



ECOLOGICAL EFFECTS OF FOREST ROADS



Forest roads are the leading source of stream sedimentation, making streams wider, shallower, and more susceptible to warming by the sun. Increased sedimentation also degrades drinking water supplies for thousands of communities dependent on National Forest source water, especially in light of climate change. Failing roads also threaten recreational opportunities and negatively impact wildlife.

AQUATIC IMPACTS

- ▶ Sediment runoff from roads and trails ends up in streams and rivers, smothering fish eggs and inhibiting nest building.
- ▶ Road construction near rivers and streams is often accompanied by the creation of diversions, ditches, culverts and bridges—which can affect water flow patterns, increase sediment loads, move water from one subwatershed to another, and alter the shape of the adjacent streambed. These changes can reduce fish populations and degrade aquatic habitat.
- ▶ Compacted road beds impede water infiltration and also block subsurface water flows, thus altering the hydrology of the landscape.
- ▶ Blocked, undersized or improperly installed culverts can prevent fish from reaching spawning habitat.
- ▶ Roads constructed on highly erodible soils are prone to severe landslides. Sediments released from landslides and chronic erosion have interrupted and degraded the drinking water supplies of numerous communities.

TERRESTRIAL IMPACTS

- ▶ Hundreds of studies show that roads directly or indirectly lead to habitat loss and fragmentation, poaching, over-trapping, snag reduction, down log reduction, negative edge effects, movement barriers, displacement or avoidance, harassment or disturbance at specific use sites, and chronic negative interactions with humans.
- ▶ An excess of one mile of road per square mile of land will negatively impact many game and sensitive species, including elk, grizzly bears, lynx, and wolves.
- ▶ Roads act as pathways for the spread of non-native weeds, pests and pathogens.

INFLUENCE OF CLIMATE CHANGE

Roads reduce the resiliency and adaptability of forest ecosystems to respond to climate change.

Aquatics: Climate change will likely produce greater variability in precipitation. More rain and less snow causes earlier spring runoff with higher peak flows and lower summer stream flows. Both higher peak flows and increasingly frequent and more severe storms will intensify flooding and associated road failures.

Terrestrial: The presence of roads can lead to the avoidance of and reduction in available habitat. In addition, roads reduce wildlife connectivity, which can significantly reduce the capacity of wildlife to migrate in response to climate change.