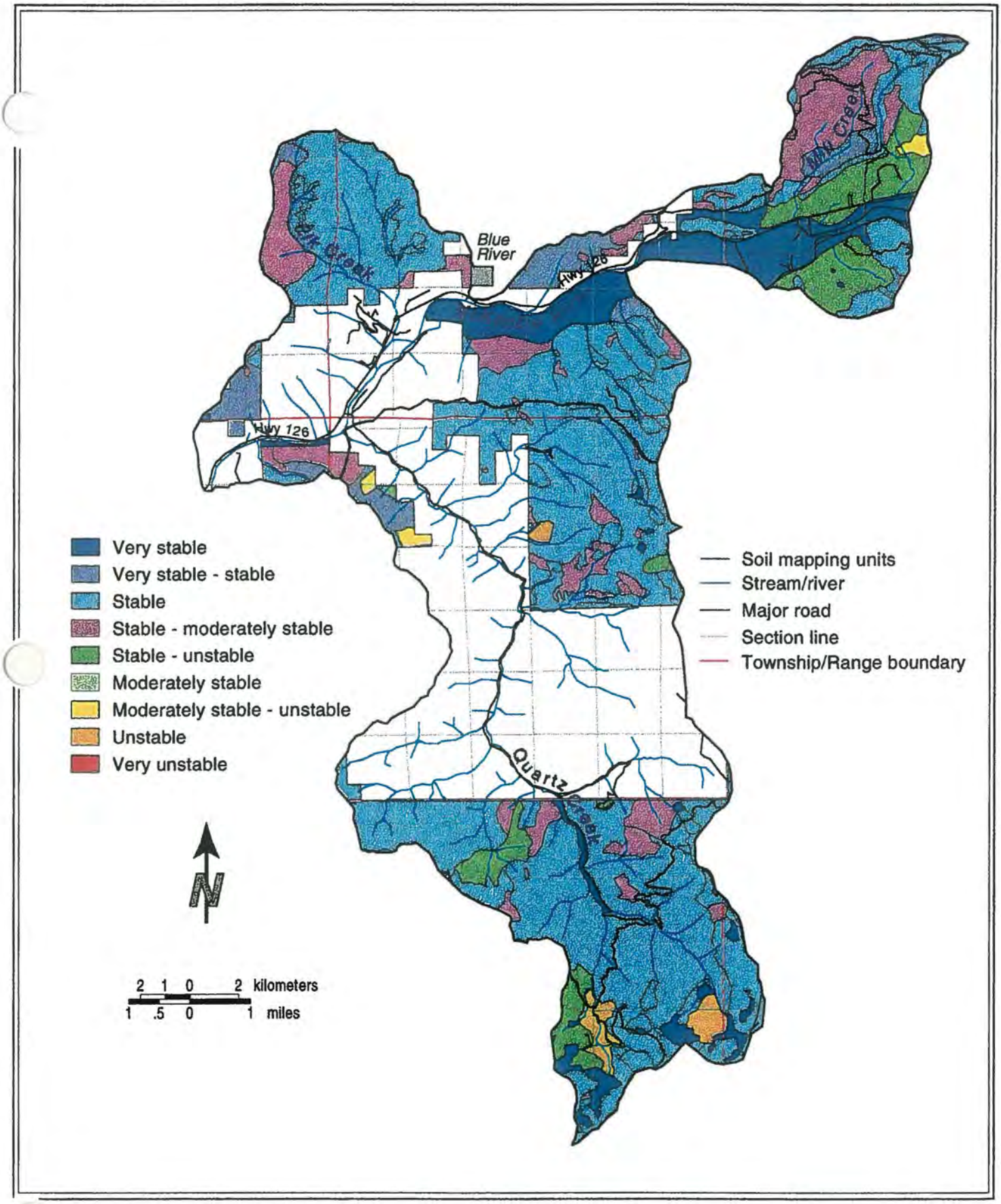
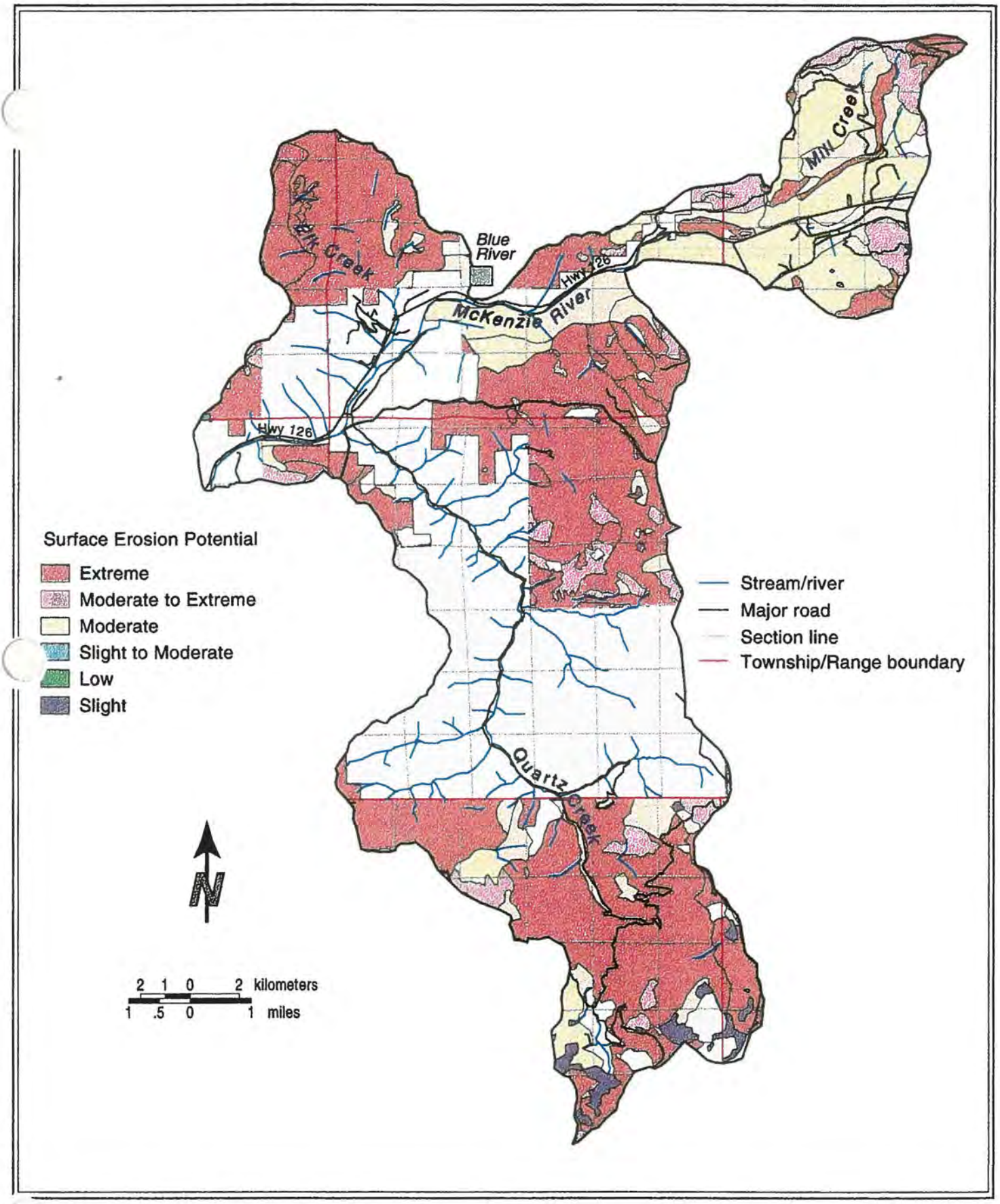
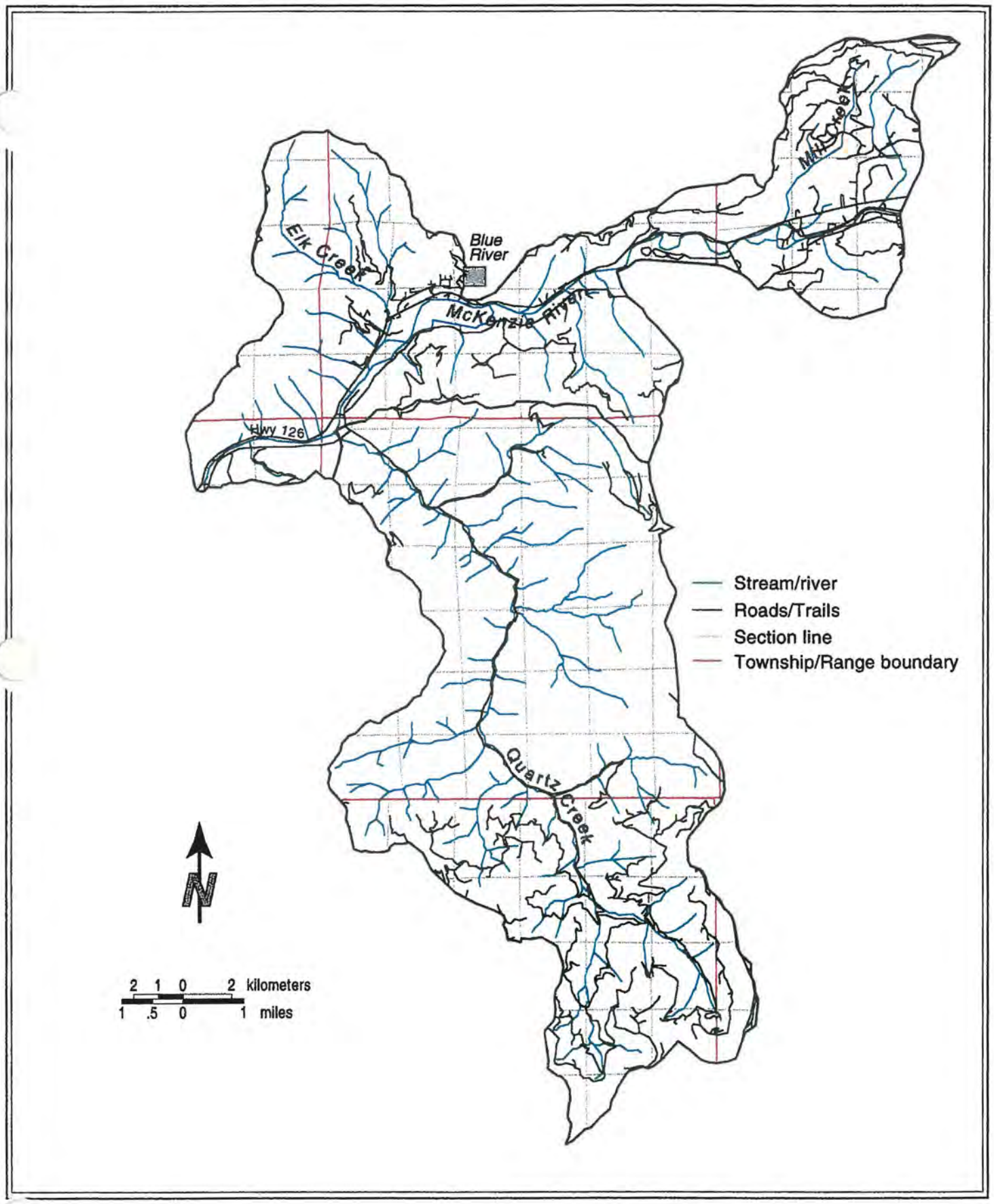


