturbance to the MSO and its critical habitat that are already incorporated into the design features (Appendix C of the FEIS).

Overall, the effects of treatments would benefit the MSO and its habitat. Short-term disturbance effects are discussed in the BA and Wildlife Specialist Report for the FEIS. Design Features are included in Appendix C of the FEIS. There are many that include avoiding the spread of non-native or invasive species. There are many design features in Appendix C that mitigate disturbance to the MSO and its habitat. See Design features WL001-WL016, WL032, and WL045-WL048. Various design features are cited in the Aquatics analysis that apply to the MSO because they are designed to reduce effects of erosion and disturbance to aquatic ecosystems, which will reduce effects to the MSO which often nests in this habitat.

The proposed treatments would benefit the terrestrial wildlife resource and the MSO. The proposed activities would put forested stands on a trajectory toward the natural range of variation and making them more diverse, and resilient

to disturbances such as fire, disease, insects and climate change. An increase in resiliency would improve the roadless character as it pertains to the forest structure, composition, pattern, and process.

Heavy machinery associated with mechanical treatments would have direct and indirect effects to MSO through habitat alteration by changing acres of habitat. in PACs, nest/roost recovery habitat, and foraging/Non-breeding recovery habitat there would be short term negative impacts to plant cover but long-term beneficial effects through improvement of habitat resilience, structure and function. This could result in short term (1-2 years) negative effects of slight alterations in MSO habitat (removal of small, encroached trees and decreasing fuel load) with long term beneficial effects as silvicultural prescriptions would reduce fuel loading and increase habitat variables important to the MSO (see FVS modeling and Vegetation Changes section in the FEIS). Removing heavily encroached areas (or areas with high small diameter tree density) of MSO habitat would reduce risk of high severity wildfire and promote large trees and snags, shrub and herbaceous vegetation, with small openings created (0.5-2 acres). Short-term affects to MSO habitat are expected to occur as a result of restoration thinning activities (1-2 years after treatment) with long-term benefits occurring as vegetation responds to prescribed treatments. Forest structure and habitat for prey base (FVS modeling) are extensively analyzed in the FEIS, by MSO habitat type under the Proposed Action, discussing these long-term improvements. Short term effects are considered to be minimized by design features; however, it is possible that individual MSO could be disturbed either directly or indirectly from these activities due to the large spatial and temporal size of the Rim Country project. Wildlife Design Features that reduce effects to the MSO and its habitat from mechanical thinning activities which include managing for basal area (WL001-002), coordinating management to reduce potential disturbance and minimize the frequency and duration of operations within and immediately adjacent to these areas (WL003), and provide seasonal breeding season restrictions (WL005-007). The Large and Old Tree Implementation plans include sideboards that would leave these trees on the landscape. The proposal seeks to remove encroaching small diameter conifer trees with the majority of trees taken below 12” diameter at breast height where applicable in MSO habitat to promote habitat variables that are considered beneficial to the owl (see proposed action).

Burning, thinning, and the associated ground disturbance could adversely affect the prey base on a short-term basis by impacting individuals of prey species due to disturbance of prey species’ habitat and harm from fire. However, over the long- term, an increased diversity of vegetative structural stages and improved understory vegetation with improved plant species richness would increase prey species, resulting in indirect beneficial impacts (see FVS modeling in FEIS).

Mechanical thinning is also proposed as part of grassland, wet meadow, and riparian restoration (comprehensive restoration) to remove conifer encroachment and meet desired conditions. Timing design features (same as above) would reduce disturbances to the owl as breeding owls would not be disturbed. Comprehensive restoration activities would restore diverse habitat characteristics to places that have lost them or need restoration.

Overall, this project would have short-term effects to the MSO and its Critical Habitat. Design features limit the seasonality of treatments and treatments are designed to improve habitat conditions for the MSO and MSO CH over the long-term. Improving habitat characteristics beneficial for the MSO (from the MSO Recovery Plan) while also protecting this habitat from high severity wildfire are objectives of the Rim Country 4 FRI project that would also benefit many other wildlife species Fire modeling included in the Terrestrial BA and Wildlife specialist report shows that the risk of high severity wildfire in MSO habitat is greatly reduced as a result of implementation of 4 FRI Rim Country. Treatment in the IRAs is important to include in the 4 FRI Rim Country project so that the areas in the IRAs and the contiguous acres around them are treated as planned in the project area. Effects to the MSO and MSO Critical habitat were analyzed with an effect’s determination of “May Affect, Likely to Adversely Affect”, with concurrence from USFWS.

Characteristic 4: Plants

Evaluation: No habitat for threatened, endangered, proposed, candidate, and sensitive plant species and plant species dependent on large undisturbed areas of land occur within the affected IRAs.

Characteristic 4: Aquatic Species

Threatened Little Colorado spinedace and sensitive Little Colorado sucker are unique to the Little Colorado basin where Chevelon, Leonard, East Clear Creek, and Barbershop IRAs occur, but not unique within the IRAs themselves.

Chevelon Creek IRA: Sensitive Little Colorado sucker is present. Habitat for threatened Chiricahua leopard frog, sensitive California floater, and sensitive northern leopard frog is present, but these species are not currently present in the IRA.

Leonard Canyon IRA: Threatened Little Colorado spinedace and two sensitive fish: Little Colorado sucker and roundtail chub are present. Habitat is available for threatened Chiricahua leopard frog and sensitive northern leopard frog, but the species are not present.

East Clear Creek IRA: Threatened Little Colorado spinedace and sensitive Little Colorado sucker and roundtail chub are present. Designated critical habitat for Little Colorado spinedace is also present. Habitat is available for threatened Chiricahua leopard frog and sensitive northern leopard frog, but the species are not present.

Barbershop IRA: Threatened Little Colorado spinedace and sensitive Little Colorado sucker are present. Habitat is available for threatened Chiricahua leopard frog and sensitive northern leopard frog, but the species are not present.

Hellsgate IRA: Sensitive desert sucker, Sonoran sucker, and headwater chub are present in Tonto Creek.

Mazatzal IRA: No TES aquatic species occur in the IRA within the project area.

Evaluation: The effects analysis for the ESA determinations are in the Rim County biological assessment, incorporated hereafter by reference. The Biological Assessment determination for Little Colorado spinedace including designated critical habitat is May Affect, Likely to Adversely Affect. The determination for the Chiricahua leopard frog is May Affect, Likely to Adversely Affect, and its designated critical habitat is May Affect, Not Likely to Adversely Affect.

Short term negative impacts of decreased ground cover, increased erosion and sedimentation, and impacts to individuals could occur from thinning, burning and road decommissioning but are minimized by project design features. Long term benefits of these activities include reduced uncharacteristic fire risk and road density. General stream restoration would have almost no negative impacts, but long-term benefit of improves riparian vegetation structure and function, bank stability, and stream shade. Heavy mechanical stream restoration has negative impacts to individuals and increased sedimentation during implementation, but immediate and long-term benefits of improved stream habitat and stream function. These activities provide for long term habitat, population viability and species recovery, therefore improving IRA characteristic 4.

Characteristic 5: Primitive, semi-primitive nonmotorized and semi-primitive motorized classes of dispersed recreation;

These areas often provide outstanding recreation opportunities such as hiking, camping, picnicking, wildlife viewing, hunting, fishing, and cross-country skiing, and canoeing. Although roadless areas with these recreation opportunities could have many wilderness-like attributes, they often allow the use of mountain bikes and other mechanized and motorized means of travel, in contrast to designated wilderness areas. Primitive, semi-primitive non-motorized, and semi-primitive motorized areas can also take pressure off heavily used wilderness areas by providing additional solitude and quiet, and dispersed recreation opportunities.

- Is there an effect (e.g., short or long-term, adverse or beneficial, legally compliant, health or safety concern, reasonably foreseeable, reasonably close causal from action)? **Yes**
- Which direction is the effect? Improving, Stable, or Downward Trend? **Stable**

Evaluation: ROS by IRA is present in the Land Management Plan Allocations, Special Management Designations Within and Adjacent to IRAs section above. See the FEIS Recreation section and the Recreation Resources Specialist Report for additional analysis.

The degree of solitude available in and near the project area may be temporarily impacted by motorized equipment used for mechanical tree-felling, and transient air pollution. These impacts would last only as long as project operations. Short-term loss of recreation opportunities or a change in recreation experiences would occur during project implementation due to temporary Forest closures. The closures would be implemented to protect the public from safety hazards associated with burning and operation of motorized equipment. These closures would reduce the public's opportunity to access limited areas of public land for dispersed recreation for several days.

The proposed actions related to prescribed fire only, and mechanical and prescribed fire in IRAs totals 16,900 acres. Of that total, there is 15,953 acres of treatment in semi-primitive, non-motorized (SPNM) in the IRA. Proposed activities within the IRA would not have long term negative impact to the outdoor recreation environment, activities, and experience opportunities related the ROS.

The long-term inventoried roadless area characteristics are not expected to change as a result of vegetation management activities, or other proposed actions. Overall, proposed activities would have only limited, short-term impacts on the visitor experience. None of the proposed activities would result in a permanent change in the condition of the area or its potential to be included in future inventories. Long-term benefits to recreation setting due to forest restoration, more resilient forest conditions, and a reduced risk of severe wildfire in the future.

Portions of the Arizona Trail occur in the Mazatzal IRA, design features (Appendix C) specifically for the minimization of impacts to the Arizona Trail and recreationalists would reduce impacts. Specially, coordination with recreation staff to provide additional scenic integrity guidelines (RS001), protection of the trail during prescribed burning control line

establishment and mitigation of adverse effects (RS004), minimal marking of trees in the Arizona Trail corridor avoiding using the Arizona trail as a boundary (RS006), meetings with the Arizona Trail Association in the planning stages (RS006), treatment of the edges of thinning areas to maintain scenic integrity (RS006), emphasis for slash treatment and road decommissioning (RS010), and not allowing skid trails to be established (RS010), eliminating jackstraw treatments within the line of sight or 300 ft from the trail (RS012), notification of trail detour routes during operational closures (RS015), and slash treatment pull-back near national trails (RS016).

Characteristic 6: Reference landscapes for research study or interpretation.

The body of knowledge about the effects of management activities over long periods of time and on large landscapes is very limited. Reference landscapes can provide comparison areas for evaluation and monitoring. These areas provide a natural setting that may be useful as a comparison to study the effects of more intensely managed areas.

