Noxious Weed Risk Assessment

Moonlight and Wheeler Fires Recovery and Restoration Project

Prepared for:

USDA Forest Service

Plumas National Forest

Mt. Hough Ranger District

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INTRODUCTION

This Noxious Weed Risk Assessment has been prepared to evaluate the effects of the proposed Moonlight and Wheeler Fires Recovery and Restoration Project on noxious weeds and other invasive non-native plant species. This assessment is in compliance with the Plumas National Forest Land and Resource Management Plan (USDA Forest Service 1988), the Herger-Feinstein Quincy Library Group Forest Recovery Act Final Environmental Impact Statement (USDA Forest Service 1999, 2003), the Sierra Nevada Forest Plan Amendment Final Supplemental Environmental Impact Statement Record of Decision (USDA Forest Service 2004), which states as a standard and guideline "As part of project planning, conduct a noxious weed risk assessment to determine risks for weed spread (high, moderate, or low) associated with different types of proposed management activities. Refer to weed prevention practices in the Regional Noxious Weed Management Strategy (USDA Forest Service 2000) to develop mitigation measures for high and moderate risk activities", and the direction in the Forest Service Manual (FSM) section 2080, Noxious Weed Management (USDA Forest Service 1995), which includes a policy statement calling for a risk assessment for noxious weeds to be completed for every project. The overriding principle stated in these documents is that "…it is much cheaper to prevent an infestation from becoming established than to try to eliminate it once it has begun to spread, or deal with the effects of a degraded plant community." Specifically, the manual states:

2081.03 - Policy. When any ground disturbing action or activity is proposed, determine the risk of introducing or spreading noxious weeds associated with the proposed action.

1. For projects having moderate to high risk of introducing or spreading noxious weeds, the project decision document must identify noxious weed control measures that must be undertaken during project implementation.
2. Make every effort to ensure that all seed, feed, hay, and straw used on National Forest System lands is free of noxious weed seeds. (FSH 6309.12, sec. 42 and 42.1).
3. Where States have enacted legislation and have an active program to make weed-free forage available, Forest Officers shall issue orders restricting the transport of feed, hay, straw, or mulch which is not declared as weed-free, as provided in 36 CFR 261.50(a) and 261.58(t).
4. Use contract and permit clauses to prevent the introduction or spread of noxious weeds by contractors and permittees. For example, where determined to be appropriate, use clauses requiring contractors or permittees to clean their equipment prior to entering National Forest System lands.

2081.2 - Prevention and Control Measures. Determine the factors that favor the establishment and spread of noxious weeds and design management practices or prescriptions to reduce the risk of infestation or spread of noxious weeds.

Where funds and other resources do not permit undertaking all desired measures, address and schedule noxious weed prevention and control in the following order:

1. First Priority: Prevent the introduction of new invaders,
2. Second Priority: Conduct early treatment of new infestations, and
3. Third Priority: Contain and control established infestations.

NON-PROPOSED ACTION DEPENDENT FACTORS

1. INVENTORY

The Moonlight and Wheeler Fires Recovery and Restoration Project was developed by the Mt Hough Ranger District of the Plumas National Forest and consists of harvesting fire-killed conifer trees (10,366 acres), including RHCAs; harvesting fire-killed and fire-injured trees along roadsides (4,389 acres, and planting native conifer tree seedlings (11,617 acres). The project would include 8,536 acres of ground-based, 872 acres of skyline, and 5,347 acres of helicopter logging systems. The project would start in the summer of 2009.

A geographic analysis area was delineated (known as the "Botany Analysis Area") which encompassed all of the proposed treatment units, access roads to the treatment units, and the area within one mile of treatment unit boundaries. The Botany Analysis Area is approximately 90,585 acres. Proposed treatment units were surveyed for the Moonlight and Wheeler Fires Recovery and Restoration Project (2008), Diamond (2005), Stream (2002), or Cold (2001 &2000) projects. Surveys are considered current and valid for at least ten years. There is no Region 5 Forest Service standard for the longevity of surveys (USDA Forest Service 2007). Furthermore, there were no species or other unusual circumstances discovered during the survey of over 7,700 acres in 2008 that called in to question the currency or validity of past surveys. All surveys were conducted by qualified botanists or technicians.

Adequate noxious weed surveys have been completed. Time and personnel constraints have not allowed for a complete survey of the project area.

2. KNOWN NOXIOUS WEEDS

The Plumas National Forest developed a priority list of noxious weeds and invasive plants based on the State (CDFA 2008) and California Invasive Plant Council (2006) listing (Table 1).