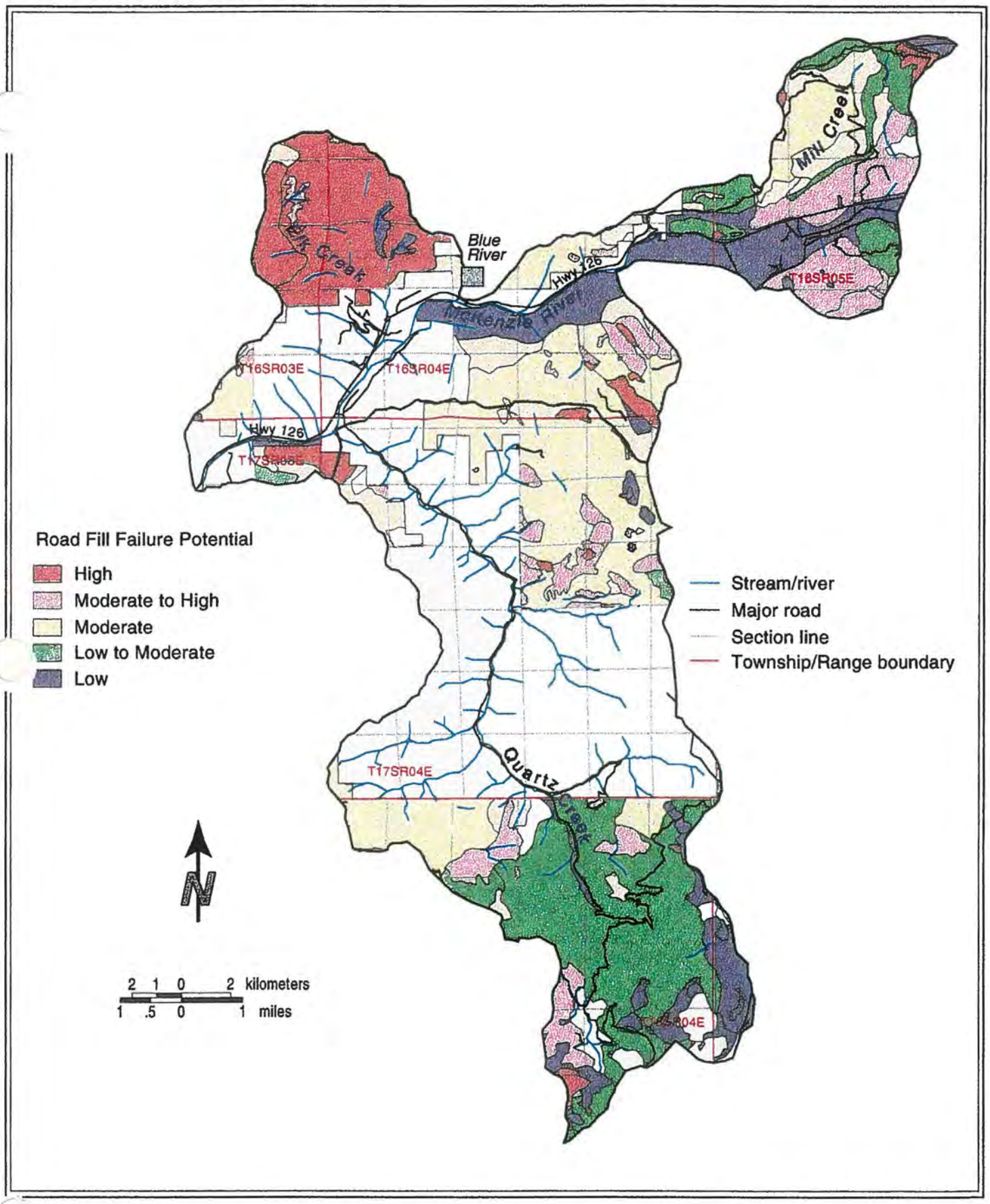
Map 7: Soil mapping units and stability ratings developed from the Soil Resource Inventory survey.