- Is there an effect (e.g., short or long-term, adverse or beneficial, legally compliant, health or safety concern, reasonably foreseeable, reasonably close causal from action)? **Yes, minor effects**
- Which direction is the effect? Improving, Stable, or Downward Trend? **Stable or Improving**

Evaluation: No treatments would occur within the Sierra Ancha Experimental Forest in the Sierra Ancha Wilderness Contiguous IRA. No treatments would occur within the Upper Forks Parker Creek RNA in the Sierra Ancha Wilderness Contiguous IRA. Treatments proposed include mechanical thinning, prescribed fire, and aquatic and riparian restoration. The purpose stated for those treatments is to "reestablish and restore forest structure and pattern, forest health, and composition and diversity in vegetation cover types to conditions within the natural range of variation". Through meeting this intent, it is anticipated that desired conditions in the IRAs would be more aligned with typical reference conditions in similar landscapes, which complements protecting the roadless reference characteristic.

Characteristic 7: Natural appearing landscapes with high scenic quality.

High quality scenery, especially scenery with natural-appearing landscapes, is a primary reason that people choose to recreate in or around an area. Quality scenery contributes directly to real estate values in neighboring communities and residential areas.

- Is there an effect (e.g., short or long-term, adverse or beneficial, legally compliant, health or safety concern, reasonably foreseeable, reasonably close causal from action)? **Yes**
- Which direction is the effect? Improving, Stable, or Downward Trend? **Stable**

Evaluation: Inventoried Roadless Areas (IRA's) are a special area designation found within the project boundary and are generally designated in High to Very High Scenic Integrity areas. They are designated as such due to their vegetation diversity, stream channels and cliffs and canyons. See the Scenic Resource Report for a description of each IRA and associated maps and table 6, highlighting acreage, treatment types, and Scenic Integrity Objective classifications.

The treatment alternatives within each IRA would have short term direct effects to roadless resources during project implementation such as increased presence of people and smoke, charred bark of standing trees and down logs, and a blackened appearance to the ground plane and burned understory plants with prescribed fire treatment. Burn piles would also be evident on the landscape in the short term until they are burned for all action alternatives. The visual effects would be reduced within two years, with the regeneration of ground cover plants.

The conventional mechanical treatments proposed within the IRA's typically have moderate short-term effects on scenery. There would be a low to moderate effect on scenic quality during and immediately following mechanical treatment methods. The presence of skid trails, landings, or scattered slash would result in a moderate reduction of the scenic quality until harvesting activities are completed, and design features are implemented. The effects in these areas would be short-term (lasting 1 to 5 years after treatment) since skid trails would be rehabilitated (design feature RS007) and activity generated slash would be treated or removed to be utilized (design feature RS013). The ground disturbance resulting from using machines to pile slash would be noticeable for 1 to 3 years after project completion, depending on how quickly the areas revegetate. Scraped trees would heal or scars would become less noticeable over time.

The above effects would occur within each IRA and would vary in degree depending on the number of acres treated per treatment type. Design features criteria specific to IRA's and High Scenic Quality areas to help preserve the scenic integrity of the IRA's. Specifically, locating fuelwood piles and skid trials out of areas of observation and rehabilitating the sites afterwards (RS007), striving to make stump heights 8 inches above ground (uphill side) or lower, with 12-inch heights the exception and rarely occurring in IRAs (RS013), requirement to treat or remove slash (RS013), and using existing or natural barriers as control lines (RS013), avoiding lines of trees, and striving for a

grouped appearance without abrupt changes (RS017). In addition, in-woods processing sites and cable operations would not be conducted in IRA's. In the long term, the stability of scenic resources would be improved in these areas by reducing fuel loads resulting in a more diverse, resilient, and sustainable forest ecosystem with a reduction in risk of negative scenic impacts from insect and mistletoe outbreak and catastrophic wildfire.

Characteristic 8: Traditional cultural properties and sacred sites.

Roadless areas may contain traditional cultural properties and sacred sites. Traditional cultural properties are places, sites, structures, art, districts, or objects that are historically significant in the beliefs, customs, history and practices of a community. Sacred sites are places that have special religious significance to a group or that are determined sacred by virtue of their established religious significance to or ceremonial use by a Native American religion. Federal agencies are to accommodate access to and ceremonial use of Native American sacred sites by Native American religious practitioners and are to avoid adversely affecting traditional cultural properties and sacred sites, when practicable. Traditional cultural properties and sacred sites may be eligible for protection under the National Historic Preservation Act. However, many of them have not yet been inventoried, especially those that occur in inventoried roadless areas.

- Is there an effect (e.g., short or long-term, adverse or beneficial, legally compliant, health or safety concern, reasonably foreseeable, reasonably close causal from action)? **No**
- Which direction is the effect? Improving, Stable, or Downward Trend? **Stable**

Evaluation: The effects to traditional cultural properties and scared sites within the affected IRAs have not been identified yet. General effects to heritage resources are described in the Heritage Resources Specialist Report and the FEIS. The Tribal Relations Specialist Report details the extensive tribal consultation that has occurred for this project and a list of the tribes consulted can be found below.

Prior to project implementation, heritage inventories would be conducted. Tribal consultation would be conducted after the heritage inventories are complete and a determination has been made if there are cultural resources, or properties eligible as TCPs, sacred sites or other sites or resources of tribal concern that will require mitigation. The design features (Appendix C – CT001-CT019) and Implementation Plan (Appendix D) would be followed to limit potential effects to properties and resources of Tribal concern. Typical mitigation may include flag and avoid, hand treatments like lop and scatter and light burning.

Characteristic 9: Other locally unique characteristics.

Roadless areas can offer unique characteristics that are not covered by the other categories. Examples include uncommon geological formations, which are valued for their scientific and scenic qualities, or unique wetland complexes. Unique social, cultural, or historical characteristics could depend on the roadless character of the landscape. Examples include places for local events, areas prized for collection of non-timber forest products, or exceptional hunting and fishing opportunities.

- Is there an effect (e.g., short or long-term, adverse or beneficial, legally compliant, health or safety concern, reasonably foreseeable, reasonably close causal from action)? **Long-term**
- Which direction is the effect? Improving, Stable, or Downward Trend? **Stable**

Evaluation: Other than those described above for other unique characteristics, treatments within eligible wild and scenic rivers (see Characteristic 1:Water and 3: Aquatics) would be conducted to maintain the outstandingly remarkable values of the segments. Design features criteria specific to eligible wild and scenic rivers to help preserve the outstandingly remarkable values include locating landings, in-woods processing sites (would not occur in IRAs), and skid trails outside of eligible WSRs (RS010), placing emphasis on slash treatment in the eligible WSR corridors (RS010), removing, burning, or chipping debris and root wads (RS011), restrictions on stump heights (RS013), use of existing barriers or natural barriers for control lines (RS013), and limitation of tree cutting within eligible or suitable wild river segments on the Apache-Sitgreaves National Forests (RS022). Specifically, design feature RS021 states "All restoration activities within eligible or suitable wild and scenic river corridors will be designed to protect or enhance the free-flowing character and outstandingly remarkable values (ORVs) of rivers, and to maintain the rivers' current inventoried classifications (wild, scenic, or recreational), unless a suitability study is completed that recommends management for a less restrictive classification (see RS022)."

No treatments would occur with wilderness areas.

Important bird areas and wildlife quiet areas would be preserved by silvicultural and prescribed burn prescriptions that are designed to restore the habitat and preserve characteristics that are important to wildlife species that evolved there such as large trees and snags, canopy cover, course woody debris, with abundant shrub and herbaceous

cover. Comprehensive restoration would further benefit these areas to restore riparian, stream channel, wet meadow, aspen, and other important features for wildlife species.

Project Eligibility for Exception to the 2001 Roadless Rule

The 2001 Roadless Area Conservation Rule (RACR, Special Areas; Roadless Area Conservation; Final Rule, 66 Fed. Reg. 3243 (January 12, 2001) at 36 CFR § 294) prohibits road construction and reconstruction, and timber cutting, sale, or removal on 58.5 million acres of IRAs in National Forest System lands. The intent of the 2001 Roadless Rule is to provide lasting protection for inventoried roadless areas within the National Forest System in the context of multiple-use management. Under specific circumstances the RACR provides limited exceptions for allowing such activities.

As described above, the Rim Country project proposes to conduct timber cutting, sale, and removal, within eight IRAs in the Rim Country Project area. To complete this, we are requesting **exception 36 § 294.13 (b)1(ii) - Timber, (Ecosystem)** to the Roadless Area Conservation Rule to protect the roadless characteristics of the IRAs. Stands within IRAs are far outside the natural range of variation in terms of composition, structure, basal area, trees per acre, for the cover types included. Most of these areas have not experienced their normal fire regimes in over 100 years, missing many fire intervals. Without action within these areas, they will continue to depart further from the desired condition and put the roadless characteristics at risk within these IRAs, as well as the areas around them. Other treatments including prescribed fire, stream restoration, and road decommissioning would occur within IRAs, but are not prohibited, therefore an exception for these activities is not requested.

Road Construction and Reconstruction

The Rim Country Project does not propose the construction or reconstruction of any roads in any IRA. Therefore, an exception pertaining to roads is not required.

Timber Cutting, Sale, or Removal

Eligibility for Timber Cutting, Sale, or Removal Exception Under § 294.13 (b)1(ii) - Timber, (Ecosystem)

This exception states that the timber may be cut, sold, or removed in inventoried roadless areas if the responsible official determines that:

> **36 CFR 294.13(b)** The cutting, sale, or removal of timber in these areas is expected to be infrequent.

The cutting of timber for removal is expected to be infrequent because operations in the IRAs would be of limited scope and duration intermittently over a 20-year or more time span. It is expected that re-entry into the IRAs for product removal would not be necessary because first entry would put forested stands on a trajectory toward the natural range of variation. Weather factors limited operating periods, recent fire events, and available funding would dictate the amount and type of activities that might be applied in any given year. In addition to the actions described, land managers would also have the flexibility of managing naturally ignited wildland fires for the protection and enhancement of Forest values.

> **Exception Under 36 CFR 294.13(b)(1)** :The cutting, sale, or removal of generally small diameter timber is needed for one of the following purposes [ii below]… and will maintain or improve one or more of the roadless area characteristics as defined in § 294.11.

The project's focus on generally small diameter trees is illustrated by use of the treatment types that target thinning young, uneven aged stands to establish tree groups and interspace/openings adjacent to tree groups (See Proposed Action description of treatment types). Restoration activities would focus on cutting smaller diameter live, standing trees (5-16 inches). As stated in the Rim Country Old Tree Implementation Plan (Appendix D of the FEIS), old trees would be retained, with few exceptions, regardless of their diameter, within the Rim Country analysis area. Removal of old trees would be rare. Exceptions would be made for threats to human health and safety, and those rare circumstances where the removal of an old tree is necessary in order to prevent additional habitat degradation that would be caused by forest thinning and burning operations. Old trees would not be cut for forest health reasons or to balance age or size class distributions. Large post-settlement trees, would be retained with the exceptions outlined in the Rim Country Large Tree Implementation Plan (Appendix D of the FEIS) i.e., encroachment within seeps and springs, wet meadows, grasslands, aspen stands, conifers encroaching into riparian areas, etc.