Table 1. Plumas National Forest priority weeds with CDFA and CAL-IPC ratings.

Scientific Name	Common Name	Known on the Plumas?	CDFA Rating	CAL-IPC Rating
Acroptilon repens	Russian knapweed	Suspected	B	Moderate
Aegilops triuncialis	barb goatgrass	Yes	B	High
Arundo donax	giant reed	Yes	None	High
Cardaria chalepensis	lens-podded white-top	Butte County	B	Moderate
Cardaria draba	hoary cress	Yes	B	Moderate
Carduus nutans	musk thistle	Yes	A	Moderate

Scientific Name	Common Name	Known on the Plumas?	CDFA Rating	CAL-IPC Rating
Centaurea diffusa	diffuse knapweed	Yes	A	Moderate
Centaurea maculosa	spotted knapweed	Yes	A	High
Centaurea solstitialis	yellow starthistle	Yes	C	High
Centaurea virgata ssp. squarrosa	squarrose knapweed	Suspected	A	Moderate
Chondrilla juncea	rush skeletonweed	Yes	A	Moderate
Cirsium arvense	Canada thistle	Yes	B	Moderate
Cirsium ochrocentrum	yellowspine thistle	Yes	A	None
Cynara cardunculus	artichoke thistle	Yes	B	Moderate
Cytisus scoparius	Scotch broom	Yes	C	High
Euphorbia esula	leafy spurge	Yes	A	High
Genista monspessulana	French broom	Yes	C	High
Isatis tinctoria	dyer's woad	Yes	B	Moderate
Lepidium latifolium	perennial pepperweed, tall whitetop	Yes	B	High
Linaria genistifolia ssp. dalmatica	Dalmation toadflax	Yes	A	Moderate
Lythrum salicaria	purple loosestrife	Butte County	B	High
Onopordum acanthium	Scotch thistle	Yes	A	High
Rubus armeniacus	Himalaya blackberry	Yes	None	High
Spartium junceum	Spanish broom	Yes	None	High
Taeniatherum caput-medusae	medusahead	Yes	C	High

The California Department of Food and Agriculture's noxious weed list (CDFA 2008) divides noxious weeds into categories A, B, and C. A-listed weeds are those for which eradication or containment is required at the state or county level. With B-listed weeds eradication or containment is at the discretion of the County Agricultural

Commissioner. C-listed weeds require eradication or containment only when found in a nursery or at the discretion of the County Agricultural Commissioner.

There are 579 locations of priority weeds known within the botany analysis area. One A-rated weed, *Centaurea maculosa* (spotted knapweed), is known from seven locations. One B-rated weed, *Cirsium arvense* (Canada thistle) is known from 545 locations. Three C-rated weeds are known from the project area *Centaurea solstitialis* (yellow starthistle), *Taeniatherum caput-medusa* (medusahead), and *Cytisus scoparius* (Scotch broom). Yellow starthistle occurs at 8 locations, Medusahead at 13, and Scotch broom at 4 in the analysis area.

Of the 579 locations within the botany analysis area, 216 occur in Alternative A proposed treatment units, 165 in Alternative C proposed treatment units, 142 in Alternative D proposed treatment units, and 125 in Alternative E proposed treatment units (Table2).

Table 2. Proposed treatment units with known weed infestations.

Common Name	Harvest System	Unit #	Alt. A	Alt. C	Alt. D	Alt. E	# of Locations	Acres
Canada thistle	Helicopter	1a	X				5	0.54
Canada thistle	Tractor	3b	X	X			2	<0.1
Canada thistle	Tractor	5a	X	X			2	<0.1
Canada thistle	Helicopter	5b	X				3	0.12
Canada thistle	Tractor	5g	X	X	X		1	<0.1
Canada thistle	Helicopter	6a	X				2	<0.1
Canada thistle	Skyline	15	X				2	<0.1
Canada thistle	Tractor	16	X	X	X		1	<0.1
Canada thistle	Skyline	23	X				6	0.49
Canada thistle	Tractor	26c	X	X			2	<0.1
Canada thistle	Helicopter	29	X				1	<0.1
Canada thistle	Skyline	32a	X				4	<0.1
Canada thistle	Skyline	32sb	X				9	0.17
Canada thistle	Helicopter	41	X				3	<0.1
Canada thistle	Helicopter	71	X				1	<0.1
Canada thistle	Tractor	76a	X	X	X		4	0.43
Canada thistle	Tractor	76c	X	X			1	<0.1
Canada thistle	Tractor	80	X	X	X		1	<0.1
Canada thistle	Tractor	84a	X	X			1	<0.1
Canada thistle	Tractor	87A	X	X	X		3	1.03
Canada thistle	Tractor	87B	X	X	X		1	0.33
Canada thistle	Tractor	90	X	X	X		1	0.17
Canada thistle	Tractor	90	X	X			2	5.62
Canada thistle	Tractor	97	X	X			7	0.79
Canada thistle	Tractor	Roadside Hazard	X	X	X	X	115	21.07
Spotted knapweed	Tractor	Roadside Hazard	X	X	X	X	4	<0.1
Yellow starthistle	Tractor	Roadside Hazard	X	X	X	X	4	<0.1
Medusahead	Tractor	Roadside Hazard	X	X	X	X	2	<0.1