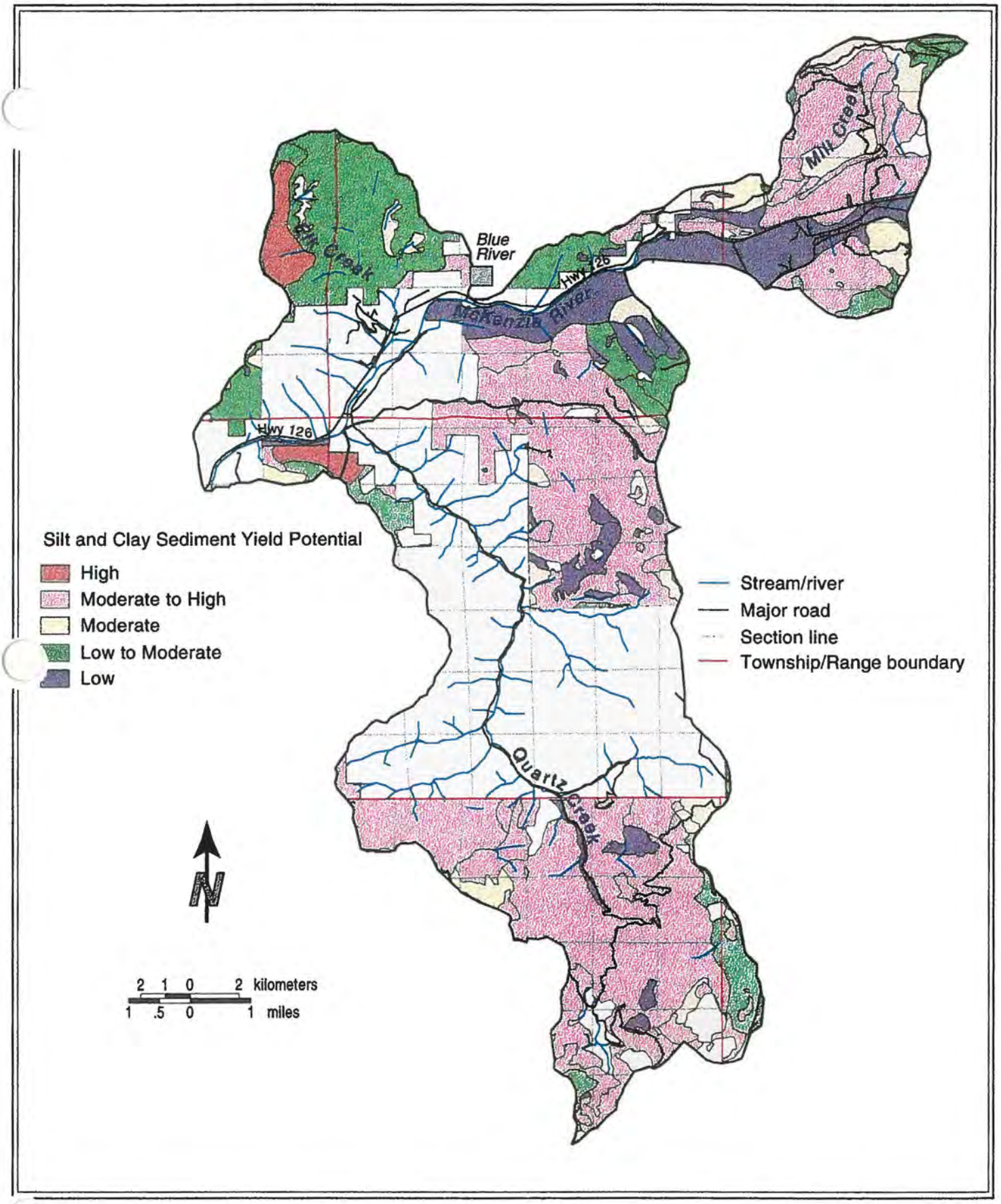
Map 8: Surface erosion potential map developed from the Soil Resource Inventory survey.