The project would maintain characteristics 5, 7, 8, and 9. Characteristics 1,2,3, and 4 would be improved as described in the analysis above. Particularly, characteristics 3 and 4 for terrestrial and aquatics species would be improved. Mechanical thinning would improve habitat characteristics beneficial for the MSO (from the MSO Recovery

Plan) while also protecting this habitat from high severity wildfire. Treatment in IRAs is especially important to ensure continuity of restoration treatments adjacent to IRAs, especially because IRAs represent areas that have high departure from desired conditions and pose a risk to values around them.

> **Exception Under 36 CFR 294.13(b)(1)(ii) (Ecosystem):** The cutting, sale, or removal of timber is needed to maintain or restore the characteristics of ecosystem composition and structure, such as to reduce the risk of uncharacteristic wildfire effects, within the range of variability that would be expected to occur under natural disturbance regimes of the current climatic period.

The Rim Country project is needed to restore ecosystem composition and structure within the project area and at the landscape scale. Although work outside the IRAs is necessary to putting the project area on a trajectory towards the Natural Range of Variation, work inside the IRAs is imperative toward restoring ecosystem structure, composition and process.

Stands within as well as outside IRAs are far outside the natural range of variation (NRV) in terms of composition, and structure, for the cover types included. Currently, composition lacks species diversity as a result of closed forest canopies inhibiting development of a grass/forb/shrub understory. Forest structure is outside the NRV in terms of basal area and trees per acre. For example, in the ponderosa pine type average basal area is 113 square feet per acre while the desired condition is from 20-90 square feet per acre. Also, in the ponderosa pine type, the current number of trees per acre is 807, while the desired condition is less than 250 trees per acre.

Most of these areas have not experienced their normal fire regimes in over 100 years, missing many fire intervals. The proposed action has been designed to modify fire behavior and allow cover types within IRAs to return to their normal fire regimes. Without action within these areas, they will continue to depart further from the desired condition and put at risk the values within these IRAs as well as the areas around them.

Due to a history of fire suppression and a lack of active management, acres within IRAs are denser than their surrounding areas. Compared to the reference conditions and desired conditions for the project area (20-90 square feet of basal area), density in IRAs is extremely high (125-200 square feet of basal area), generally exceeding the areas outside for the IRAs. Stands at these densities, and their associated fuel loads, are at higher risk for uncharacteristic fire, increased susceptibility for insects and at a higher risk for drought-related mortality in the face of a changing climate.

Lack of fire and related effects has likely contributed to a compositional shift over time towards less fire resistant and more shade tolerant species like white fir. Increased density of forested cover types has reduced understory plant diversity, causing a dramatic change in understory composition from historically grass-forb-shrub communities to essentially unvegetated forest floor. Forests with altered composition are less resilient to disturbances like uncharacteristic fire, insects and drought. For additional information on vegetation characteristics in the Rim Country project area, consult the Silviculture specialist report. Treatments have been designed to return forests back to within their natural range of variation in terms of species composition, stand structure, spatial pattern and process.

Treatments would promote resiliency in forested areas during wildfires by reducing the potential for high severity fire behavior within IRAs. Post adverse wildfire watershed effects increase with the percentage of the watershed that burns at moderate to high severity (Cannon, 2010; Neary 2011). Figure 1 in Attachment 2 portrays the potential fire behavior in IRAs comparing the No Action Alternative to the Modified Proposed Action Alternative. The potential of damage from wildfires would be reduced in IRAs, especially within East Clear Creek, Barbershop, Sierra Ancha Wilderness Contiguous, Jacks Canyon, and Chevelon Canyon.

Fire hazard index under the No Action Alternative and the Modified Proposed Action Alternative for the IRAs is shown in Figure 2. After treatment, the fire hazard index would be reduced in IRAs, especially within Barbershop Canyon, East Clear Creek, and Chevelon Canyon IRAs. Large wildfires in areas with high fire hazard indexes have a high potential to be difficult and dangerous to suppress and have a high potential for adverse post fire effects. Once fully implemented, treatments are expected to reduce the potential for active and conditional crown fire and move the treated areas towards meeting desired conditions. After implementation, the fire hazard index would be decreased in all IRAs.

Eight of the IRAs contain Mexican spotted owl habitat (MSO) (either protected activity centers or recovery habitat). Short-term disturbance to MSOs are expected, however, overall, the effects of treatments will benefit the MSO and its habitat. Treatments in IRAs will put forested stands on a trajectory toward the natural range of variation and making them more diverse, and resilient to disturbances such as fire, disease, insects and climate change. An increase in resiliency will improve the roadless character as it pertains to the forest structure, composition, pattern and process thereby benefiting MSO habitat.

The threatened Colorado spinedace and its critical habitat are present in four IRAs. Habitat for the threatened Chiricahua leopard frog is available, but the species is not present. Long term benefits from mechanical treatments include reduced road density and uncharacteristic fire risk by reducing the potential for high severity burning of upland and riparian vegetation. Loss of vegetation from high severity fires can decrease soil stability resulting in excessive erosion and sediment production affecting water quality of downgradient and downstream waterbodies. General stream restoration would have a long-term benefit of improves riparian vegetation structure and function, bank stability, and stream shade. Heavy mechanical stream restoration has negative impacts to individuals and increased sedimentation during implementation, but immediate and long-term benefits of improved stream habitat and stream function. These activities provide for long term habitat, population viability and species recovery.

Tribal Consultation, Public Involvement, and Potential Controversy

During the duration of the project the following tribes have been contacted and appropriate government-to-government consultation has occurred: Yavapai-Prescott Indian Tribe, Mescalero Apache Tribe, San Carlos Apache Tribe, Tonto Apache Tribe, White Mountain Apache Tribe, Pueblo of Acoma, Pueblo of Zuni, Gila River Indian Community, Salt River Pima–Maricopa Indian Community, Navajo Nation, and Navajo chapters in proximity to the project area: the Alamo, Bodaway/Gap, Cameron, Coalmine Canyon, Dilkon, Lechee, Leupp, Ramah, Tolani Lake, and To'Nanees'Dizi Chapters. Tribes did not specifically have concerns related to actions or the effects in IRAs and are supportive of forest restoration in the project area. The design features and Implementation Plan (Appendix D) would be followed to limit potential effects to properties and resources of Tribal concern.

The Rim Country project conducted a 45-day scoping period from June 27 to August 11, 2016. The Rim Country Project Draft EIS was released for public comment on October 19, 2019. One comment received from the public stated that the Draft EIS did not include analysis for the inventoried roadless areas within the project boundary. Subsequently, an IRA analysis and incorporation by reference of the Regional Forester exception briefing were added to the FEIS. Much of the information used in the briefing analysis was incorporated from prior resource-related analyses including, but not limited to, those covered in the effects analyses sections for: wildlife, aquatic resources, air, soil, recreation, cultural, and hydrology. In most cases, the project's anticipated impacts and effects previously determined for each resources area were not expected to be different when crossing the boundary into the IRAs. Many of these resources are reflective of those that comprise the 9 roadless characteristics. The Regional Forester exception briefing describes how these formerly identified potential effects would relate to associated roadless characteristics and the overall intent of the 2001 Roadless Area Conservation Rule.

Forest Request

The Coconino National Forest, Mogollon Rim District; Apache-Sitgreaves National Forest, Black Mesa District; Tonto National Forest, Cave Creek, Payson, and Tonto Basin Districts have analyzed and described how the proposed project in the Barbershop Canyon, East Clear Creek, Jacks Canyon, Chevelon Canyon, Leonard Canyon, Hellsgate, Mazatzal, and Sierra Ancha Wilderness Contiguous Inventoried Roadless Areas both meets the eligibility criteria under the exception indicated, and how the effects of the proposed action would protect all nine roadless area characteristics. The Forests are seeking concurrence that this project does qualify for the exception to the 2001 Roadless Rule as outlined above. The Forests seek concurrence and approval from the Regional Forester to implement these proposed actions in inventoried roadless areas.

Review Findings and Recommendation Based on Information Provided by the Unit

Based on the information provided in the unit's submittals for the evaluation of effects to roadless area characteristics and the description of eligibility to meet the applicable exception criteria, the following action is recommended:

1. ■ **Concur** that the activities proposed within the Barbershop Canyon, East Clear Creek, Jacks Canyon, Chevelon Canyon, Leonard Canyon, Hellsgate, Mazatzal, and Sierra Ancha Wilderness Contiguous Inventoried Roadless Areas as part of the *Rim Country Project* qualify for a Roadless Rule exception under 36 CFR § 294.13 (b)1(ii) - Timber, (Ecosystem); and approve the project to proceed within the IRAs under this exception because;
    a. ■ Based on the briefing template, the project is consistent with all applicable exception components of the 2001 Roadless Area Rule (36 CFR Part 294; Special Areas; Roadless Area Conservation; Final Rule, 66 Fed. Reg. 3243 (January 12, 2001)).
        i. ☐ No timber would be cut.
        ii. ■ Timber harvesting would be in accordance with exceptions under 36 CFR § 294.13 (b)1(ii) - Timber, (Ecosystem).

    and

iii. ☒ No roads would be constructed or reconstructed.
iv. ☐ Road construction or reconstruction would be in accordance with exceptions under 36 CFR.

b. ■ Based on the Forest's analysis of all nine of the roadless area characteristics as defined in § 294.11, the proposed action is expected to protect and maintain the roadless area characteristics of the Barbershop Canyon, East Clear Creek, Jacks Canyon, Chevelon Canyon, Leonard Canyon, Hellsgate, Mazatzal, and Sierra Ancha Wilderness Contiguous Inventoried Roadless Areas.

2. ☐ **Deny** concurrence that the activities proposed within the Barbershop Canyon, East Clear Creek, Jacks Canyon, Chevelon Canyon, Leonard Canyon, Hellsgate, Mazatzal, and Sierra Ancha Wilderness Contiguous Inventoried Roadless Areas as part of the *Rim Country Project* qualify for a Roadless Rule exception under 36 CFR § 294.13 (b)1(ii) - Timber, (Ecosystem); and the proposed project may *not* proceed under this exception within the IRAs.

a. ☐ Based on the briefing template, the project is NOT consistent with all applicable exception components of the 2001 Roadless Area Rule (36 CFR Part 294; Special Areas; Roadless Area Conservation; Final Rule, 66 Fed. Reg. 3243 (January 12, 2001)).

i. ☐ No timber would be cut.
ii. ☐ Timber harvesting would NOT be in accordance with exceptions under 36 CFR § 294.13 (b)1(ii) - Timber, (Ecosystem).

and

iii. ☐ No roads would be constructed or reconstructed.
iv. ☐ Road construction or reconstruction would NOT be in accordance with exceptions under 36 CFR.

b. ☐ Based on the Forest's analysis of all nine of the roadless area characteristics as defined in § 294.11, the proposed action is NOT expected to protect and maintain the roadless area characteristics of the Barbershop Canyon, East Clear Creek, Jacks Canyon, Chevelon Canyon, Leonard Canyon, Hellsgate, Mazatzal, and Sierra Ancha Wilderness Contiguous Inventoried Roadless Areas.