Canada thistle	Snag Retention	X				14	0.84
Canada thistle	Snag Retention	X	X	X		1	<0.1
Canada thistle	Snag Retention	X	X			7	0.92
Canada thistle	Snag Retention	X		X		1	0.41
Canada thistle	Plantation	X	X	X		3	<0.1
					Total	**216**	**34.83**

High, medium, and low priority noxious weed species (according to the state pest rating and the Plumas-Sierra Agricultural Commissioner) occur in project treatment units, access roads to project treatment units, and in the vicinity of the project area. The prevention of weed introduction into the project area is also considered a priority.

3. HABITAT VULNERABILITY

Historic disturbance is considered high and recent disturbance is considered very high; current vegetation is largely fire-killed and in an early stage of recovery after the Moonlight and Wheeler fires. Fire suppression efforts may have introduced or spread weeds because the fire camp for the Wheeler Fire was in a field of yellow starthistle, several known weed infestations were cleared by bulldozers for safety zones, Fire fighting equipment and personnel came from many different places and the cleanliness of there equipment is uncertain.

Details of Past, Present, and Future projects can be found in Appendix B of the FEIS.

The habitat within the Botany Analysis Area is considered highly vulnerable to weed introduction and spread.

4. NON-PROJECT DEPENDENT VECTORS

Non-project dependent vectors include roads; activities on nearby private industrial timberlands, recreational activities including camping, hiking, horseback riding, and hunting; and on going land management activities such as grazing, timber harvest, and road maintenance. The areas at greatest risk in this proposed project area are those located next to roads. Road density is considered high in the project area. Roads provide dispersal of exotic species via three mechanisms: providing habitat by altering conditions, making invasion more likely by stressing or removing native species, and allowing easier movement by wild or human vectors (Trombulak and Frissell 2000).

The above listed activities contribute to the moderate risk of noxious weed invasion from non-project dependent vectors.

PROPOSED ACTION DEPENDENT FACTORS

5. HABITAT ALTERATION EXPECTED AS A RESULT OF PROJECT

The Action Alternatives include salvage harvest by ground-based, skyline, and helicopter logging, tree planting, construction of temporary roads, and the construction or reconstruction of log landings. See the RFEIS Chapter 2 for full details of the proposed activities.

Table 3. Comparison of Activities.

Activity	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E
Acres of ground-based salvage	4,147	0	4,147	1,267	0
Acres of skyline salvage	872	0	0	0	0
Acres of helicopter salvage	5,347	0	0	0	0
Acres of roadside hazard harvest	4,389	0	4,389	4,389	4,389
Miles of temporary road construction	19	0	18	3	0
Acres of planting	16,006	0	9,306	16,006	16,006

Soil disturbance as a result of these activities will increase the suitable habitat for weeds and contribute to weed spread. As the native plant community, especially trees, develops over time the habitat for weeds will decline.

The scale, scope, and high level of ground disturbing activities, coupled with the existing environment results in a high risk of noxious weed invasion or spread.

6. INCREASED VECTORS AS A RESULT OF PROJECT IMPLEMENTATION

Implementation of any action alternative would increase the number of vectors for weeds to enter the area. Transportation system improvements including the construction of up to 13 miles of temporary road, the construction or reconstruction of up to 29 helicopter landings and 129 harvest landings. Existing road use would increase during project implementation. Upon project completion it is anticipated that road use will be about the same as it was before the project. Seven proposed landings are at known weed locations.

7. STANDARD MANAGEMENT REQUIREMENTS (SMRs)

The following SMRs adopted in full will reduce the risk factors described in this document resulting in a reduced risk of noxious weed invasion and spread of existing populations. These SMR's are consistent with the HFQLG FEIS (USDA Forest Service 1999, 2003), SNFPA FSEIS (USDA Forest Service 2004), USDA Forest Service Strategy for Noxious and Nonnative Invasive Plant Management (USDA Forest Service 1996), and Region 5's Regional Noxious Weed Strategy (USDA Forest Service 2000). Furthermore, these SMR's are the means by which the requirements of the FSM section 2081, Management of Noxious Weeds, are fulfilled.