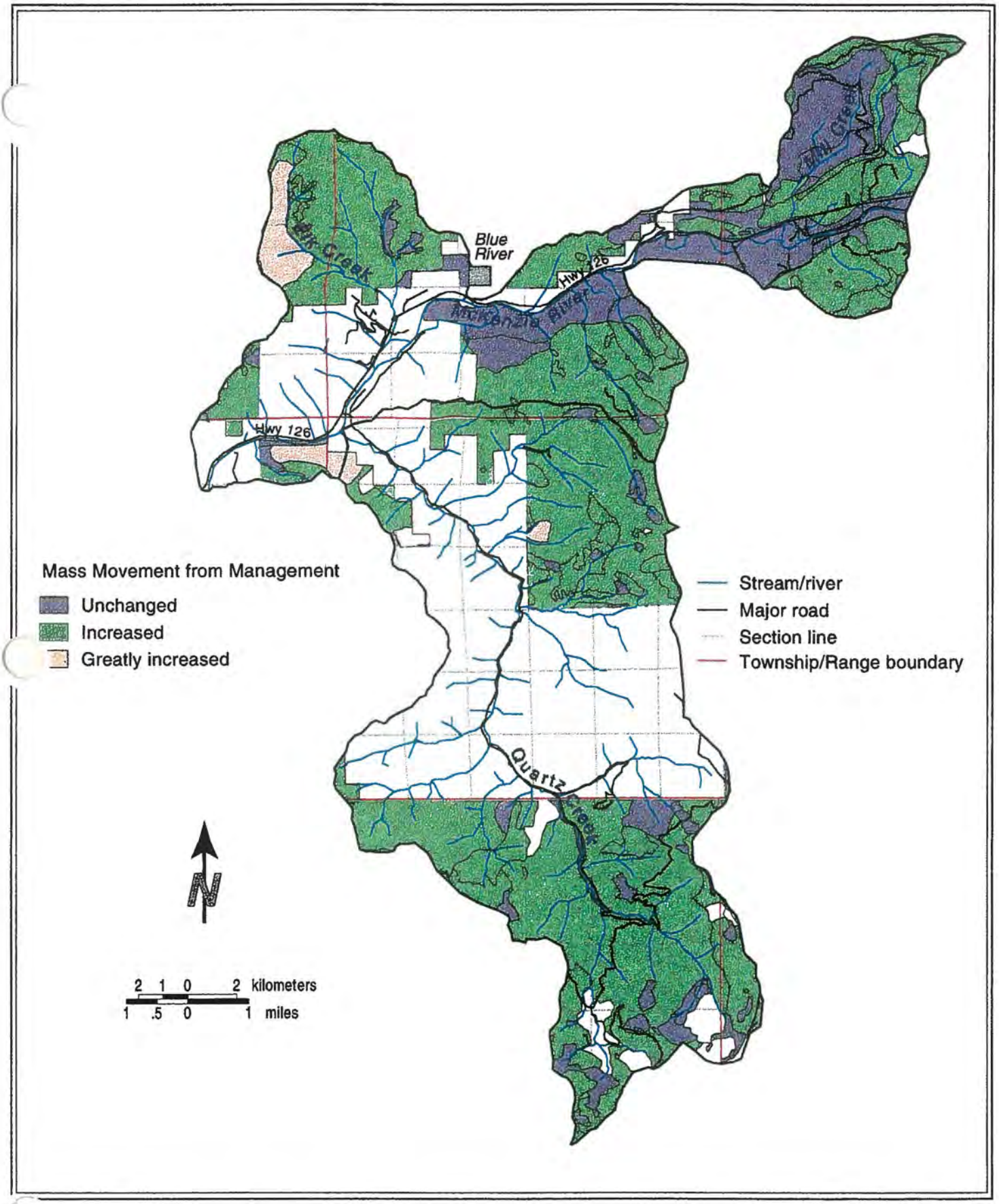
Map 9: Road network in the Quartz Creek and Minor Tributaries watersheds.