Reviewed By: _____ Date: _____

(Regional Roadless Review Coordinator, Southwestern Region 3)

Regional Forester Decision: Concurrence and Approval, or Denial

- ■ I **Concur** that the activities proposed within the Barbershop Canyon, East Clear Creek, Jacks Canyon, Chevelon Canyon, Leonard Canyon, Hellsgate, Mazatzal, and Sierra Ancha Wilderness Contiguous Inventoried Roadless Areas as part of the *Rim Country Project* qualify for a Roadless Rule exception under 36 CFR § 294.13 (b)1(ii) - Timber, (Ecosystem); and will protect and maintain the nine roadless area characteristics. Based on the description in the briefing template, I concur with the findings and approve the project to proceed within the IRA under this exception.
- ☐ I **Deny** concurrence that the activities proposed within the Barbershop Canyon, East Clear Creek, Jacks Canyon, Chevelon Canyon, Leonard Canyon, Hellsgate, Mazatzal, and Sierra Ancha Wilderness Contiguous Inventoried Roadless Areas as part of the *Rim Country Project* qualify for a Roadless Rule exception under 36 CFR § 294.13 (b)1(ii) - Timber, (Ecosystem); and do not approve. The proposed project may *not* proceed under this exception within the IRAs.
    - Based on the briefing template, the project is NOT consistent with all applicable exception components of the 2001 Roadless Area Rule (36 CFR Part 294).
        - ☐ Roadless area characteristics would not be adequately maintained or protected.
        - ☐ The proposal does not appear to be in accordance with the stated exception(s) under 36 CFR 296.
        - ☐ Other

Signature: _____ Date: _____

Michiko Martin
Regional Forester; Southwestern Region

iii. ☒ No roads would be constructed or reconstructed.
iv. ☐ Road construction or reconstruction would be in accordance with exceptions under 36 CFR.

b. ☒ Based on the Forest's analysis of all nine of the roadless area characteristics as defined in § 294.11, the proposed action is expected to protect and maintain the roadless area characteristics of the Barbershop Canyon, East Clear Creek, Jacks Canyon, Chevelon Canyon, Leonard Canyon, Hellsgate, Mazatzal, and Sierra Ancha Wilderness Contiguous Inventoried Roadless Areas.

2. ☐ **Deny** concurrence that the activities proposed within the Barbershop Canyon, East Clear Creek, Jacks Canyon, Chevelon Canyon, Leonard Canyon, Hellsgate, Mazatzal, and Sierra Ancha Wilderness Contiguous Inventoried Roadless Areas as part of the *Rim Country Project* qualify for a Roadless Rule exception under 36 CFR § 294.13 (b)1(ii) - Timber, (Ecosystem); and the proposed project may *not* proceed under this exception within the IRAs.

a. ☐ Based on the briefing template, the project is NOT consistent with all applicable exception components of the 2001 Roadless Area Rule (36 CFR Part 294; Special Areas; Roadless Area Conservation; Final Rule, 66 Fed. Reg. 3243 (January 12, 2001)).
   i. ☐ No timber would be cut.
   ii. ☐ Timber harvesting would NOT be in accordance with exceptions under 36 CFR § 294.13 (b)1(ii) - Timber, (Ecosystem).

   and

   iii. ☐ No roads would be constructed or reconstructed.
   iv. ☐ Road construction or reconstruction would NOT be in accordance with exceptions under 36 CFR.

b. ☐ Based on the Forest's analysis of all nine of the roadless area characteristics as defined in § 294.11, the proposed action is NOT expected to protect and maintain the roadless area characteristics of the Barbershop Canyon, East Clear Creek, Jacks Canyon, Chevelon Canyon, Leonard Canyon, Hellsgate, Mazatzal, and Sierra Ancha Wilderness Contiguous Inventoried Roadless Areas.

Reviewed By: BARBARA CISNEROS Digitally signed by BARBARA CISNEROS Date: 2021.10.25 15:10:03 -06'00' Date: 10/25/2021

(Regional Roadless Review Coordinator, Southwestern Region 3)

Regional Forester Decision: Concurrence and Approval, or Denial

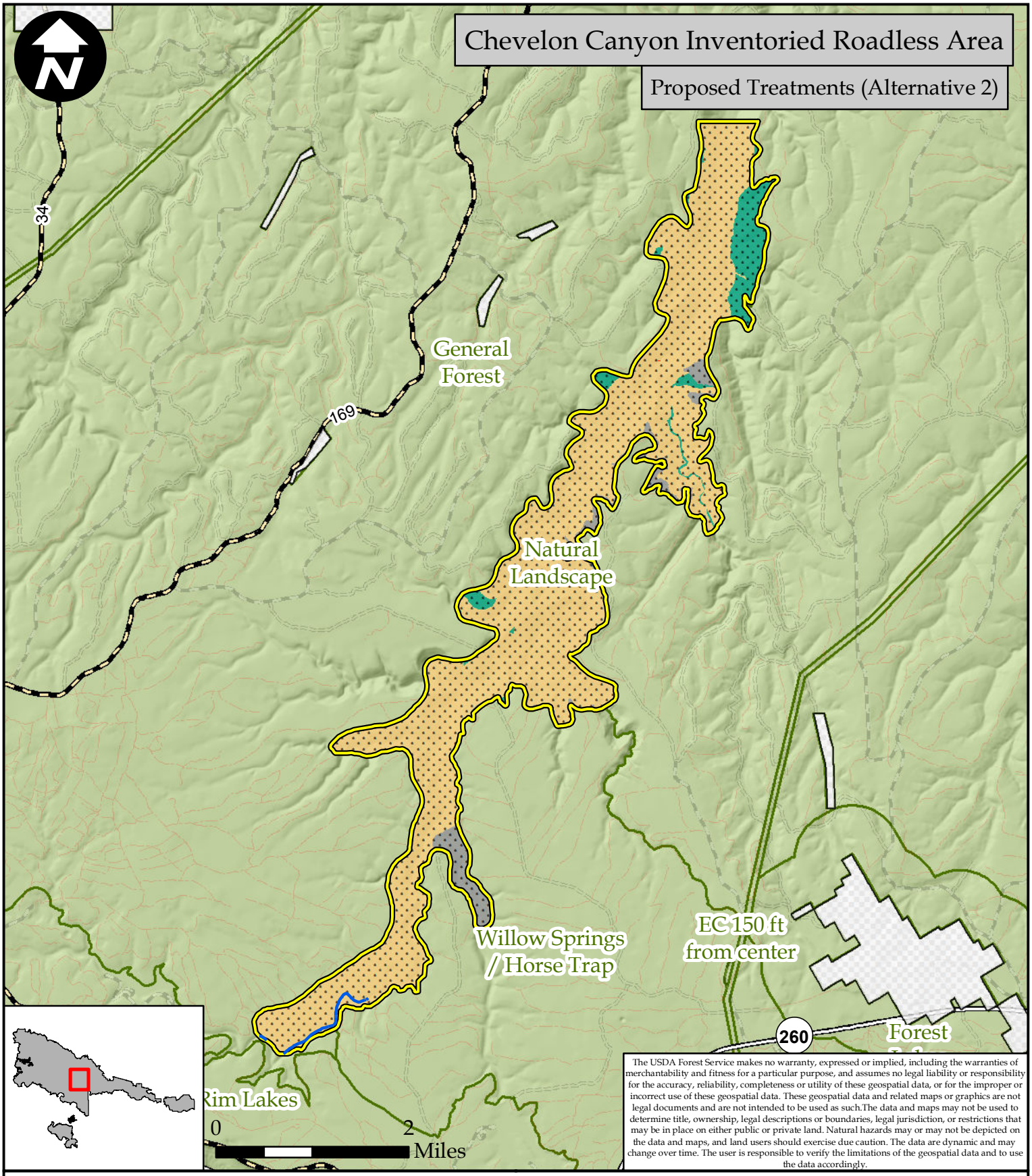
- ☒ I **Concur** that the activities proposed within the Barbershop Canyon, East Clear Creek, Jacks Canyon, Chevelon Canyon, Leonard Canyon, Hellsgate, Mazatzal, and Sierra Ancha Wilderness Contiguous Inventoried Roadless Areas as part of the *Rim Country Project* qualify for a Roadless Rule exception under 36 CFR § 294.13 (b)1(ii) - Timber, (Ecosystem); and will protect and maintain the nine roadless area characteristics. Based on the description in the briefing template, I concur with the findings and approve the project to proceed within the IRA under this exception.
- ☐ I **Deny** concurrence that the activities proposed within the Barbershop Canyon, East Clear Creek, Jacks Canyon, Chevelon Canyon, Leonard Canyon, Hellsgate, Mazatzal, and Sierra Ancha Wilderness Contiguous Inventoried Roadless Areas as part of the *Rim Country Project* qualify for a Roadless Rule exception under 36 CFR § 294.13 (b)1(ii) - Timber, (Ecosystem); and do not approve. The proposed project may *not* proceed under this exception within the IRAs.
  - Based on the briefing template, the project is NOT consistent with all applicable exception components of the 2001 Roadless Area Rule (36 CFR Part 294).
    - ☐ Roadless area characteristics would not be adequately maintained or protected.
    - ☐ The proposal does not appear to be in accordance with the stated exception(s) under 36 CFR 296.
    - ☐ Other

