culturally rich and ecologically diverse. Forest cover and its interface with other ecosystems provide inestimable transboundary ecosystem goods and services vitally important for lives and livelihoods of millions of people. Assessment of existing forest management systems show that burgeoning basic human needs of food, water and energy are not matched by sustainable forest management practices. Forests have been degraded as a result of over-harvesting, forest fires, heavy ungulate browsing or livestock grazing. Regional climate models combined with community science findings show that forests will be affected by climate change in future. The reactive and exclusionary forest protection policies, and enormous deficits in relevant information, innovative practices, stewardship and funding essential for judicious management to secure and sustain the host of environmental services whilst forest ecosystems adapt to climate change are a major constraint. The research suggests proactive forest management as the key to transform current stagnant forest sector to more adaptive and vibrant one for positive conservation and development outcomes.

**Site conditions of Grey mangrove (Avicennia Marina) at Nayband National Marine Park**. Kouhgardi, E., Akbarzadeh, M. (*Islamic Azad University, Iran; kouhgardi@yahoo.com; mehrdad.ak@gmail.com*).

In order to determine the relation among physiochemical parameters of water and soil as well as heavy metals of sediments and vegetative characteristics, samples of water and sediments were collected at the fifteen stations, with three repetitions in Nayband Mangrove Forest south of Iran. The results revealed that vegetation in most zones enjoys desirable conditions in view of qualitative parameters, and physiological weakness has only been observed at stations 6 and 7. Relying on results obtained, positive correlations only existed between average diameter and pH of water. Also, there was a negative significant correlation between pH of water and qualitative characteristics of trees ($P<0.05$). There was no significant correlation between amount of mercury and chrome and stand quality. Amount of nickel had a negative significant correlation with average height and average diameter of trees as well as vanadium and lead with all characteristics of Grey Mangrove ($p<0.05$). On a whole, quantity of lime on sediments, pH of water, completeness of tide, and quantity of vanadium and lead has an effective role on growth and quality of the stand that is a unique habitat for aquatic animals and landscape planning as well as coastal protection.

**The species diversity of the steppes and the Sahara desert: central and southern Tunisia**. Kwak, M., Woo, S. (*University of Seoul, Republic of Korea; 016na8349@hanmail.net; wsy@uos.ac.kr*), Khaldi, A., El Khorchani, A., Stiti, B. (*National Research Institute Of Rural Engineering, Water And Forests* (INRGREF), *Tunisia; khalditn@yahoo.fr; ali_el_khorchani@yahoo.fr; stiti_b@yahoo.fr*), Je, S., Lee, E., Yu, H., Jin, H., Kwon, Y.

One of the major environmental problems throughout Northern Africa is desertification of arid lands, specifically in Southern Tunisia (i.e., the semi-desert region of the northern Sahel Zone and the desertification of the northern margin of the Sahara Desert, in which desertification has occurred during the past few decades). Tunisia represents three different climatic zones forming a broad zone composed of a mixture of varied topography. Around 40% of the country is composed of the Sahara desert. Because of the geographic location, the northern part of Tunisia is influenced by the Mediterranean Sea climate. Sahara in southern Tunisia is desert due to the limited rainfall. Interestingly, central Tunisia is influenced by the combination of both. The vegetation of the steppes of central Tunisia and the Sahara desert of southern Tunisia is strongly dominated by chamaephytes (dwarf-shrubs) and therophytes (annual plants) such as *Acacia tortilis*, *Stipa tenacissima, Zygophyllum album, Artemisia campestris*, *Plantago albicans*, *Lygeum spartum*, *Artemisia herba-alba*, *Polygonum equisetiforme*, *Ruta chalepensis*, *Thymelaea hirsuta*, *Retama retam*, *Deverra scoparia*, *Scilla villosa*, *Anacyclus monanthos*, *Echium pycnanthum*, *Oudneya africana*, *Paronychia arabica*, *Euphorbia guyoniana*, *Astragalus armatus*, *Astragalus gombo*, *Aristida pungens*, *Lygeum spartum*, and *Rhus tripartita.*

**Influence of forest management strategies and environmental conditions on epigeic arthropod biodiversity**. La Rocca, C., Spence, J., He, F. (*University of Alberta, Canada; larocca@ualberta.ca; jspence@ualberta.ca; fhe@ualberta.ca*).

The relationship between biodiversity and ecosystem productivity is of great interest to foresters. Previous studies demonstrated a positive correlation between the increase of overall stored carbon in the system and biodiversity, a fundamental component for the assessment of better forest management strategies. However, evidence shows that this relationship is strongly influenced by environmental characteristics (temperature, moisture, ground cover,) more than from single Carbon indicators (DBH, coarse wood material). To test this hypothesis, we will use pitfall traps to collect epigeic arthropods (ground and rove beetles, spiders) and a series of environmental variables (DBH, coarse woody debris volume, ground cover, temperature, canopy cover, time since last disturbance) from sites in the boreal transition zone of central Alberta (Canada), selected on the basis of their age (time after harvesting) and retention strategies applied (percentage of trees retained during harvesting).Using ordination analyses and geo-statistical approaches, the goal of this study is to determine which factor has greater influence on species richness and relative abundance of litter and soil arthropods, to assess which forest management strategy (i.e., different retention level or time after the harvesting) is preferred.

**Forest succession stagnation in southern Brazil forests – the role of bamboos**. Lacerda, A., (EMBRAPA*, Brazil; andre.biscaia@embrapa.br),* Kellermann, B. (*Brazilian National Council for Scientific and Technological Development (CNPq), Brazil; kdbetina@hotmail.com*).

In this paper, we explore the relationship between bamboos and forest stagnation. After the 30-year die-off cycle of bamboo, other species begin to establish but are quickly overcome by bamboos as they recreate pure stands. In this context, long-term forest monitoring allows us to explore the role of bamboo in forest dynamics. As such, we monitored in EMBRAPA's Caçador Research Station (Santa Catarina, Brazil) 2 208 trees in 20 plots (15 m × 15 m) from two forest subtypes in 2007, 2010, and 2012: *Pristine* (few bamboos) and *bamboo* (dense bamboo populations, mainly *Merostachys skvortzovii*). The diversity of pristine forests fluctuates at around 60 species, whereas bamboo forests show three times fewer species and fewer individuals, with a slight declining trend. On the other hand, dominance ($m^3$/ha) in Pristine forests is increasing (82 to 87) but has stagnated at much lower levels (16) in bamboo forests. The results confirm that after bamboo die-off, a large number of individuals of many species regenerate, but only a few succeed and grow into adults because of quick bamboo re-establishment. This stagnates succession in (species-poor) early succession forests. Because of its widespread distribution in southern Brazil, bamboo management should be integrated into forest conservation practices.