The project standard management requirements are designed to minimize risk of new weed introductions, minimize the spread of spotted knapweed, yellow starthistle, medusahead, and Scotch broom within and between units, and minimize likelihood of spread of Canada thistle from infested units to uninfested units. This project is likely to spread Canada thistle within already infested units.

The SMRs are ordered based on the priorities established in FSM 2081.2, which states, "Where funds and other resources do not permit undertaking all desired measures, address and schedule noxious weed prevention and control in the following order:

1. First Priority: Prevent the introduction of new invaders,
2. Second Priority: Conduct early treatment of new infestations, and

3. Third Priority: Contain and control established infestations.

Prevent the introduction of new invaders:

1) Cleaning of off-road equipment: Require all off-road equipment and vehicles (Forest Service and contracted) used for project implementation to be weed-free. Clean all equipment and vehicles of all attached mud, dirt and plant parts. This will be done at a vehicle washing station or steam cleaning facility before the equipment and vehicles enter the project area. Cleaning is not required for vehicles that will stay on the roadway. There are 61 desiganated weed units (Table 4). All off-road equipment must be cleaned prior to leaving weed units.

Table 4. Designated weed units.

Sale	Harvest System	Unit #	Alternative A	Alternative C	Alternative D	Alternative E
Bear	Tractor	Rd_Hz	X	X	X	X
Cairn	Skyline	15	X			
Cairn	Tractor	16	X	X		
Cairn	Tractor	16	X	X	X	
Cairn	Skyline	23	X			
Cairn	Tractor	26c	X	X		
Cairn	Tractor	84a	X	X		
Eagle	Tractor	Roadside Hazard	X	X	X	X
Lights	Helicopter	29	X			
Lights	Helicopter	41	X			
Lights	Skyline	32a	X			
Lights	Skyline	32sb	X			
Lights	Tractor	5g	X	X	X	
	Plantation		X	X	X	
Pierce	Helicopter	71	X			
Pierce	Tractor	97	X	X		
Pierce	Tractor	87A	X	X	X	
Pierce	Tractor	87B	X	X	X	
Rattlesnake	Tractor	Roadside Hazard	X	X	X	X
	Snag retention		X			
	Snag retention		X	X		
	Snag retention		X		X	
	Snag retention		X	X	X	
Wheeler	Helicopter	1a	X			
Wheeler	Tractor	3b	X	X		
Wheeler	Tractor	5a	X	X		
Wheeler	Helicopter	5b	X			
Wheeler	Helicopter	6a	X			
Wilcox	Tractor	80	X	X	X	
Wilcox	Tractor	90	X	X		
Wilcox	Tractor	90	X	X	X	

Wilcox	Tractor	76a	X	X	X	
Wilcox	Tractor	76c	X	X		
Wildcat	Tractor	Roadside Hazard	X	X	X	X

2) Road Construction, Reconstruction, and Maintenance: All earth-moving equipment, gravel, fill, or other materials need to be weed free. Use onsite sand, gravel, rock or organic matter where possible.

3) Revegetation: Use weed-free equipment, mulches, and seed sources. Avoid seeding in areas where revegetation will occur naturally, unless noxious weeds are a concern. Save topsoil from disturbance and put it back to use in onsite revegetation, unless contaminated with noxious weeds. All activities that require seeding or planting will need to use only locally collected native seed sources. Plant and seed material should be collected from as close to the project area as possible, from within the same watershed and at a similar elevation whenever possible. Persistent non-natives such as timothy, orchardgrass, or ryegrass should be avoided. This will implement the USFS Region 5 policy that directs the use of native plant material for revegetation and restoration for maintaining "the overall national goal of conserving the biodiversity, health, productivity, and sustainable use of forest, rangeland, and aquatic ecosystems. As necessary, Plumas National Forest botanists will develop project and site-specific revegetation and seeding guidelines that will be customized from existing general guidelines.

4) Post project monitoring will facilitate the early detection of new populations and allow for developing proposals for treatment before populations get large.

Reduce the likelihood of spreading known infestations:

5) Staging Areas: Do not stage equipment, materials, or crews in noxious weed infested areas where there is a risk of spread to areas of low infestation including the following sites: CEMA4_0009, CEMA4_0016, & CEMA4_0020 (Figure 1); CEMA4_0013, CEMA4_0014, & CEMA4_0015 (Figure 2); CYSC4_0028 (Figure 3); CESO3_0136, CESO3_0331, CESO3_0336, TACA8_0056, & TACA8_0183 (Figure 4).