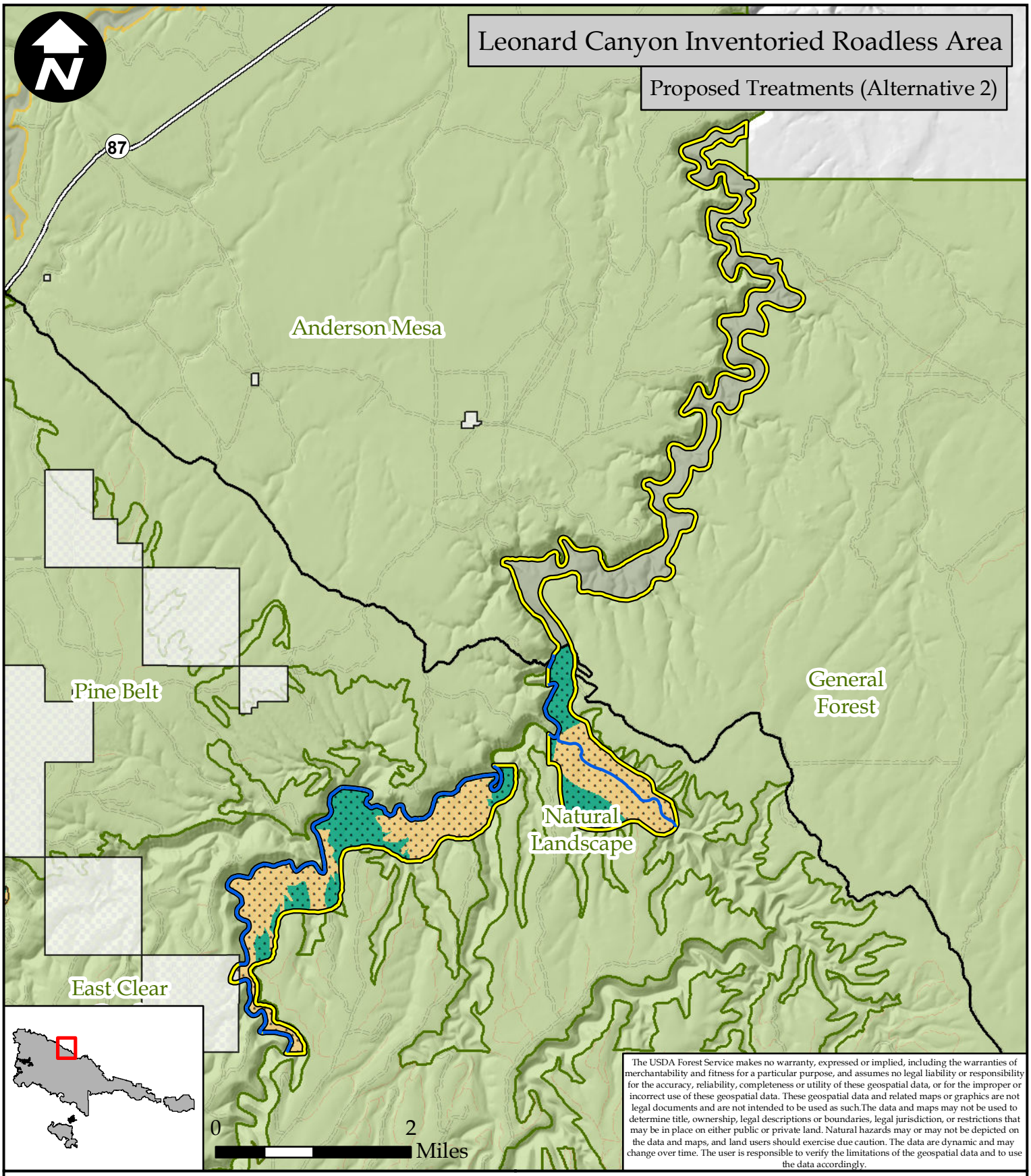
Signature: Michiko Martin Digitally signed by MICHIKO MARTIN Date: 2021.11.02 12:22:49 -06'00' Date: November 2, 2021

Michiko Martin
Regional Forester; Southwestern Region

Attachments:
Attachment 1: Maps
Attachment 2: Tables and Figures

Attachment 1: Maps


Chevelon Canyon Inventoried Roadless Area
Proposed Treatments (Alternative 2)
34
169
General Forest
Natural Landscape
Willow Springs / Horse Trap
EC 150 ft from center
260
Forest
Rim Lakes
0
2
Miles
The USDA Forest Service makes no warranty, expressed or implied, including the warranties of merchantability and fitness for a particular purpose, and assumes no legal liability or responsibility for the accuracy, reliability, completeness or utility of these geospatial data, or for the improper or incorrect use of these geospatial data. These geospatial data and related maps or graphics are not legal documents and are not intended to be used as such.The data and maps may not be used to determine title, ownership, legal descriptions or boundaries, legal jurisdiction, or restrictions that may be in place on either public or private land. Natural hazards may or may not be depicted on the data and maps, and land users should exercise due caution. The data are dynamic and may change over time. The user is responsible to verify the limitations of the geospatial data and to use the data accordingly.
Rim Country Project Area
Selected Inventoried Roadless Area
Inventoried Roadless Area within Project Area
Other Inventoried Roadless Areas
Wilderness Area
Non Forest System Land
Management Area
Proposed Treatments within IRA
Mechanical & Prescribed Fire
Prescribed Fire Only
N/A
Heavy Mechanical Stream Restoration
General Stream Restoration


Leonard Canyon Inventoried Roadless Area
Proposed Treatments (Alternative 2)
87
Anderson Mesa
Pine Belt
General Forest
Natural Landscape
East Clear
0
2
Miles
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Rim Country Project Area
Selected Inventoried Roadless Area
Inventoried Roadless Area within Project Area
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Wilderness Area
Non Forest System Land
Management Area
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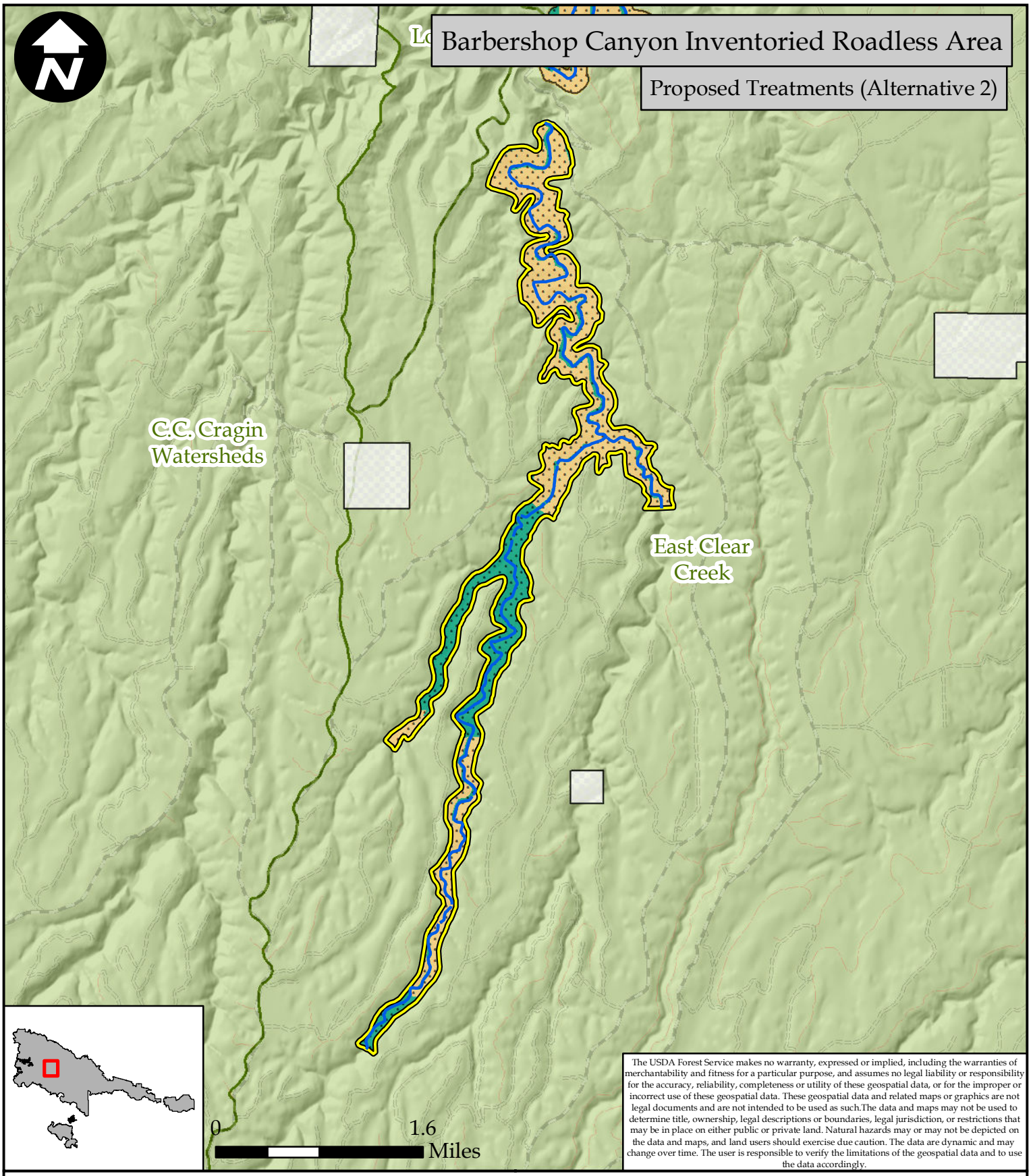
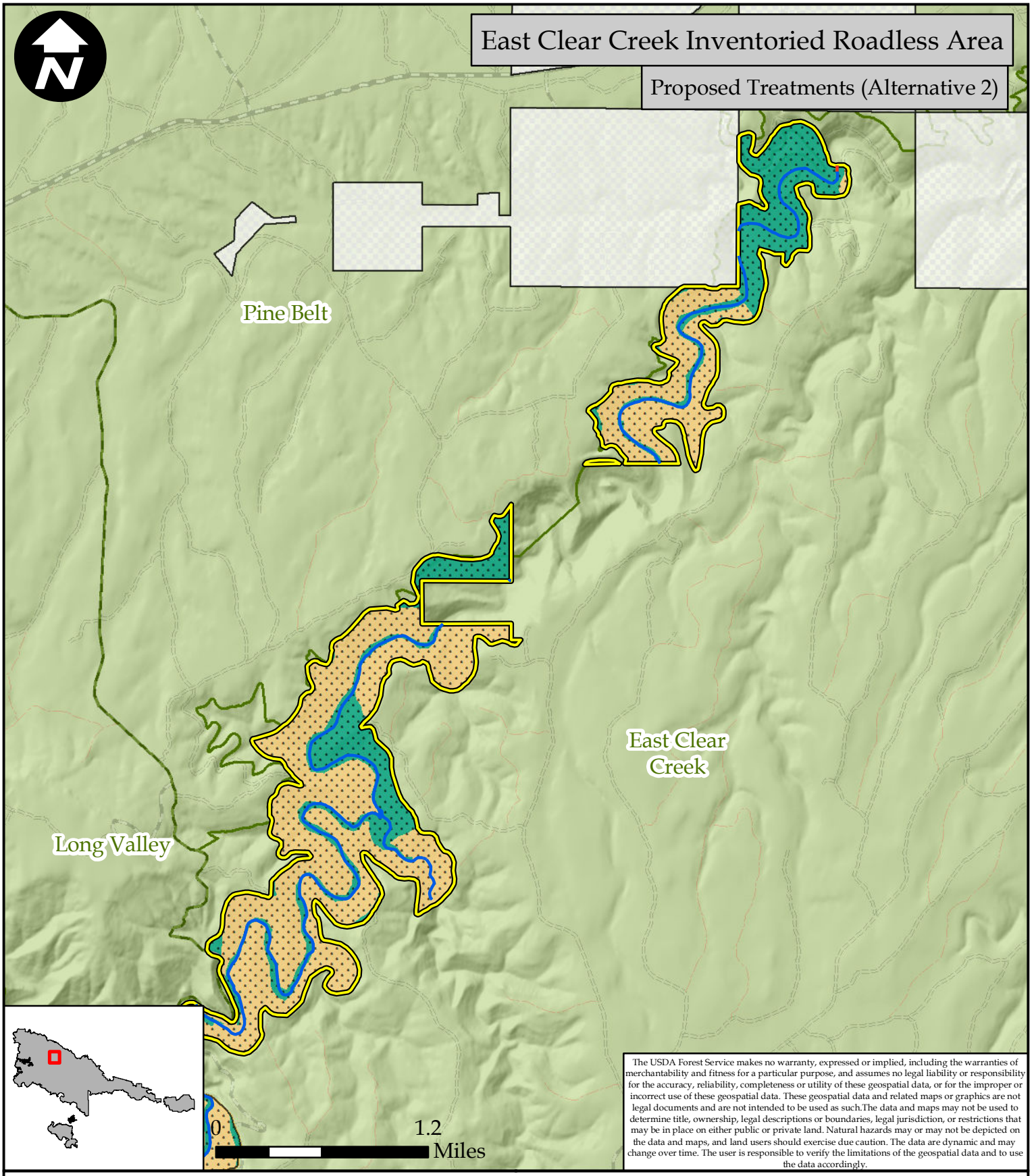
Prescribed Fire Only
N/A
Heavy Mechanical Stream Restoration
General Stream Restoration



