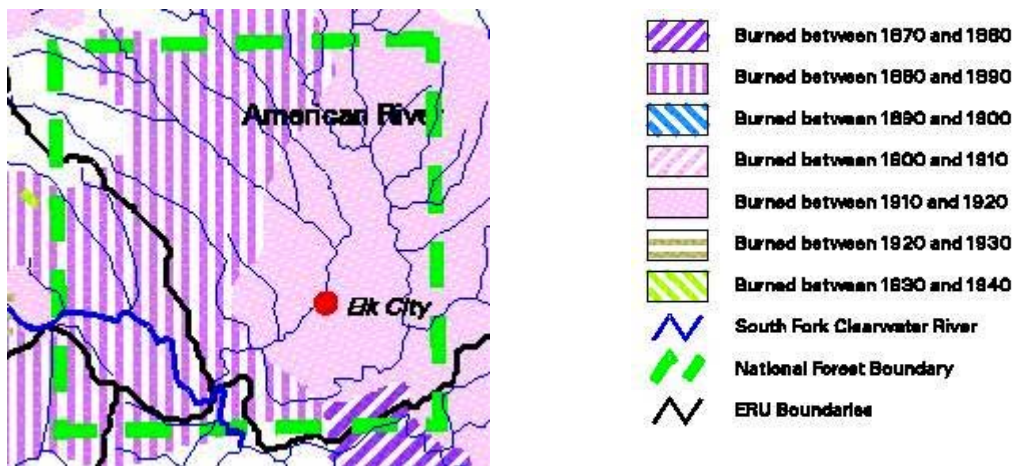


## Disturbance Regimes and Their Implications

The South Fork Assessment clearly shows the fire history of the Elk City Township, both in recent years and from just after the area became settled. From the map (Figure 14), it is clear that virtually all of the Township area burned during the period 1880-1920. Additional data show that since 1940, none of the Township lands have burned.

**Figure 14. Fire History of Elk City to 1940**



This history is confirmed by the preponderance of lodgepole and other early seral species that currently occupy the forested sites in a classic “fire type” pattern. On the ridges above the South Fork and in the southwest corner of the Township, for example, lodgepole stands were found to be over 100 years old, consistent with the map’s depiction of this area having burned between 1880 and 1890. Where those fires were most intense, nearly pure stands of lodgepole or, in some cases, western larch, occupy the land. Where the fires burned cooler or where they skipped over wetter areas, larger trees exist, both those that are fire resistant or such species as grand fir that, for whatever reason, were spared the impact of the flames.

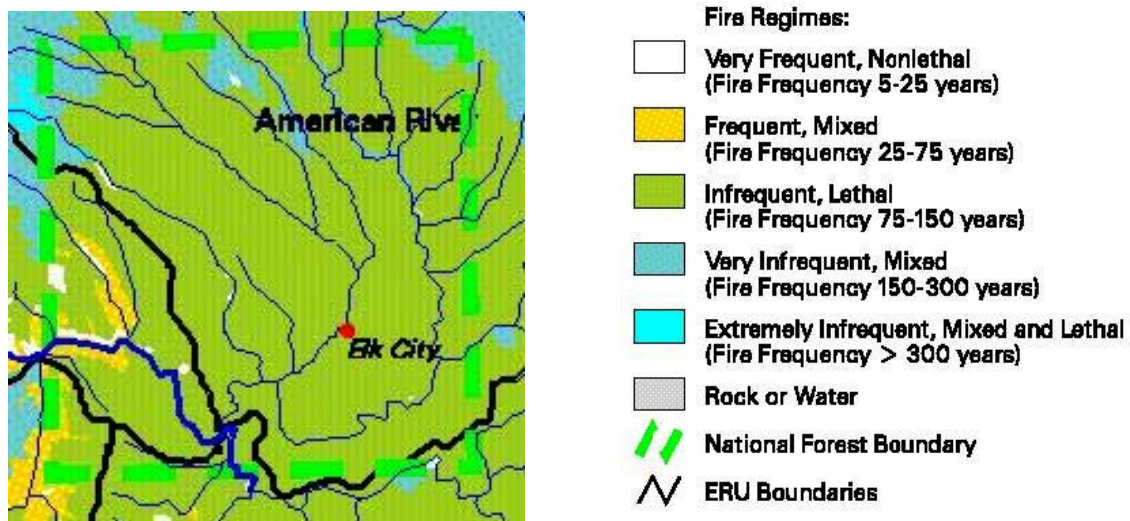
Not only did most of the area burn within the past 100 years, the intensity of these fires proved lethal to the forest existing at that time. This is noted in Figure 15 and in the description of the VRU 6 (cold basins, the dominant class within the Township):