6) Flag and Avoid known sites of spotted knapweed, yellow starthistle, medusahead and scotch broom (Figures 1, 2, 3, & 4).

7) Flag and Avoid noxious weed locations other than, Canada thistle, discovered during project implementation.

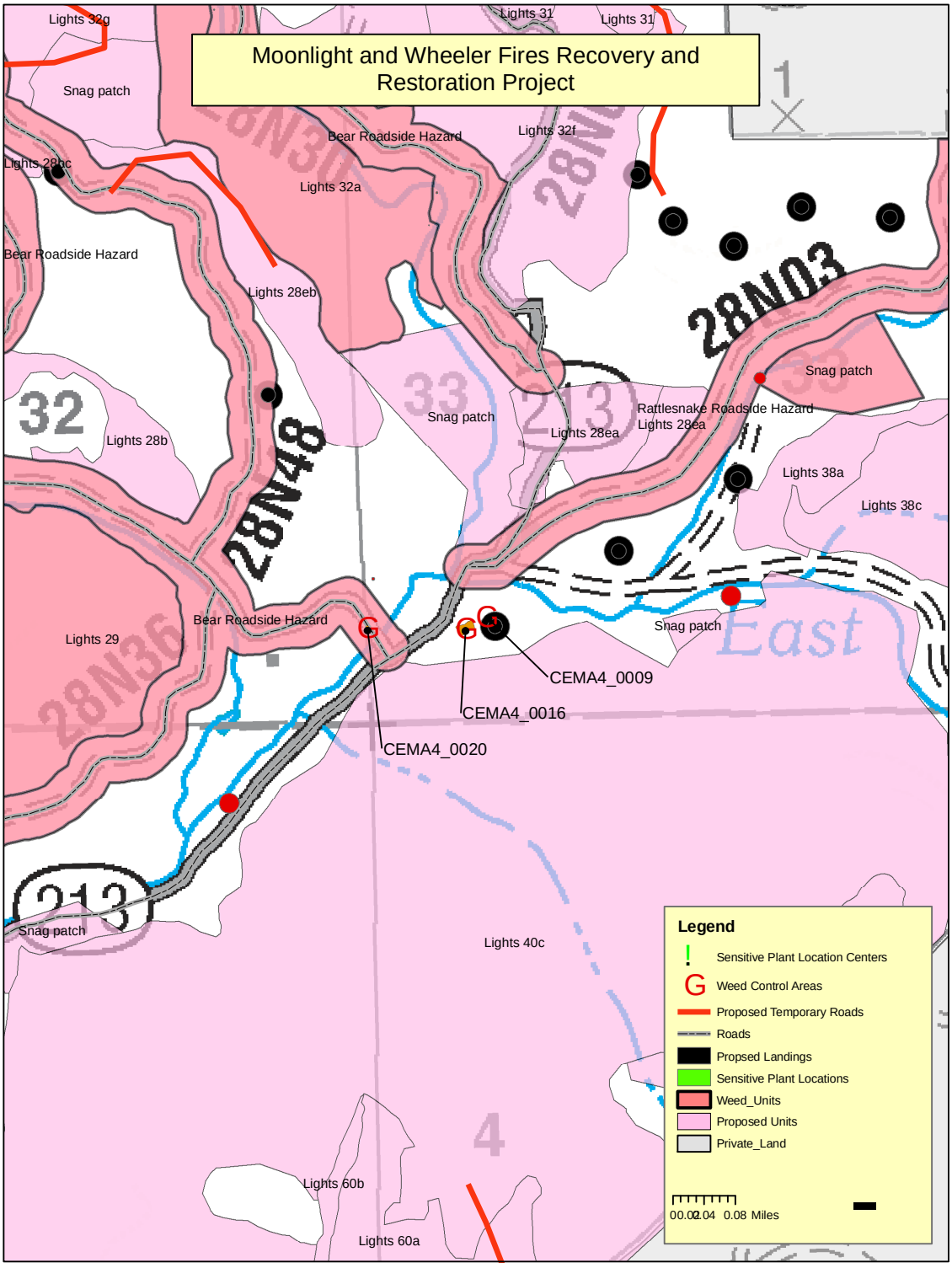

Figure 1. Spotted knapweed locations near Lights Creek at a proposed landing and in the Bear Roadside Hazard.

