林床からの 137Cs 流出の起きやすさを知るため，福島県内の林床被覆状況が異なる四つの林分を対象に，斜度 37～39°の斜面に 3 ㎡の試験プロットを設け，2013 年 5 月から 10 月の 145 日間，表面流出水に含まれる懸濁態および溶存態 137Cs を観測した。137Cs は最大でも土壌蓄積量の 1.1%しか移動しなかったが，その移動量はプロット間で最大 10 倍異なり，ヒノキ林で最も多く，次いで落葉広葉樹林，アカマツ林，スギ林となった。移動した 137Cs の 96% 以上が懸濁態であり，土壌侵食量は下層植生や有機物層に乏しいプロットで多かったことから，林床被覆量が 137Cs 移動量に強く影響したと推察された。表面流出水と近傍の渓流水中の懸濁物質の双方において，137Cs 濃度と有機物量の間に正の相関が確認された。これにより，渓流水中の 137Cs の一部が林床起源であること，その林床起源の 137Cs は主に有機物層に由来していたことが示唆された。ヒノキ林は林床被覆に乏しい傾向にあるが，福島県には少ないため，最も広く分布する広葉樹林の林床被覆状況が森林からの 137Cs 流出に大きく影響すると考えられた。

To examine the degree of 137Cs wash-off from forest floor, we monitored the amount of particulate and dissolved 137Cs in surface runoff water from three ㎡ of experimental plots installed on slopes of 37-39°in four forests with different floor covering in Fukushima Prefecture. Plots were monitored for 145days from May to October,2013. A maximum of 1.1%of the 137Cs inventory in soil was washed off, with the amounts differing by up to 10-fold between the plots. The largest amount was observed in Japanese cypress forest, followed by deciduous broadleaf forest, Japanese redpine forest and Japanese cedar forest. Most (more than 96%)of the 137Cs washed off was associated with particles. The amount of soilloss was relatively large in forests with little understory and/or organic horizon, suggesting that the forest floor covering strongly affected 137Cs wash-off. In both suspended solids in surface runoff water and stream water, the activity concentration of 137Cs correlated positively with the organic matter amount, suggesting that some of the 137Cs in stream came from forest floor and that the organic horizon was animportant source of the 137Cs. Japanese cypress forest is prone to poor floor covering but covers a small area of Fukushima Prefecture,suggesting that the broadleaf forest floor covering, which is most widely distributed in the area, greatly influences the 137Cs wash-off from the forest.