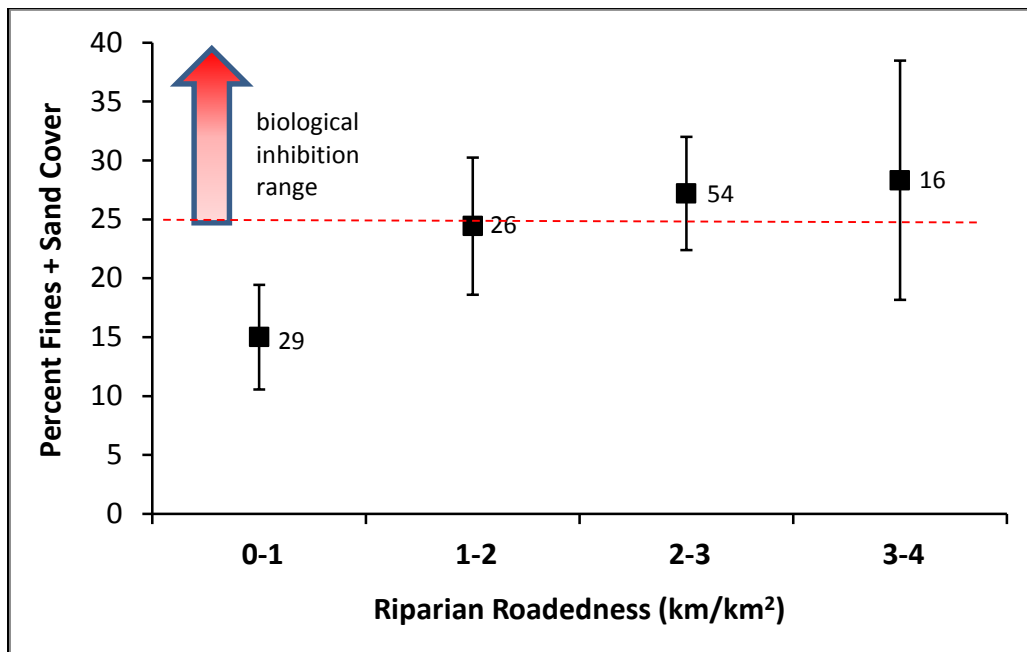
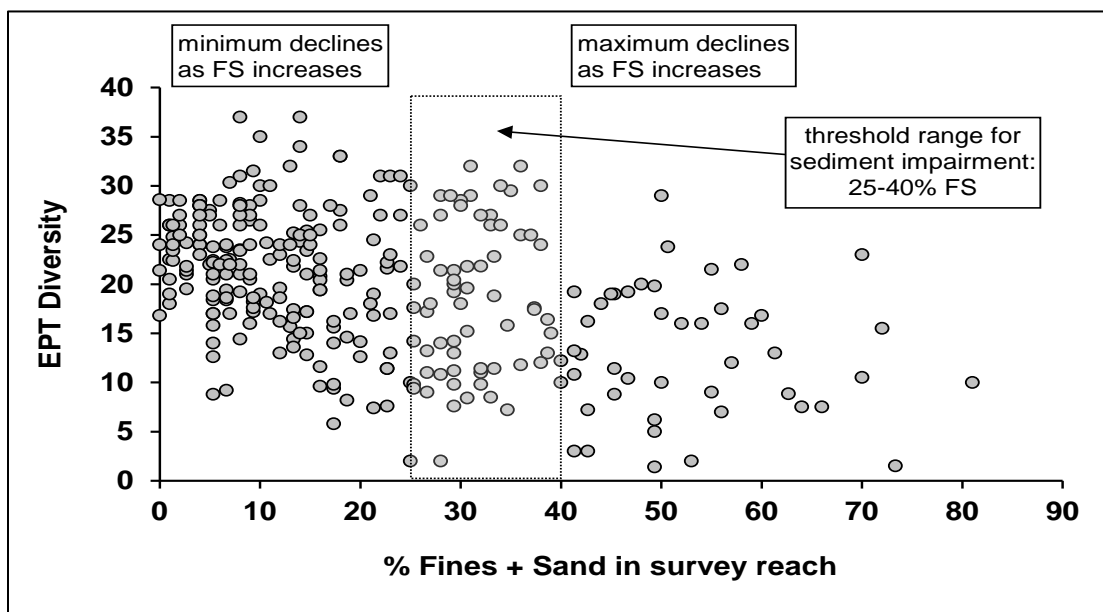


Stream Sediment Deposition in Relation to Road Density and Effects on Benthic Invertebrates

In studies of Sierra streams having riffle-pool geomorphology and <2% gradient, greater amounts of sedimentation was found in streams of low power (low gradient and/or smaller cross-sectional area) having reduced sediment transport capacity. Streams within zones having more roads also had significantly more sediment accumulation – where road densities within 100-m riparian areas exceeded 1 km/km² compared to lower riparian road density (Figure 1 below). As road density in the upstream riparian corridor increases, so does the amount of deposited sediment, but those streams that are most affected by this land disturbance are reaches with low power. A broad survey of Sierra streams found that with increased fine and sand deposits, there was declining diversity of sensitive mayfly-stonefly-caddisfly (EPTs) taxa. Loss of EPT shows sediment degrades ecological integrity of streams. It appears that the threshold for this effect is in the range of 25-40% FS. More than half of streams with riparian roadedness above 2 km/km² have greater than 25% FS cover, so these streams are at increased risk of biological degradation. Shows need for road sediment management.



Density of riparian roads increases the percent cover of fines and sand (mean, 95%CI, n)



Sensitive EPT benthic invertebrates are reduced by increasing FS cover