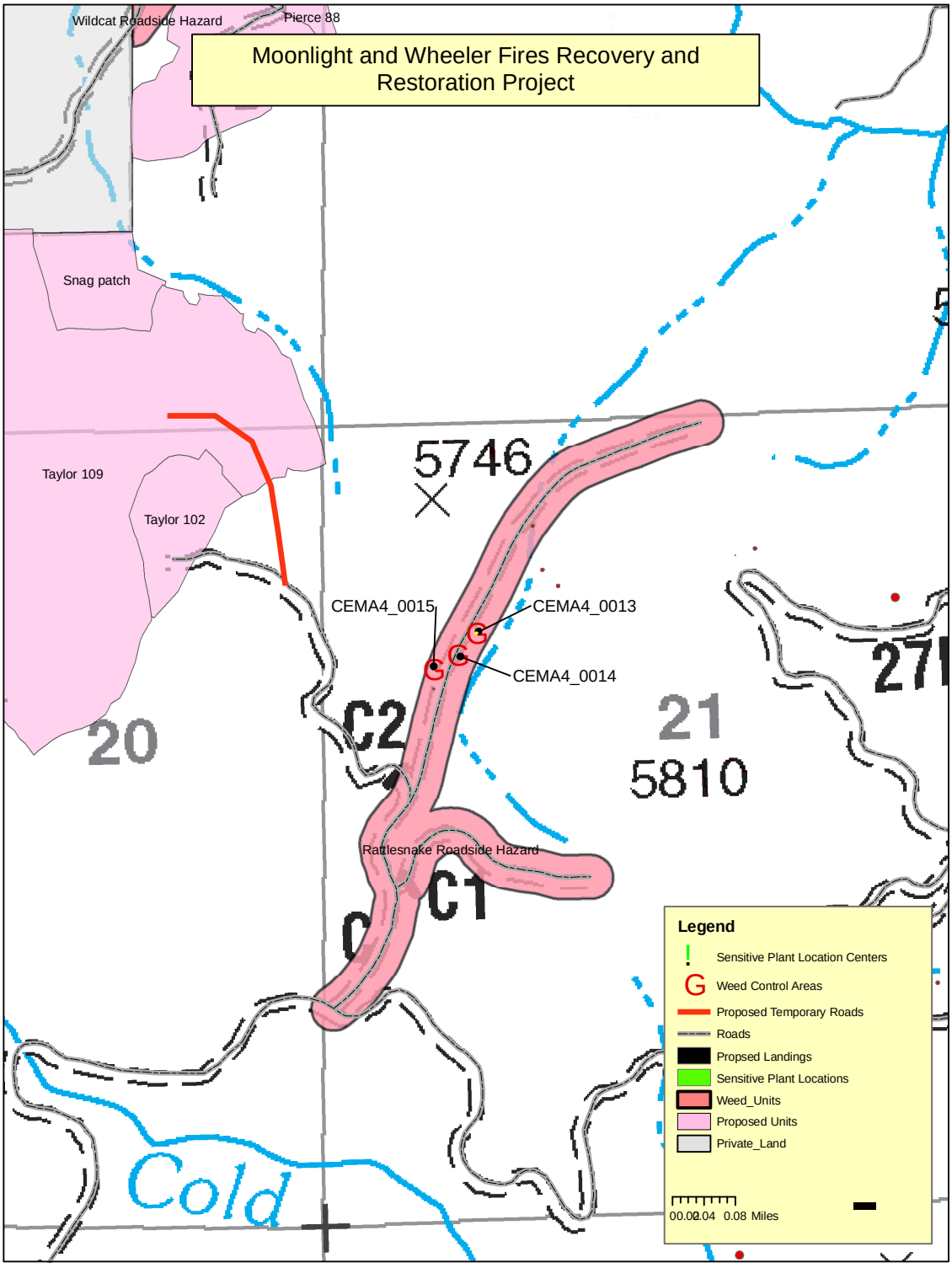

Figure 2. Spotted knapweed locations along the 27N07C road in the Rattlesnake Roadside Hazard.