*“Medium to large stand replacing fires occurred at infrequent intervals (75-150 years). About 60-90 percent of the stands originated from stand replacing fires and 10-40 percent experienced mixed severity fire...Large disturbances (100s to 10,000s of acres) and meadow complexes were important elements of this landscape.” (S. Fork Assessment)*

The nearly pure stands of lodgepole pine and its strong presence in mixed conifer stands are both a testament to the fire history of much of the township and an indicator of future fire occurrences. While fire suppression has been very successful—there have been no significant fires in the Township since 1940—it can be argued that suppression has merely postponed the inevitable. When fuels build up and when conditions allow, there will be high intensity fires that

will defy control efforts. This should not be viewed as an aberration. Indeed, as shown in Figure 16, infrequent but lethal fire has typified the area. However, the norm may no longer be acceptable within the Township itself, given the level of human development within the landscape. As the South Fork Assessment indicates, the dry grand fir-subalpine fir habitat types, currently with a lodgepole pine cover type in VRU 6 is among those areas where fuel conditions are likely to outside the range of historic variability.

**Figure 16. Historic Fire Regimes in the Elk City Township**



One factor that increases the fire risk by killing pines and adding dry wood and needles to the fuel load is epidemic populations of insects. Beginning about 1999, normal endemic populations of mountain pine beetles began to grow and spread to epidemic proportions. As noted in the S. Fork Assessment, this insect attacks ponderosa pine and lodgepole, particularly. They select older trees and those stressed by drought and the cycle in which older lodgepole pine are killed by beetles, replaced by fire and the burned areas regenerated with more lodgepole is widely recognized (*S. Fk. Assessment*).

While the South Fork Assessment recognized the threat posed by mountain pine beetles, the document was completed just before the current outbreak. In what has proven to be a monumental understatement, the Assessment noted:

*“Today, larger, continuous areas of older, more susceptible trees are now present in the subbasin in the lodgepole, whitebark and Douglas-fir communities. The possibility exists for larger epidemic outbreaks of some bark beetles.”*

The challenge for land managers for the Elk City Township is to pay heed to the fire history and to current vegetative conditions and fuel loads and then acceptably mitigate the unacceptably high fire risk. History acts as a credible predictor of fire occurrence, but the size and intensity, plus the risk that the inevitable fires pose to human values can be manageable.

## Stand Treatment Options

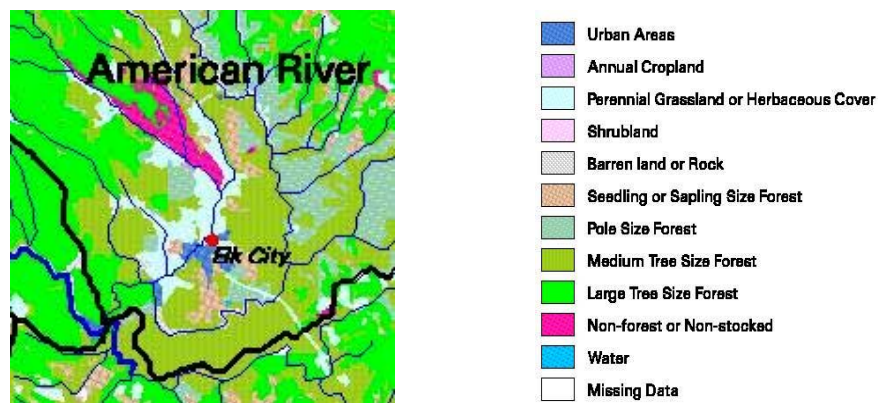
There are two ecological issues related to the forested lands surrounding the Elk City Township. First is the near inevitability of large, high intensity wildfires in lands where such occurrences, while infrequent, are the ecological norm. As previously noted, the existence of extensive lodgepole stands of around 100 years in age both indicates a history of stand-replacing fires and presages others.

