

**Carbon flux of down woody materials in forests of the Eastern United States.** Woodall, C. (USDA Forest Service, USA; [cwoodall@fs.fed.us](mailto:cwoodall@fs.fed.us)).

Across large-scales, the carbon (C) flux of down woody material (DWM) detrital pools has largely been simulated based on forest stand attributes (e.g., stand age and forest type). The annual change in forest DWM C stocks and other attributes (e.g., size changes) was assessed using a forest inventory in the eastern United States to provide an empirical assessment of strategic-scale DWM C flux. Using DWM inventory data from the USDA Forest Service's Forest Inventory and Analysis program, DWM C stocks were found to be relatively static across the study region but with differences among size classes serving as an indicator of potential climate change effects. Given the complex dynamics of DWM C flux, early implementation of inventory re-measurement, and relatively low sample size, numerous future research directions are suggested.

**Impacts of increasingly intensive removal of forest biomass on the biodiversity of leaf litter invertebrates.** Work, T. (Université de Québec à Montréal (UQAM), Canada; [work.timothy@uqam.ca](mailto:work.timothy@uqam.ca)).

Removal of forest biomass has been advocated as a renewable source of bioenergy and a mitigation strategy against climate change. Ironically, in the short term, intensive harvest of forest biomass including coarse and fine woody debris as well as stumps is likely to have significant impacts on biodiversity. We compared leaf litter invertebrates collected among jack pine stands which were: (1) stem-only harvested; (2) whole tree harvested (WTH); (3) WTH with additional removal of stumps; (4) WTH with stump removal and additional blading of organic material; and (5) uncut control stands. We identified more than 250 species (>35 000 individual arthropods) of ground beetles, rove beetles, and spiders. Stem-only harvesting and WTH and stump removal plots harbored greater total abundance than bladed sites, and assemblage composition varied as a function of intensity of biomass removal.

**Changes in dimensions and zones occupied by native species of the southern rain forest in Brazil due to global climate change.** Wrege, M., Sousa, V., Fritzsons, E., Soares, M.T.S., Aguiar, A. (EMBRAPA, Brazil; [marcos.wrege@embrapa.br](mailto:marcos.wrege@embrapa.br); [valderes.sousa@embrapa.br](mailto:valderes.sousa@embrapa.br); [elenice.fritzsons@embrapa.br](mailto:elenice.fritzsons@embrapa.br); [marcia.toffani@embrapa.br](mailto:marcia.toffani@embrapa.br); [ananda.aguiar@embrapa.br](mailto:ananda.aguiar@embrapa.br)).

The Araucaria Forest is located in southern region of Brazil and belongs to the Atlantic Forest biome. It is considered a hotspot of biodiversity and the zone has been given a high priority for conservation actions because this area has suffered rapid devastation. It has been continually exploited to give way to areas currently occupied by intensive agriculture of annual crops. These crops reap much of a grain harvest in the country but less than 6% of its original forest cover remains. These remnants are very small and fragmented, and less than 8% are larger than 100 hectares. In this work, studies were conducted to verify changes of dimensions and locations in the niches of the main species of this forest. This includes *Araucaria angustifolia*, *Mimosa scabrella*, and *Illex paraguayensis*, using ecological niche modeling, verifying the changes in their dimensions and displacements, consistent with the future projections made by IPCC. We observed a reduction of spaces occupied by Araucaria Forest and its shift to higher altitude areas where climate change will have a smaller effect, showing the populations vulnerability of forest species in this vegetation type. It is also adversely affected. This study's findings indicated populations were significantly fragmented and their numbers were reduced due to strong anthropic pressure on the main agricultural regions of the country.

**Tree species, decay class, ecosite classification, and dead wood decomposition rates in the mixedwood boreal forest of Canada.** Wu, L., Bergeron, C., Lee, S., Spence, J. (University of Alberta, Canada; [linhao1@ualberta.ca](mailto:linhao1@ualberta.ca); [cb1@ualberta.ca](mailto:cb1@ualberta.ca); [seungill@ualberta.ca](mailto:seungill@ualberta.ca); [jspence@ualberta.ca](mailto:jspence@ualberta.ca)).

Dead wood is an important component of forest ecosystems, contributing to carbon storage and forest biodiversity. This research examines the effects of tree species, decay class, and ecosite classification on dead wood decomposition rates in the boreal forest of northern Alberta (Canada). Discs were cut from white spruce, trembling aspen, and balsam poplar trees felled live in different ecosites in 2002, and these same trees were resampled as dead wood in 2013. Differences in biomass per unit volume were taken to represent decomposition rate, and these differences were related to tree species and ecosite. Five decay classes have generally been used to describe the extent of decay and are thought to be strongly correlated with dead wood density. However we found a large variation in wood density within decay classes and within single pieces of coarse woody debris. Differences in decomposition rates were also observed among ecosites and in relation to canopy closure, shrub cover, and extent of contact with the ground. This study revealed that several factors influence the decomposition rate of dead wood and, thus, such variation is important for understanding carbon budgets in boreal forest.

**Community characteristics and species diversity of *Castanopsis fargesii* community in Three Gorges Reservoir area in China.** Xiao, W., Xiao, W. (Chinese Academy of Forestry, China; [chengrm@yeah.net](mailto:chengrm@yeah.net); [xiaowenf@caf.ac.cn](mailto:xiaowenf@caf.ac.cn)).

Three Gorges Reservoir area is located in the sub-tropical moist region of China. The total area is about 54 000 km<sup>2</sup>, and evergreen broadleaf forest is the zonal vegetation type. *Castanopsis fargesii* forest is one of main vegetation types. The research on the community structure and species diversity of *Castanopsis fargesii* forest will have a long-term meaning for the biodiversity conservation in the area and the regional economic development. According to the data from 18 plots, the forest was divided into three community types. The vertical structure of all community types is obvious, it could be divided into tree layer, shrub layer, and herb layer. The trend of species richness index, diversity index of different layers in all community types is shrub layer>tree layer>herb layer. Due to the strong disturbance of human activities, the trend of these indices along the altitude gradient is not obvious. At the same time, environment pollution should not be overlooked. For example, acid rain has been found in this area and affected the forest.

**Short-term impact of whole tree harvest at thinning on cation dynamics in a Japanese cedar forest ecosystem.** Yamada, T., Hirai, K. (Forestry and Forest Products Research Institute, Japan; [yamadan@ffpri.affrc.go.jp](mailto:yamadan@ffpri.affrc.go.jp); [hirai@ffpri.affrc.go.jp](mailto:hirai@ffpri.affrc.go.jp)), Takenaka, C. (Nagoya University, Japan; [chisato@agr.nagoya-u.ac.jp](mailto:chisato@agr.nagoya-u.ac.jp)), Nishizono, T., Amano, T., Kodani, E., Shibata, M., Yagihashi, T. (Forestry and Forest Products Research Institute, Japan; [nishizo@ffpri.affrc.go.jp](mailto:nishizo@ffpri.affrc.go.jp); [chisho@ffpri.affrc.go.jp](mailto:chisho@ffpri.affrc.go.jp); [kodani@ffpri.affrc.go.jp](mailto:kodani@ffpri.affrc.go.jp); [shibarin@ffpri.affrc.go.jp](mailto:shibarin@ffpri.affrc.go.jp); [yagihashi@ffpri.affrc.go.jp](mailto:yagihashi@ffpri.affrc.go.jp)).