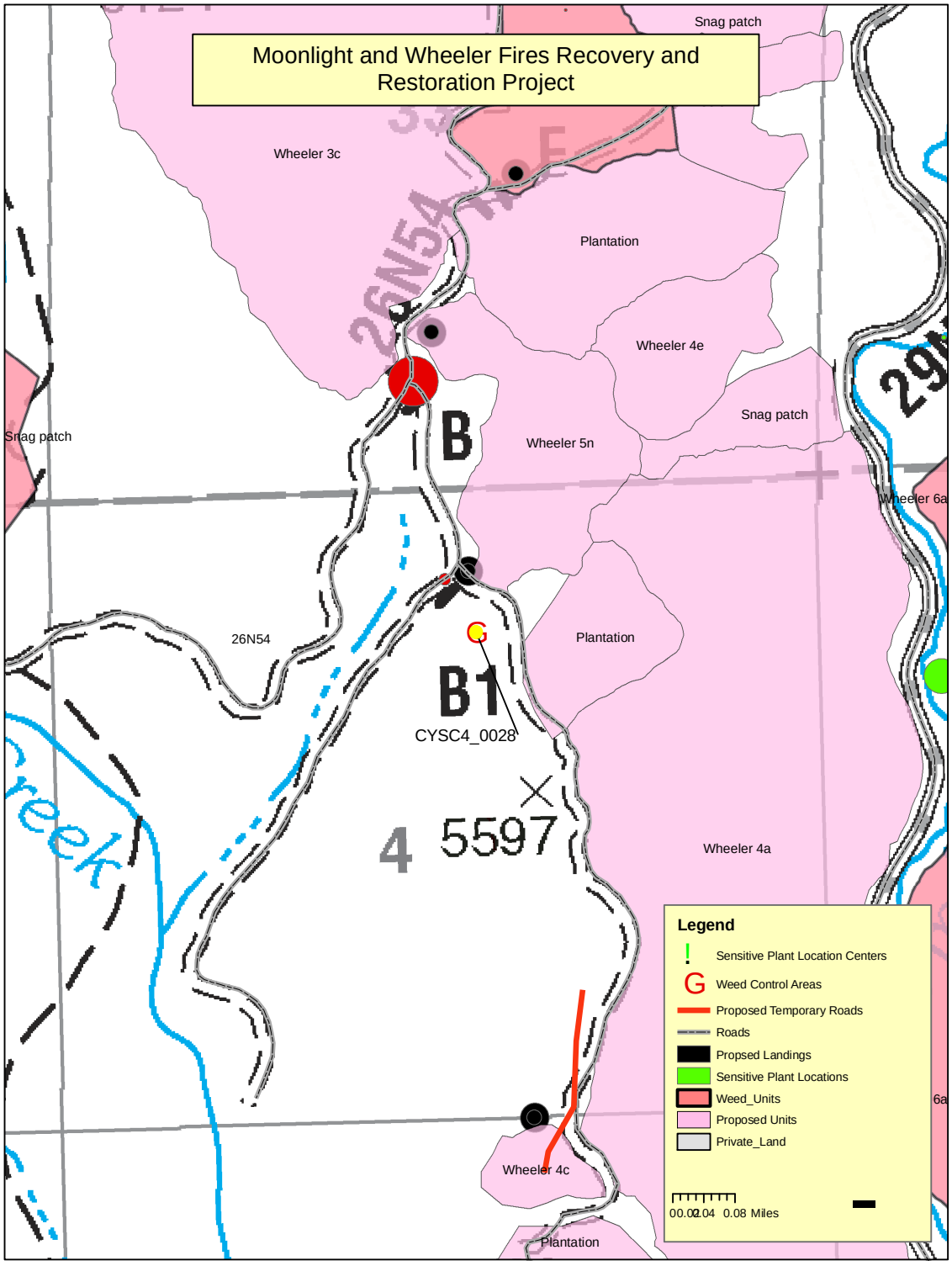

Figure 3. Scotch broom location near units 4 & 5.