Second is the current outbreak of mountain pine beetles and how this situation impinges upon the “normal” risk of fire occurrence and intensity in these forest types. The short answer is that, while insects, too are a natural part of forested ecosystems, the volumes of dead and dry wood, plus the dry needles and limbs can only contribute to fuel loads and to fire intensity, should one occur. As noted in the South Fork Assessment, “The cycle in which older lodgepole pine (*Amman, 1991*) are killed by beetle activity, are replaced by fire, and regenerate to lodgepole pine, is widely recognized.”

From these two ecological issues arise a major social one—given the likelihood of significant wildfires in the Township, what actions are appropriate to mitigate the risks and to protect the human values that have developed since the last major fires. It is these human values (property, human life, economic and recreational pursuits) that drive the discussion, for if they were not there, there would be no compelling reason to try to change the natural cycle of fire and forest regeneration. However, human values are present and, at this point, cannot be ignored.

On the public lands within the Township, little has been done to impact the natural cycles, apart from historical control of wildfires. As opposed to much of the rest of the South Fork subbasin, there has been little commercial timber harvest on the BLM managed lands and, over the past century, forests on this ownership have regenerated after the most recent fires, allowed to grow and now generally approach 100-200 years of age. As shown in the S. Fork Assessment maps, virtually all the forests within the Elk City Township are classed as “medium size forest”.

**Figure 16. Size Classes of Elk City Forests**



For the most of the forests on the BLM land and within the Township to achieve a late seral stage, all which would be necessary would be to keep fires from causing a repeat of the lodgepole-fire-lodgepole cycle. Given the beetle outbreak, resulting mortality and increased fuel

loads, the probability of successfully managing fire within these stands is low—and the risk to human values correspondingly high. This gives land managers few options, the most attractive of which is removal of the dead and dying lodgepole while retaining the understory grand fir and Douglas-fir that would take the place of the lodgepole in the absence of fire.

For the past year, Bennett Forest Industries, operator of the sawmill in Elk City, has been conducting harvest operations on the company’s lands within the Township in response to the



beetle epidemic. Most of their logging has concentrated on removing lodgepole, but in some stands this has been accompanied by thinning the remaining trees to produce a more even spacing as part of a shelterwood harvest. Fortunately, the mill configuration allows Bennett Forest Industries to profitably use the smaller lodgepole logs.

Other private landowners within the Township have employed similar logging plans, generally selling their lodgepole to the Bennett mill. Logging of the lodgepole is largely a salvage operation; capturing the value of the recently dead, dying and threatened trees while some value exists. About two years after the beetles attack a tree, the tree loses virtually all its commercial value as it dries and “checks” (splits) and the wood within it becomes stained blue from a common fungus transported by the beetles.

*Where there is an understory of more shade tolerant trees, removal of the lodgepole results in a stand that has a “selectively logged” appearance.*

It is important to consider the future forest that will result from a salvage operation that concentrates on a single species, lodgepole pine. The most obvious implication is that removing the early seral lodgepole hastens the natural successional process by allowing the more shade tolerant species, particularly grand fir and Douglas-fir to fully occupy the site where there is an existing understory and mature trees of these species are a component of the stand. Where there are nearly pure stands of lodgepole, its removal more closely resembles a clearcut and in the resulting full sunlight, more lodgepole along with larch, grand fir and Douglas-fir can be expected to regenerate.

In the South Fork Assessment, the Forest Service did an excellent job of describing what vegetative treatments and restoration of ecological processes is necessary to achieve conditions that more closely approach the historic range within the South Fork subbasin. Even though the full range of restoration and treatment options are not available within the Elk City Township, it is important that the work done there be a part of the overall strategy for the entire subbasin. The potential contribution of the management of the BLM and privately owned lands within the

Township toward achievement of the overall ecosystem goals was noted in the South Fork Assessment:

*“A good part of this area (the American River ERU) is BLM administered, along with state and private. The restoration of the National Forest lands should proceed as a broad based partnership...The time necessary to develop a restoration partnership between the individuals, agencies, businesses and other groups in this watershed should be taken prior to initiation of a large-scale restoration effort on the National Forest. This watershed offers a unique opportunity for a public/private partnership-based restoration program.”*

The Nez Perce staff’s approach to categorizing and prioritizing ecological restoration work within the South Fork of the Clearwater includes “themes” that describe aquatic, wildlife, vegetation and other goals as well as for individual “ecological reporting units” (ERUs). The majority of the Elk City Township falls within the American River ERU, although a significant piece in the southwest corner is a part of the uppers South Fork Canyon ERU. Table 2 summarizes the overall theme for each of these ERU’s as well as the vegetative, aquatic and wildlife themes.

