



Preliminary assessment of soil erosion impact during forest restoration process

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Taiwan has a fragile geology and steep terrain. The 921 earthquake, Typhoon Toraji, Typhoon Morakot, and the exploitation and use of the woodland by local residents have severely damaged the landscape and posed more severe challenges to the montane ecosystem. A land conservation project has been implemented by the Experimental Forest of National Taiwan University which reclaimed approximately 1,500 hectares of leased woodland from 2008 to 2010, primarily used to grow bamboo, tea trees, betel nut, fruit, and vegetable and about 1,298 hectares have been reforested. The process of forest restoration involves clear cutting, soil preparation and a six-year weeding and tending period which may affect the amount of soil erosion dramatically. This study tried to assess the impact of forest restoration from the perspective of soil erosion through leased-land recovery periods and would like to benefit the practical implementation of reforestation in the future.

A new plantation reforested in the early 2013 and a nearby 29-year-old mature forest were chosen as experimental and comparison sites. A self-designed weir was set up in a small watershed of each site for the runoff and sediment yield observation. According to the observed results from May to August 2013, a raining season in Taiwan, the runoff and erosion would not as high as we expected, because the in-situ soil texture of both sites is sandy loam to sandy with high percentage of coarse fragment which increased the infiltration. There were around 200 kg to 250 kg of wet sand/soil yielded in mature forest during the hit of Typhoon Soulik while the rest of the time only suspended material be yielded at both sites. To further investigate the influence of the six-year weeding and tending period, long term observations are needed for a more completed assessment of soil erosion impact.