- Rim Country Project Area
- Selected Inventoried Roadless Area
- Inventoried Roadless Area within Project Area
- Other Inventoried Roadless Areas
- Wilderness Area
- Non Forest System Land
- Management Area

Proposed Treatments within IRA

- Mechanical & Prescribed Fire
- Prescribed Fire Only
- N/A
- Heavy Mechanical Stream Restoration
- General Stream Restoration



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- Rim Country Project Area
- Selected Inventoried Roadless Area
- Inventoried Roadless Area within Project Area
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- Management Area

Proposed Treatments within IRA

- Mechanical & Prescribed Fire
- Prescribed Fire Only
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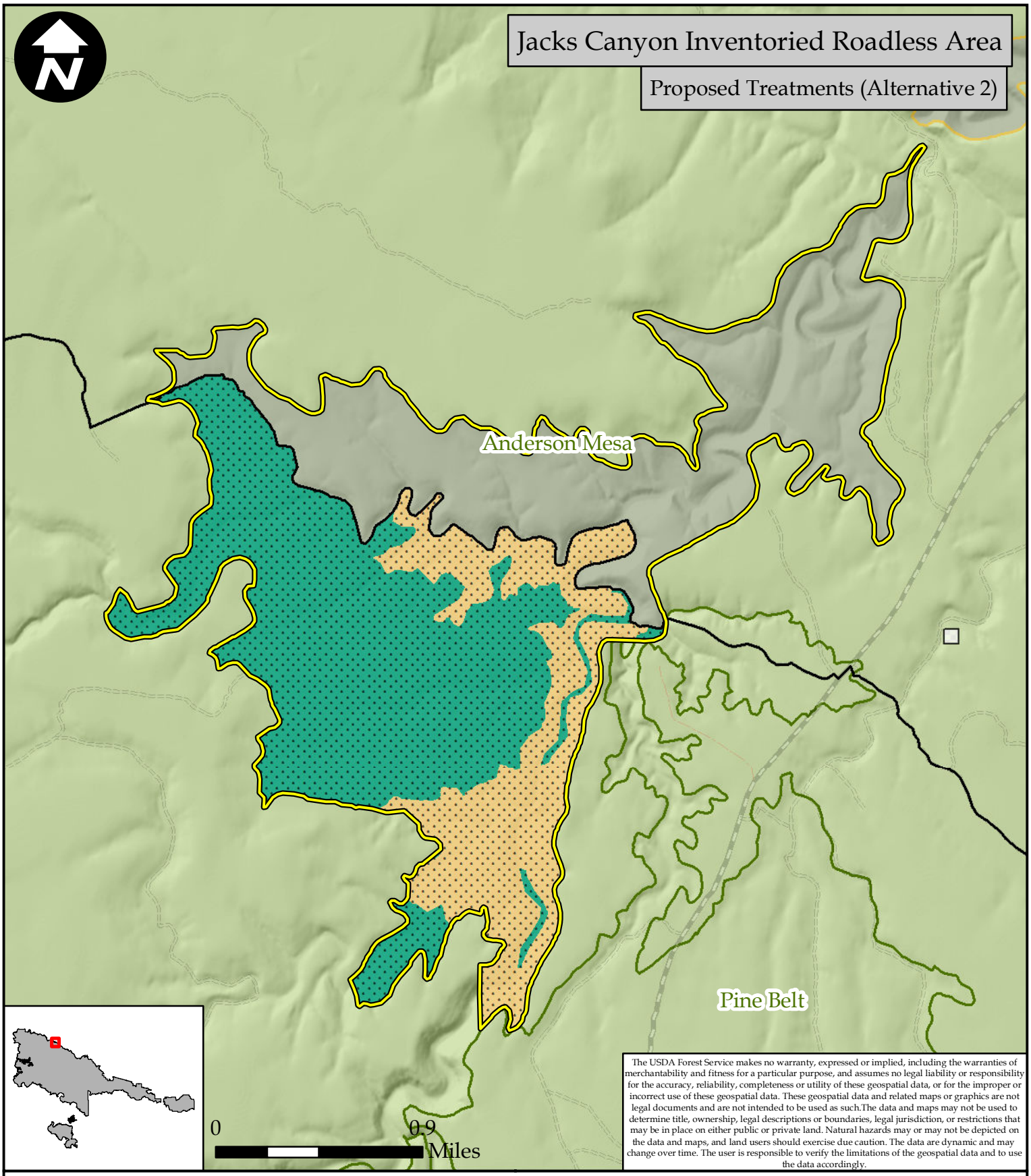
- Heavy Mechanical Stream Restoration
- General Stream Restoration



- Rim Country Project Area
- Selected Inventoried Roadless Area
- Inventoried Roadless Area within Project Area
- Other Inventoried Roadless Areas
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- Management Area

Proposed Treatments within IRA

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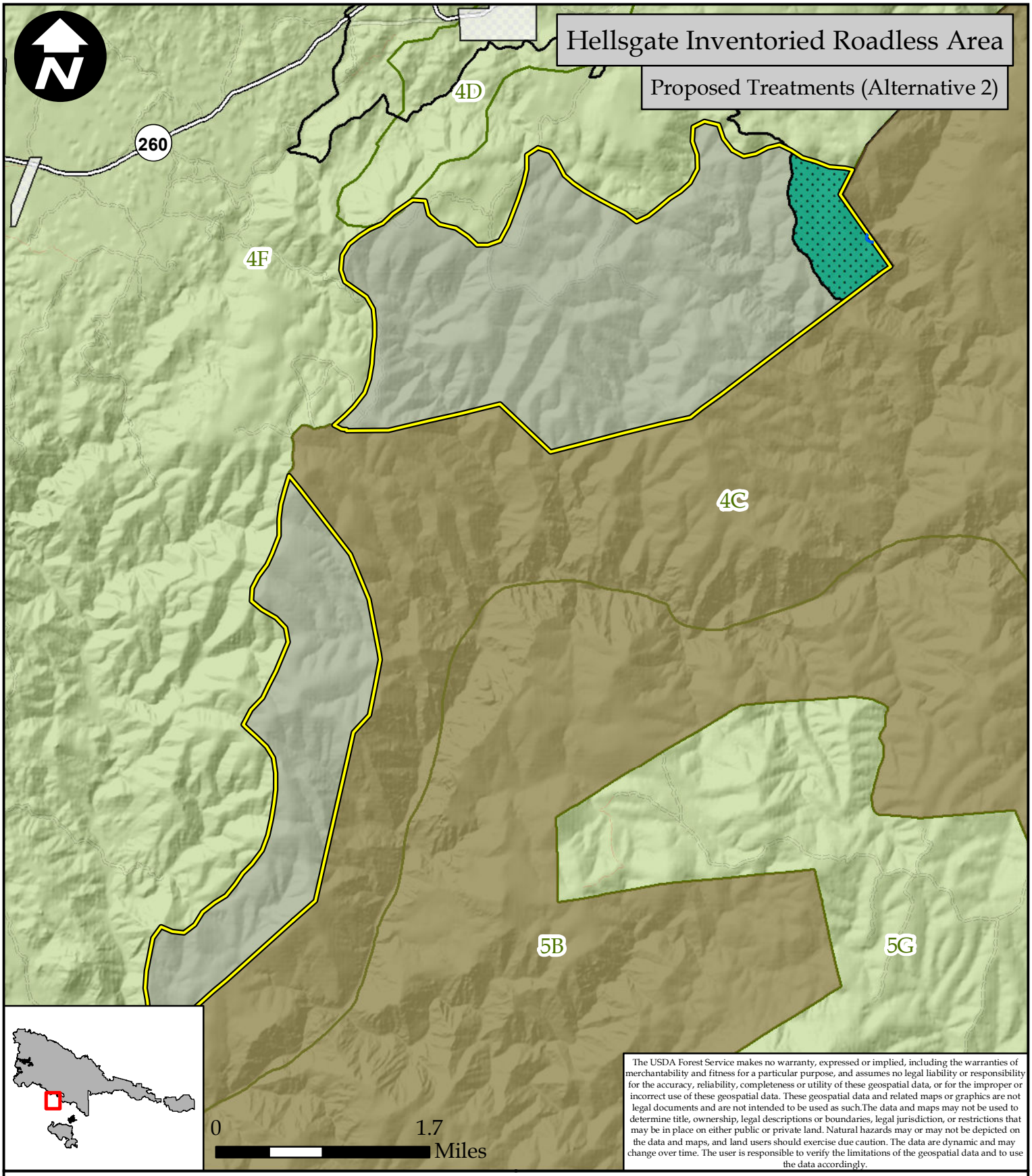
- Heavy Mechanical Stream Restoration
- General Stream Restoration



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- Other Inventoried Roadless Areas
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Proposed Treatments within IRA