**Table 2. Management Themes for the Ecological Reporting Units within the Elk City Township**

<b>Upper South Fork Canyon ERU</b>			
Area theme: Restore vegetation pattern and conserve scenic integrity			
<b>Theme</b>	<b>Description</b>	<b>Priority</b>	<b>Treatment Needs to Achieve Ecological Restoration</b>
Aquatic	Restore aquatic processes	Moderate	Reduce existing sediment sources and the risk of mass failures, particularly as they relate to existing roads.
Vegetation	Restore vegetation pattern	Moderate	Produce more early seral stages; provide snag patches and a greater variety of patch size while retaining overstory larch, Douglas-fir and grand fir.
Wildlife	Produce early seral habitat	Very High	Partial harvest of mid or late seral forest, followed by burning to create snags for black-backed woodpeckers.
	Conserve late seral habitat	Low	Retain late seral grand fir (600 acres per 2,500 acres)
<b>American River ERU</b>			
Area theme: Restore aquatic processes			
<b>Theme</b>	<b>Description</b>	<b>Priority</b>	<b>Treatment Needs to Achieve Ecological Restoration</b>
Aquatic	Restore aquatic processes	High	Focus on restoring stream and riparian processes the disturbance regime and sediment effects, with an emphasis on existing roads.
Vegetation	Restore vegetation pattern	Moderate	Produce early seral stages, provide snag patches while retaining overstory larch, Douglas-fir and grand fir areas
Wildlife	Produce early seral habitat	Very High	Partial harvest of mid or late seral forest, followed by burning to create snags for black-backed woodpeckers. For lynx, create forest openings by fire or timber harvest.
	Conserve late seral habitat and enhance wildlife security (mostly upstream from EC Township)	Moderate	Retain late seral habitat of blocks that are over 100 acres

Obviously, the management of the Elk City Township lands, specifically logging to salvage lodgepole pine, directly relate to achieving the objectives of some of the ecological restoration

themes but not others. Given the fact that the area of the Township is only about 4 percent of the subbasin that is largely forested and within public ownership, there is only a very limited ability to contribute toward any of the management objectives. However, on a local basis, how the Township lands are managed can be very important. Table 3 shows how removal of lodgepole pine combined with thinning of remaining overstory trees in some cases relates to the functional themes identified in the South Fork Assessment.