Map 10: Susceptibility of sidecast soils to mass wasting processes from the Soil Resource Inventory.



Map 11: Silt and clay sediment yield potential derived from the Soil Resource Inventory surveys.



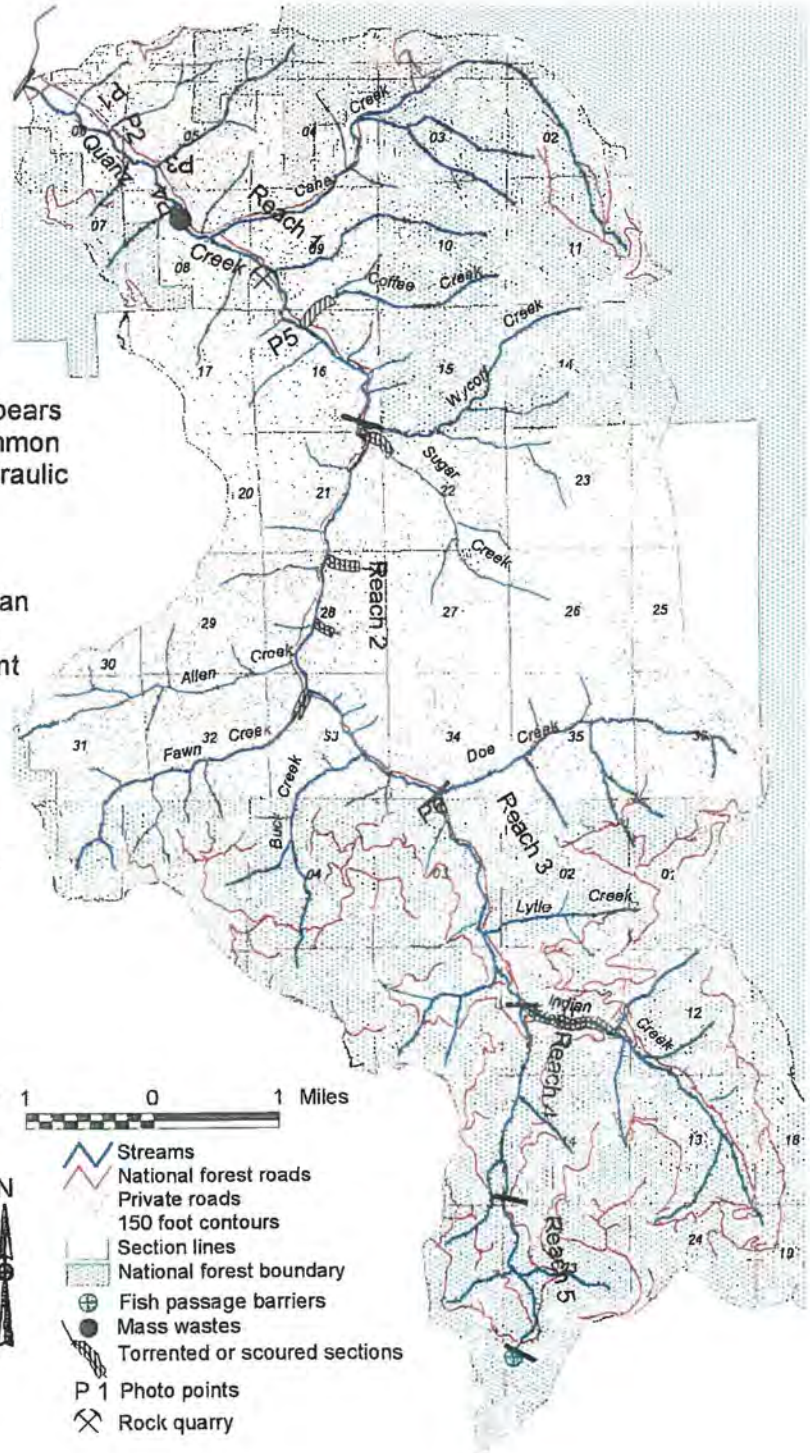
Map 12: Areas susceptible to increased landslides due to management activities.