- Mechanical & Prescribed Fire
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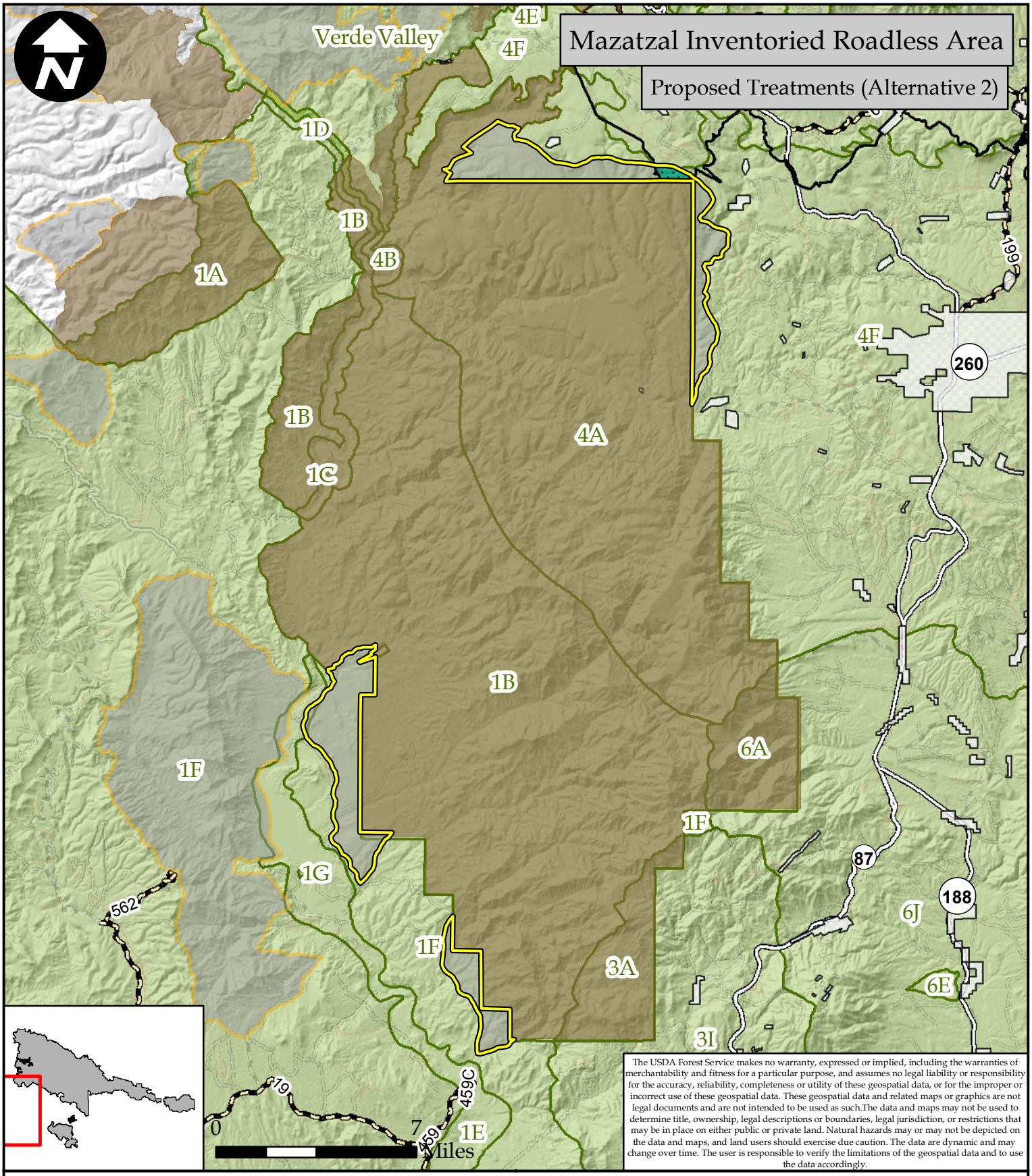
- Heavy Mechanical Stream Restoration
- General Stream Restoration



- Rim Country Project Area
- Selected Inventoried Roadless Area
- Inventoried Roadless Area within Project Area
- Other Inventoried Roadless Areas
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- Management Area

Proposed Treatments within IRA

- Mechanical & Prescribed Fire
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- Heavy Mechanical Stream Restoration
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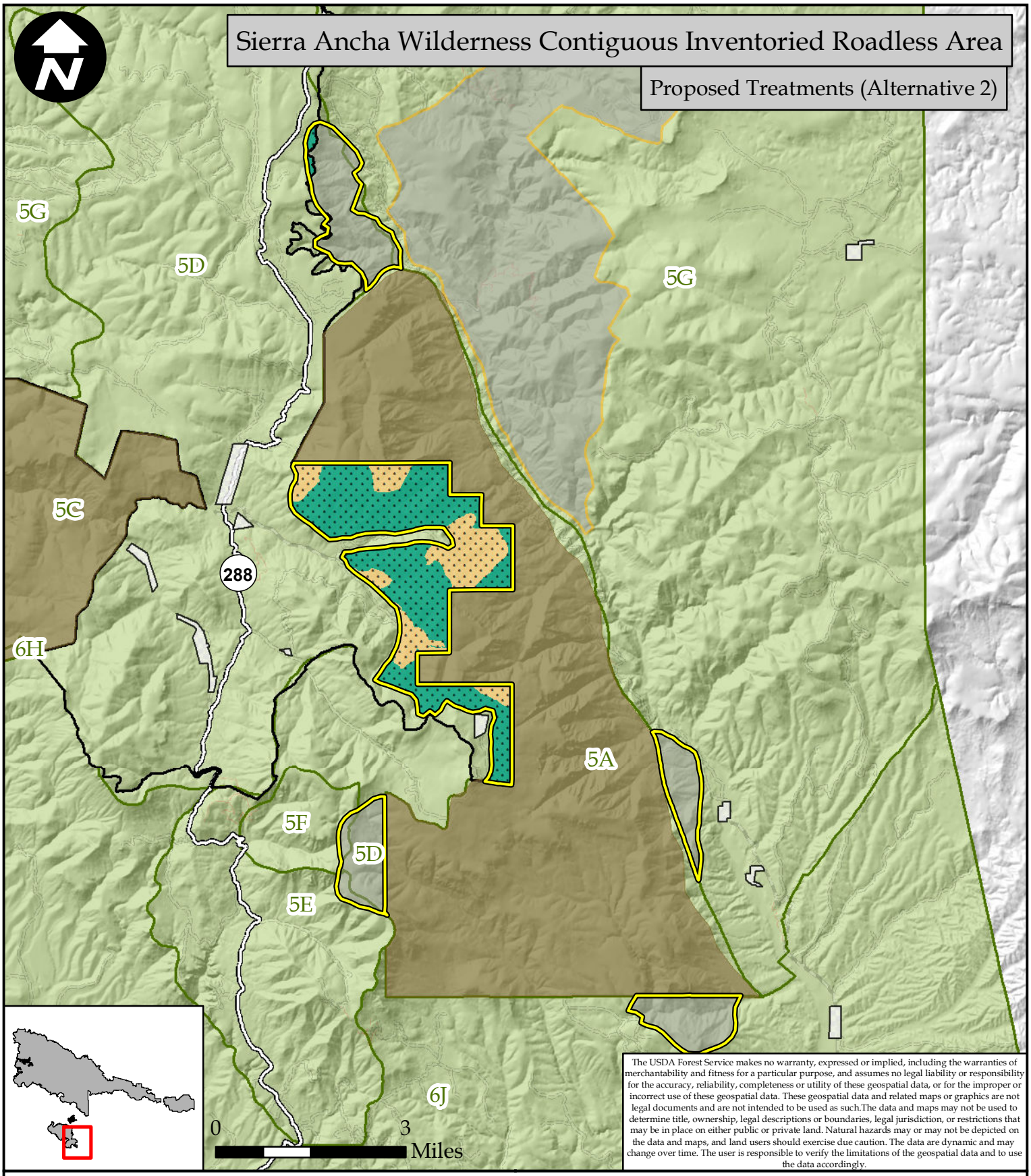

Rim Country Project Area
Selected Inventoried Roadless Area
Inventoried Roadless Area within Project Area
Other Inventoried Roadless Areas
Wilderness Area
Non Forest System Land
Management Area

Proposed Treatments within IRA

Mechanical & Prescribed Fire
Prescribed Fire Only
N/A
Heavy Mechanical Stream Restoration
General Stream Restoration

Attachment 2: Tables and Figures

Table 4. Detailed treatment prescriptions by IRA for the Modified Proposed Action Alternative

Proposed Treatments	Apache-Sitgreaves		Coconino			Tonto			Grand Total (acres)
	Chevelon Canyon (acres)	Leonard Canyon (acres)	Barbershop Canyon (acres)	East Clear Creek (acres)	Jacks Canyon (acres)	Hellsgate (acres)	Mazatzal (acres)	Sierra Ancha Wilderness Contiguous (acres)	
Facilitative Operations Mechanical	-	258	-	-	1,075	129	254	565	2,282
Facilitative Operations Prescribed Fire Only	464	678	-	-	424	-	-	129	1,696
Grassland Restoration	-	-	-	-	53	-	-	-	53
MSO Recovery - Replacement Nest/Roost	52	-	245	-	-	-	-	73	370
PAC - Mechanical	31	-	4	0	-	-	-	-	35
Prescribed Fire Only	3,981	343	794	1,036	104	-	-	1,113	7,370
Riparian Prescribed Fire Only	198	62	56	22	20	-	-	5	363
Riparian Restoration	17	94	156	204	26	2	-	20	519
Severe Disturbance Area Treatment	8	-	-	330	-	-	-	1,339	1,678
Stand Improvement - High Site	9	-	2	-	-	-	-	78	89
Stand Improvement - Low Site	-	-	-	-	-	-	-	437	437
Stand Improvement - Moderate Site	8	74	0	12	-	-	-	317	411
Uneven-aged - High Site	100	34	36	-	14	207	-	274	665
Uneven-aged - Low Site	9	108	7	2	-	-	39	54	218
Uneven-aged - Moderate Site	138	157	11	4	-	-	24	200	533
Wet Meadow & Riparian Prescribed Fire Only	173	-	-	-	-	-	-	-	173
WUI & Infrastructure Protection	-	-	-	-	-	-	-	8	8
Grand Total	**5,188**	**1,808**	**1,310**	**1,610**	**1,717**	**338**	**316**	**4,613**	**16,900**

Table 5. Mexican spotted Owl Habitat Mechanical and Prescribed Fire Treatment Acres within each Inventoried Roadless Area