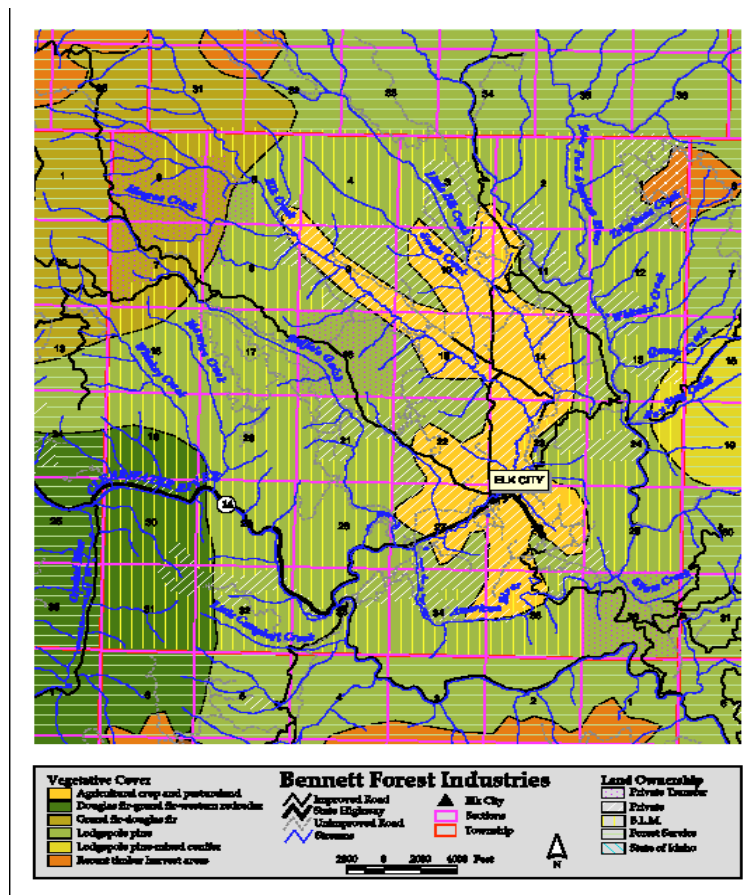
<b>Table 3. Elk City Township Management and Subbasin Themes</b>	
<u>Functional Theme and Recommended Management</u>	<u>Contribution of Elk City Management</u>
Restore aquatic processes by focusing on stream/riparian processes and sediment regime	Prevention of future stand replacing fires will eliminate those "pulse" impacts to watersheds and restore a more normal disturbance pattern (no more than every 35 years. Revenues from the sale of salvaged wood could expedite stream channel restoration, elimination of sediment sources and establishment of streamside shade
Restore vegetation pattern by reconfiguring disturbance patterns to historic norms	Lodgepole salvage will constitute a "disturbance" that, since it is once in approximately 100 years, will replace fire and be more in harmony with historic norms.
Produce early seral habitat by timber harvest and burning.	Logging will produce early seral habitat, particularly in those areas with nearly pure lodgepole stands. If dead or cull trees are left standing new "snag patches" will be created.
Conserve late seral habitat by refraining from regeneration harvest or preventing stand replacing fire in old-growth stands	There is little old-growth within the Township, with the possible exception of the northwest corner. However, protecting such areas from stand-replacing fire will be made easier by reducing fire hazards within the Township.

## Potential Areas for Treatment and Other Management Options

The current epidemic of mountain pine beetles essentially establishes the potential areas for fuel reduction projects and sets priorities for management actions. At risk are stands of lodgepole pine; with ponderosa pines susceptible as well, particularly low vigor trees or those that are stressed. Within the Township, most of the at-risk stands on the BLM ownership are in the western half of the Township or along its southern and eastern border (Figure 17). Although there are sections of BLM lands along the northern border of the Township, the percentage of lodgepole in these stands is lower.

Apart from the lands with stands of susceptible trees, potential treatment areas can be further categorized by their proximity to private lands or human developments and the reduction in fire risks that can be gained by treating them. For example, the spread of beetles is from the Nez Perce National Forest lands to the south and east of the Township and BLM lands extend virtually to the eastern edge of Elk City. This would imply that the most effective treatments, both from the standpoint of salvaging the remaining value of the dead and dying lodgepole and from increasing the “defensible space” for controlling fires near human developments, would be along the southern and eastern boundary of the Township.

**Figure 17. Timber Types and Land Uses by Ownership**



Removing the lodgepole and, if necessary from a silvicultural standpoint, thinning the remaining overstory trees coupled with piling and burning of the logging slash, definitely helps control the spread and intensity of wildfire. In stands treated in this fashion, fires lose their ability to spread through the tree crowns or to climb into the crowns from the ground. Fires that remain on the ground can burn only the ground litter, typically with flame heights no greater than 3-4 feet and with much slower rates of spread. Generally hand lines are sufficient for control and the personal risks to firefighters greatly reduced. Table 4 summarizes the timber types within the Township, with the “lodgepole types” most susceptible to insects and candidates for these treatments.