Reaches 1 and 2:
Riparian zone is recovering well from past logging and flood events. Overstory is a mix of alder and bigleaf maple with scattered conifers. Young conifers are well-established in the understory. Cut banks are common, cobble is embedded. Other areas show signs of channel aggredation. Six tributaries show signs of torrent scour. Woody debris counts are very low--but this is to be expected for a stream this size and gradient. Fish habitat appears to be in good shape as side channels are common and pools appear to be maintained by the hydraulic scour about the large boulders.

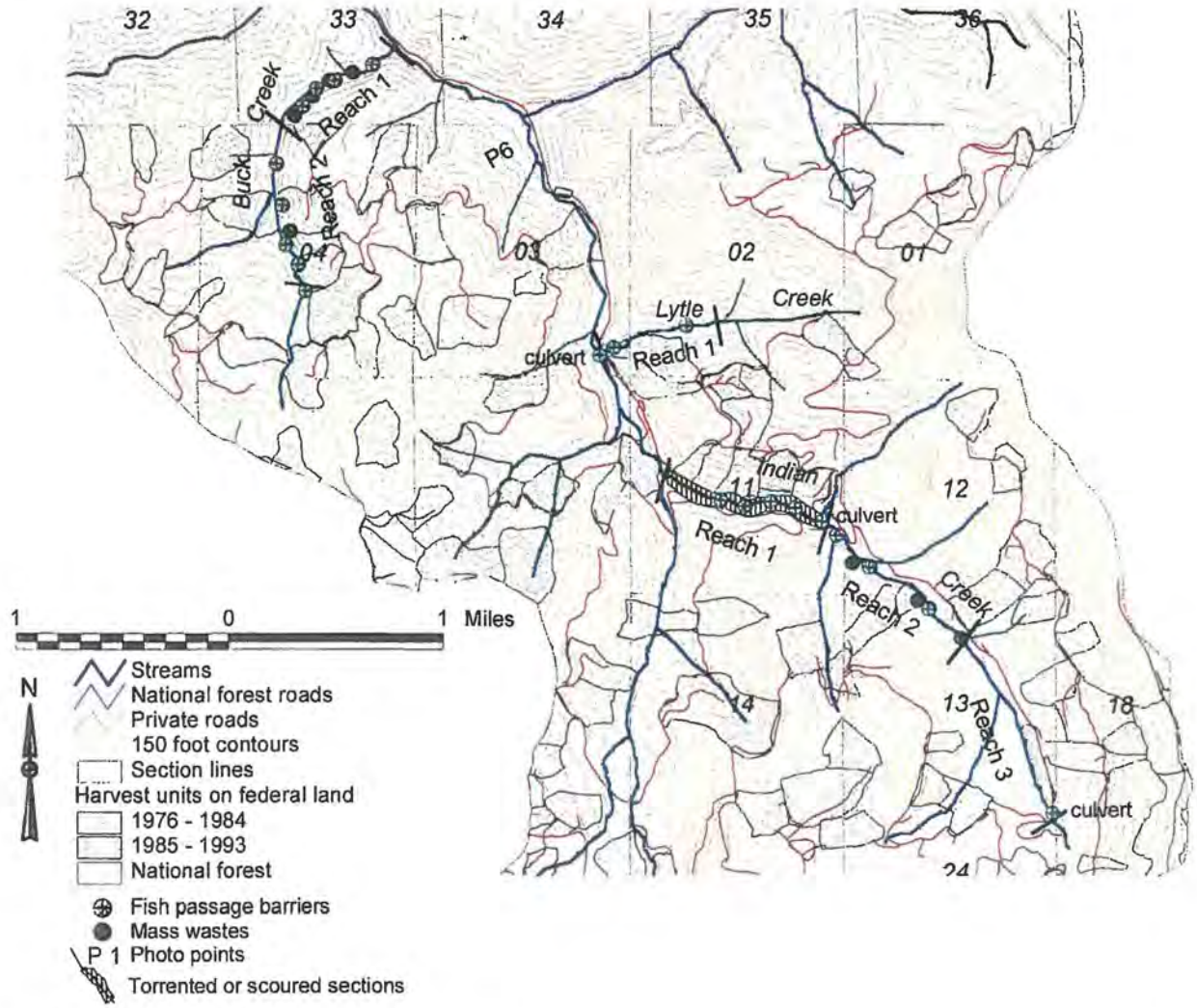
Reach 3:
Large conifers are common in the outer riparian zone. Woody debris counts are high. Bank instability is low and side channel development is still high.

Reach 4:
Large conifers are common in outer riparian zone. Falls and debris jams are common in this steep section. There is good fish habitat. There is infrequent, but deep, pools and relatively high area in side channels. Banks are stable.

Reach 5:
Good conifer development in riparian zone. Riffles are the main habitat, but pocket pools provide good fish habitat. Banks are stable. Cutthroat trout are distributed throughout the stream to the top of this reach.



Map 13: Quartz Creek 1996 stream survey summary.



Buck Creek Reaches 1 and 2:
Large conifers are absent in the riparian zone in Reach 1 but common in Reach 2. In-channel woody debris counts are very high in both reaches. The channel is entrenched into the floodplain. While banks were moderately stable, four slope failures were noted in Reach 1 and one in Reach 2. Cobble embeddedness is high. Falls and debris jams are common and nine fish passage barriers were noted. Cutthroat trout were observed throughout both reaches.

Lytle Creek Reach 1:
Large conifers are infrequent in the riparian zone and in-channel woody debris counts are also low. The channel has a steep gradient and is deeply incised. Unstable banks are moderately common. Cobble embeddedness is moderately high. Two fish passage barriers as falls over woody debris exist and the culvert at road 2816 is also a fish passage barrier. Fish habitat is provided by plunge pools over debris and boulders, side channels, and by abundant pocket pools in riffes. Cutthroat trout were observed throughout the reach.