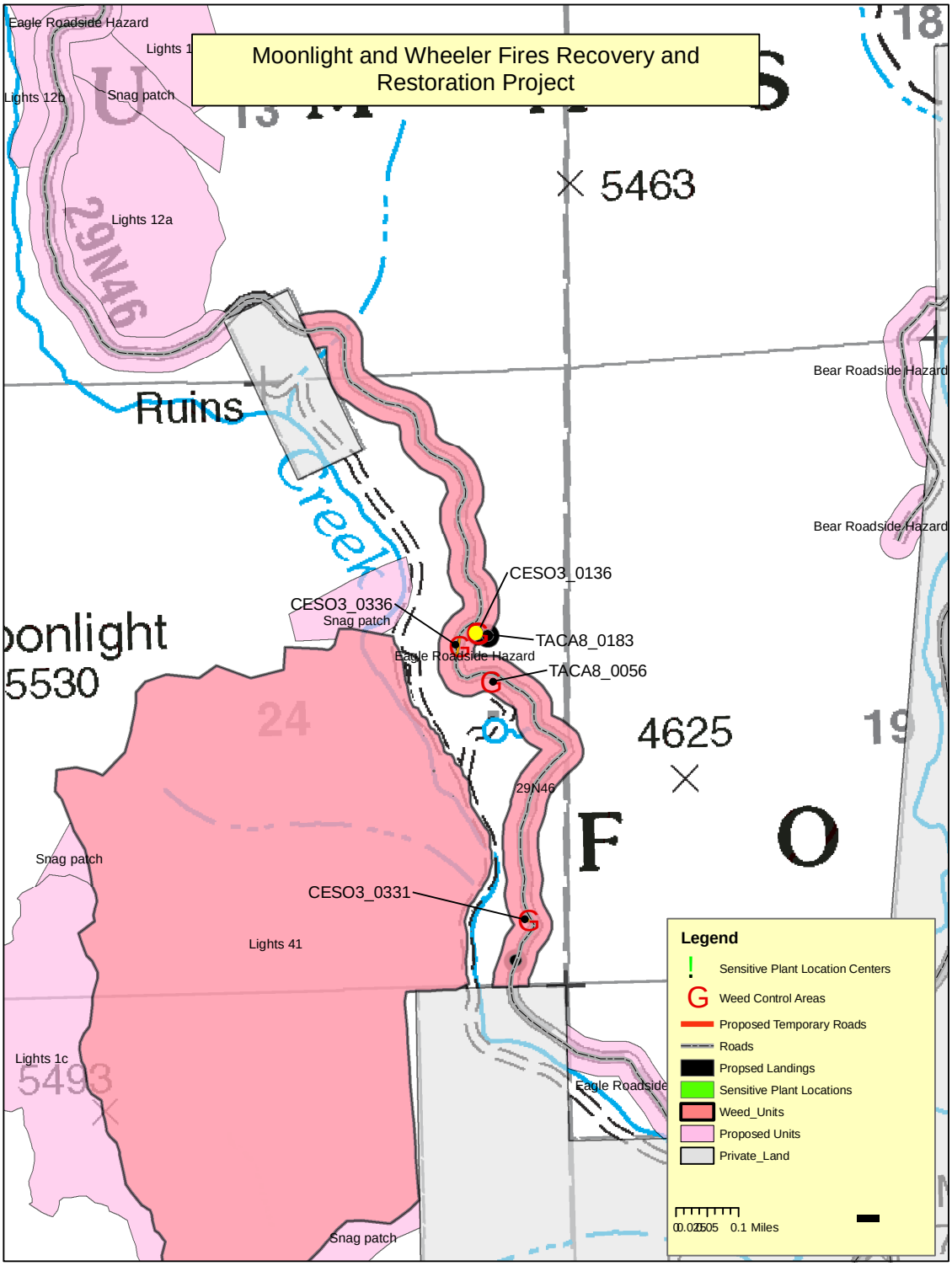

Figure 4. Weed locations along road 29N46, at a proposed landing near unit 41 and in the Eagle Roadside Hazard.

ANTICIPATED WEED RESPONSE TO PROPOSED ACTION

The project standard management requirements are designed to minimize risk of new weed introductions, minimize the spread of spotted knapweed, yellow starthistle, medusahead, and Scotch broom within and between units, and minimize likelihood of spread of Canada thistle from infested units to uninfested units. This project is likely to spread Canada thistle within already infested units.

Table 5. A summary of the weed risk assessment factors considered for this project.

NON-PROPOSED ACTION DEPENDENT FACTORS		
Factors	**Variation**	**Risk**
1. Inventory	Complete	Low, baseline information is adequate.
2. Known Noxious Weeds	Priority species (spotted knapweed, yellow starthistle, medusahead, and Scotch broom) present, Canada thistle is abundant	High priority to prevent spread from infested units to uninfested units; prevention of weed introductions is a high priority.
3. Habitat vulnerability	Mostly, burned vegetation in an early stage of recovery. High historical disturbance, high recent disturbance	High vulnerability.
4. Non-project dependent vectors	Moderate current vectors	Moderate risk.
PROPOSED ACTION DEPENDENT FACTORS		
5. Habitat alteration expected as a result of project.	Moderate to high ground disturbance due to logging and landing construction or reconstruction.	High risk
6. Increased vectors as a result of project implementation	Up to 13 miles of temporary roads, creation of skid trails, road maintenance, short-term traffic increase	High risk
7. Anticipated weed response to proposed action	All SMR and mitigation measures implemented	High risk of Canada thistle spread within infested units, low risk of new introductions, moderate risk of spotted knapweed, yellow starthistle, medusahead, and Scotch broom spread.