**Table 4. Summary of Cover Types by Ownership**

<b>Cover Type or Land Use</b>	<b>Landowner</b>	<b>Acres</b>
Agricultural or Pasture	BLM	220
	Private	3,513
	State Exch.	19
<b>Subtotal</b>		<b>3,752</b>
Douglas fir-Grand fir-Cedar	BLM	1,602
	Private	161
<b>Subtotal</b>		<b>1,763</b>
Grand fir-Douglas fir	BLM	670
	State Exch.*	1,016
<b>Subtotal</b>		<b>1,686</b>
Lodgepole Pine	BLM	10,327
	Private	3,729
	State Exch.	1,354
<b>Subtotal</b>		<b>15,410</b>
Lodgepole-Mixed Conifer	BLM	180
	Private	18
<b>Subtotal</b>		<b>198</b>
Recent Timber Harvest	Private	169
<b>Total</b>		<b>22,978</b>

*(Note: “State Exch.” lands refer to former state lands now in Bennett Forest Industries ownership)*

Finally, it should be noted that within the Township are scattered BLM “40’s” or other small parcels of land. Some of these parcels do not adjoin larger BLM ownerships; others represent oddly shaped or narrow appendages that extend into private lands. The costs of developing management strategies and completing NEPA analyses for these areas are high, particularly given their small size. For such tracts, exchanges or outright sales may be a more attractive and efficient way to assure that fire risks on them are addressed.

## **Community Involvement and Support for BLM Management Strategies**

Elk City is almost unique in that virtually the entire population of town and nearby smaller communities (Golden, Dixie, Orogrande) is directly dependent upon the management of the surrounding lands, whether they make their living at the sawmill, provide services to hunters and other recreationists or work for public agencies. Aside from very direct economic ties to natural resources, the entire community has valid concerns that the lands within and around the township be managed in a way that protects their personal safety and private property.

Given that situation, the BLM can expect a wholesome interest in their plans for any of the lands within the Township. Generally, one would expect this interest to be positive, since the risk to the community from wildfires is being abated and, at the same time, employment in both the sawmill and through local logging contractors will be enhanced. There is a local group, “Framing Our Community” with a mission of supporting the local economy and responsible forest management, and that group may be willing to fill the role of a community voice as the BLM develops its management strategies.

Apart from the immediate community, there are other groups with a stake in the Elk City Township’s management. These include the area residents who do not live in the “greater Elk City metropolitan area”, the Nez Perce Tribe, sportsmen and other outdoor enthusiasts and members of the environmental community. For most of these groups, their interest will likely be more passive, although just as legitimate. They may also be best represented by surrogates—Fish and Game, for example, may be a reasonable alternative to attempting to define appropriate sportsmen groups and seeking input from each.

While it is equally difficult to find the “right” environmental group that can represent the larger community on the development of Elk City management strategies, that task is made easier by the recent interest expressed by Idaho Conservation League in the reduction of fire risks. In a recent letter to federal agency managers, ICL noted:

*“The Idaho Conservation League is dedicated to working with you to...reduce the risks to homes, safeguard firefighters, and improved the ecological integrity of our public lands...We believe that the most effective way to accomplish these tasks is through the development and implementation of fire management plans and focusing on efforts to create defensible space immediately around structures and communities.”*

In the same letter, ICL also made clear its concern over promoting the removal of large diameter trees as “hazardous fuel reduction” or commercial logging projects completed in the name of fire hazard abatement, although the organization is apparently not opposed to the sale of merchantable timber removed as a by-product of ecological restoration. Even with these caveats, it seems clear that ICL can be a willing partner in helping the BLM develop sound, acceptable fire management strategies. This is an opportunity that should not be ignored.

## Conclusions

Management of forest resources is a complex, often controversial business. It is a rare opportunity when public sentiment, economics, the need for some sort of active management and a scientific basis coincide in a favorable manner. However, management of the Elk City Township to reduce fire hazards and to help stabilize the area's resource-based economy provides just such an opportunity. In summary, there is a clear need for action and a clear threat to a rural community. There is also a scientific base for completing much of the needed management work in the form of the Forest Service's South Fork Subbasin Assessment. There is a sound economic underpinning for completing the work in the form of a local sawmill that can use the small diameter logs. Finally, the local community and such external stakeholders as the Idaho Conservation League can be counted on to provide constructive advice in the development of appropriate land management projects.

This set of favorable circumstances will not diminish the magnitude of the work needed to develop and implement on-the-ground projects, but it should make it easier. NEPA, cultural reviews and ESA consultation still need to be dealt with and there are no shortcuts to compliance with the law. On the other hand, the "uncommon amount of common ground" for management of the Township lands should give the agencies and the Elk City stakeholders reason for optimism that further plans can be completed expeditiously and will be effective in meeting the community's needs.