Indian Creek Reach 1:
Two recent clearcuts exist within the riparian zone in the lower half of the reach. Otherwise, large conifers are common in the outer riparian zone. The steep banks and especially those that had been recently logged were judged to be somewhat unstable. Bank cutting was noted in 3 of 5 measured units. Much of the channel was noted to have been recently scoured to bedrock and overlain with newly deposited bedload. Cobble was slightly embedded. Five barriers to fish passage were noted. The culvert at road 1985 is a barrier, but mostly since it is located at the top of a 12-foot falls. Rainbow trout, sculpin and cutthroat trout occur in this reach.

Indian Creek Reach 2:
Large conifers exist at low numbers in the riparian zone and in-channel woody debris counts are also very low. The channel has been scoured to bedrock in most of the pools. Three mass wastes were noted and the banks were judged to be moderately unstable as a result of extensive logging along both sides. Three fish passage barriers were noted. Pools and riffles are relatively deep and provide good habitat. Cutthroat trout, Pacific giant salamanders, and a tailed frog were observed in this reach.

Indian Creek Reach 3;
Large riparian conifers comprise the entire outer riparian zone. In-channel woody debris counts are moderate. One mass waste was noted. Pools and riffles are relatively deep. The culvert at road 160 is the only barrier to fish passage. Only one cutthroat trout was sighted during the snorkling surveys.

Map 14: Indian Creek 1993, Lytle Creek 1996, and Buck Creek 1996 stream survey summaries.

Reach 6:
Large conifers absent in riparian zone. Cut banks are common and sand is abundant in the channel. No fish were observed. Pools are very shallow.

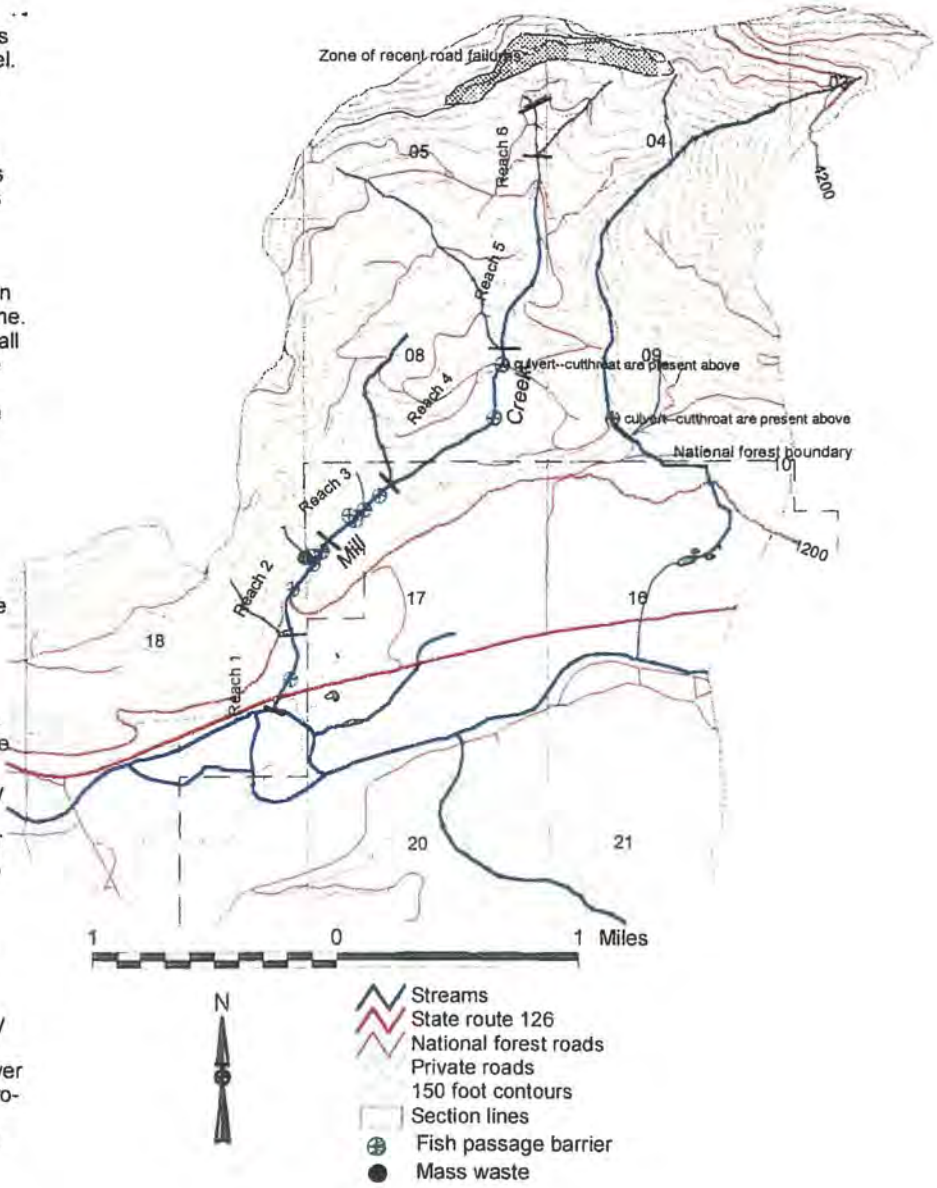
Reach 5:
Riparian vegetation is mostly deciduous shurbs. Banks show signs of recent erosion. Substrate is mostly sand and gravel. One cutthroat trout was observed in 1993 but none in 1997.