Forest	IRA Name	MSO Habitat	Mechanical & Prescribed Fire (acres)	Prescribed Fire Only (acres)	Prescribed Fire Total (acres)	No Proposed Treatment (acres)	Total Within Project Area (acres)
Apache-Sitgreaves	**Chevelon Canyon**	MSO PAC	48	2,637	2,685	100	2,785
		MSO Recovery Habitat	158	1,108	1,266	118	1,384
	Leonard Canyon	MSO PAC	49	752	801	-	801
		MSO Recovery Habitat	202	68	270	-	270
Coconino	**Barbershop Canyon**	MSO PAC	105	850	955	-	955
		MSO Recovery Habitat	346	-	346	-	346
	East Clear Creek	MSO PAC	145	1,058	1,203	-	1,203
		MSO Recovery Habitat	42	-	42	1	44
	Jacks Canyon	MSO PAC	26	548	573	-	573
Tonto	**Hellsgate Wilderness Contiguous**	MSO Recovery Habitat	28	-	28	-	28
	Mazatzal Wilderness Contiguous	MSO Recovery Habitat	24	-	24	-	24
	Sierra Ancha Wilderness Contiguous	MSO PAC	3	1,247	1,250	-	1,250
		MSO Recovery Habitat	1,297	-	1,297	-	1,297
Grand Total	**-**	**-**	**2,473**	**8,267**	**10,740**	**219**	**10,959**

Table 6. Scenic integrity for each Inventoried Roadless Area within the Rim Country Project Area

Forest	Inventoried Roadless Area	Total IRA Acres	SIO Code	Within Project Area (Acres)
Apache-Sitgreaves	**Chevelon Canyon**	5,569	VH - Very High	3,736
			H - High	1,832
			M - Moderate	1
	Leonard Canyon	3,069	VH - Very High	399
			H - High	1,417
			M - Moderate	0
Coconino	**Barbershop Canyon**	1,310	VH - Very High	1,294
			H - High	17
			M - Moderate	0
	East Clear Creek	1,612	H - High	1,612
	Jacks Canyon	2,855	H - High	1,711
			M - Moderate	6
Tonto	**Hellsgate**	6,166	H - High	338
	Mazatzal	16,930	H - High	316
	Sierra Ancha Wilderness Contiguous	7,781	VH - Very High	3
			H - High	4,562
			M - Moderate	37
			VL - Very Low	10
Grand Total	**-**	**45,292**	**-**	**17,290**

Table 7. Recreation Opportunity Spectrum for each Inventoried Roadless Area within the Rim Country Project Area

Forest	Inventoried Roadless Area	Total Acres	ROS Code[1]	Within Project Area (Acres)
Apache-Sitgreaves	**Chevelon Canyon**	5,569	RN	0
			SPM	1
			SPNM	5,568
	Leonard Canyon	3,069	RN	0
			SPM	0
			SPNM	1,816
Coconino	**Barbershop Canyon**	1,310	SPNM	1,310
	East Clear Creek	1,612	RN	4
			SPM	0
			SPNM	1,608
	Jacks Canyon	2,855	RN	0
			SPM	0
			SPNM	1,717
Tonto	**Hellsgate**	6,166	SPM	266
			SPNM	72
	Mazatzal	16,930	P	0
			RN	0
			SPM	257
			SPNM	59
	Sierra Ancha Wilderness Contiguous	7,781	RN	421
			SPM	1
			SPNM	4,192
Grand Total	**-**	**45,292**	**-**	**17,291**

[1] RN: Roaded Natural
SPM: Semi-primitive motorized
SPNM: Semi-primitive non-motorized
P: Primitive

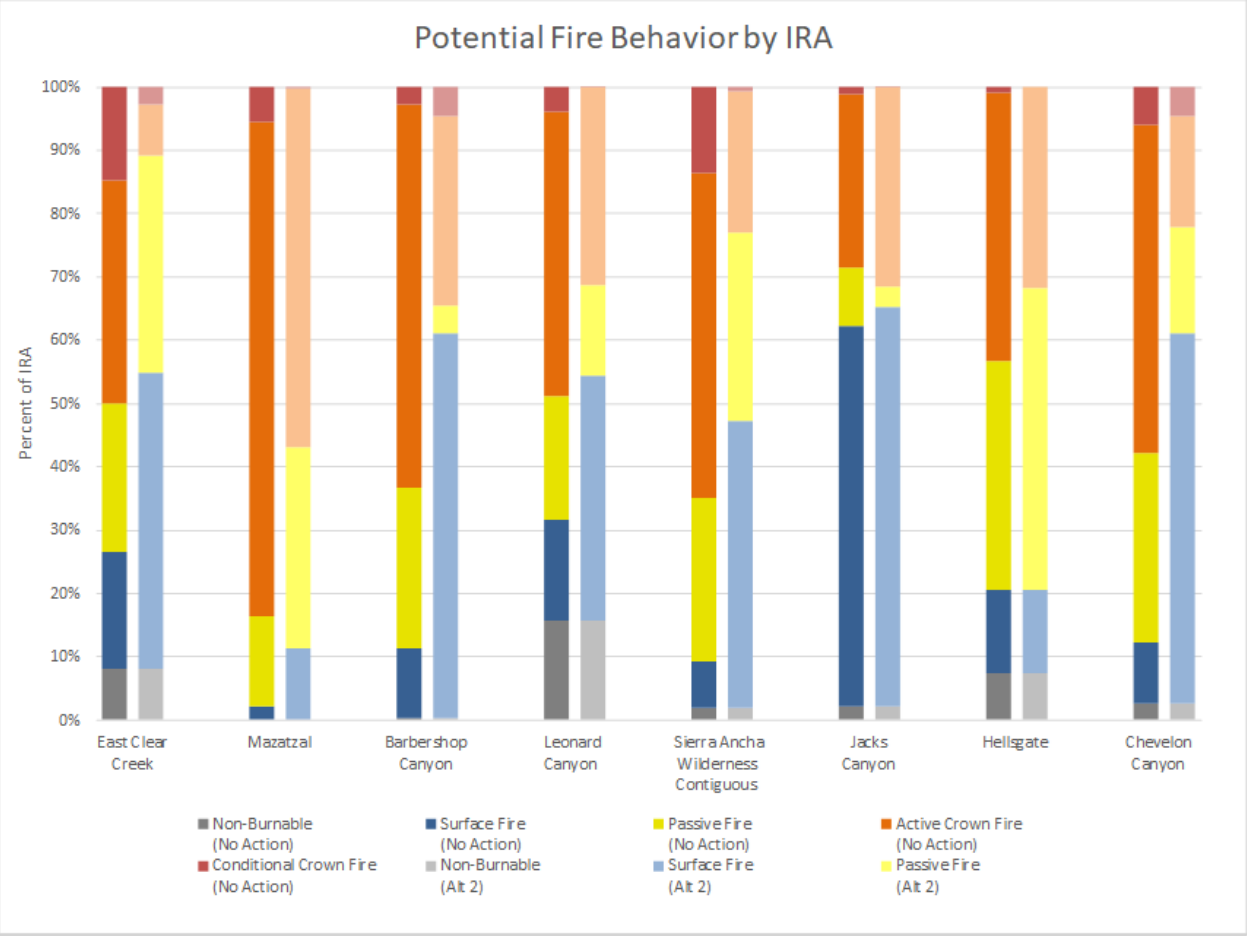

Figure 1. Potential fire behavior by IRA. The dark colors portray potential fire behavior under the No Action Alternative. Lighter colors portray the fire behavior after treatment under the Modified Proposed Action.

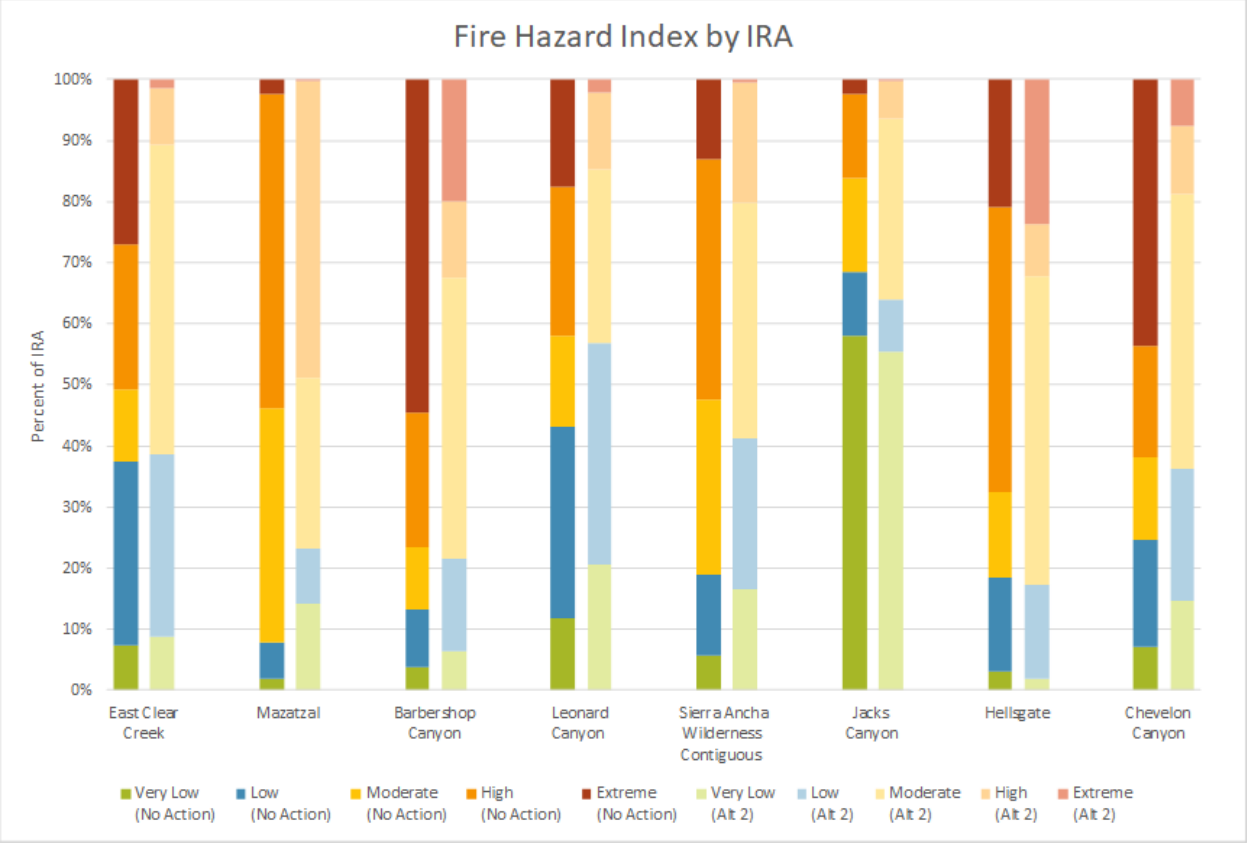

Figure 2. Fire hazard index by IRA. The dark colors portray potential fire index under the No Action Alternative. Lighter colors portray the fire index after treatment under the Modified Proposed Action.