Reach 4:
Riparian vegetation is mostly deciduous shrubs in the inner zone and small conifers in the outer zone. The channel appears to be very wide and not at all entrenched. Zones of channel aggradation were noted and cobble embeddedness is high. Side channels are frequent. A debris jam at river mile 1.8 was considered a fish passage barrier. The culvert under road 720 was considered to be a velocity barrier to resident trout.

Reach 3:
Riparian vegetation is mostly alder with small conifers. The forests on this privately owned section are in recent harvests. Four fish passage barriers occur at falls over bedrock or debris between river miles 1.3 and 1.4.

Reach 2:
Large conifers are scattered in the riparian zone. Minor bank instability was noted and a small slide exists at river mile 0.9. Channel aggrading was noted at river mile 0.5. Pool area and frequency increased in the 1996 survey compared to the 1993 survey. Three fish passage barrriers occur as falls or chutes over bedrock at river miles 0.7, 0.9, and 1.0.

Reach 1:
Large conifers are fairly common in the riparian zone. Cut banks are frequent. The channel showed signs of aggradation and cobble embeddedness was relatively high. Large woody debris was reduced in 1996 compared to 1993. One passage barrier to resident trout exists at river mile 0.1. Cutthroat trout and sculpin were electro-shocked above the step falls barrier. Speckled dace were shocked below the Highway 126 road crossing.



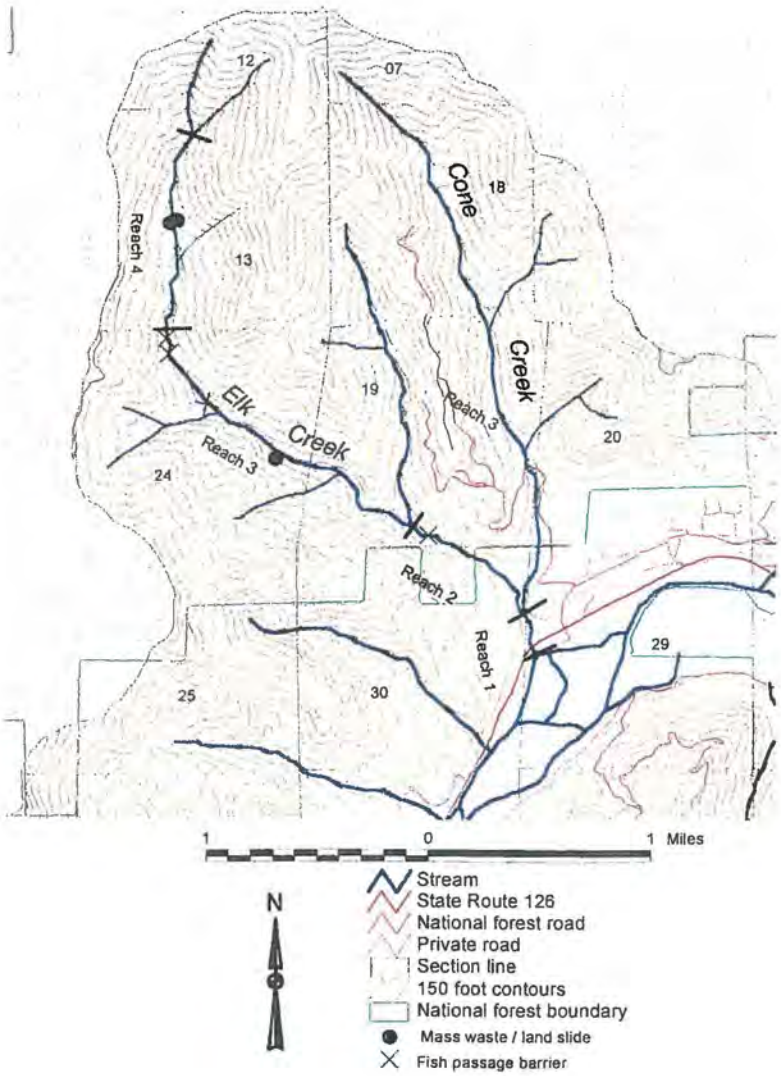
Map 15: Mill Creek 1997 stream survey summary.

Reach 4:
Few large conifers in riparian zone; basin appears to be vegetated by an even-aged stand of approx. 50 years age--indicating a stand-replacing event. Channel and slopes are unstable in places; two land slides were noted on slopes along both sides of stream at river mile 2.9. The upper extent of fish use is at a 10-foot falls in the lower portion of the reach.

Reach 3:
23 unstable banks were noted during the 1996 survey but few were noted during the 1990 survey. A large land slide exists at river mile 1.6 on the right bank and occurred sometime after 1990. Two fish passage barriers over falls exist--at river miles 2.1 and 2.3. Few pools but good pocket pool habitat.

Reach 2:
Few large conifers (i.e., > 21 " dbh) in riparian zone. Woody debris counts are low. Fish habitat was noted to be "less than ideal" and one low-flow barrier exists at river mile 0.8. A diversion structure for domestic water exists at river mile 0.4.

Reach 1:
Channel is somewhat entrenched and very large bedload deposits exist at the mouth. The low channel gradient and presence of cobbles and gravels encourage utilization by salmon and steelhead--however pools are currently too shallow. The large cobble and gravel deposits at the mouth and the side channel complex of the McKenzie create a special habitat that was a historic salmon spawning area.



Map 16: Elk Creek 1996 stream survey summary.