

**[1915] EFFECTS OF NON-NATIVE SPRUCE PLANTATION ON CARABID BEETLES**

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The impacts of non-native spruce plantation on carabid beetles were studied in the Bükk National Park in Hungary, Central Europe. Pitfall catches from recently established (5 years old), young (15 years after planting), middle-aged (30 years after planting), old spruce plantation (50 years after planting), and from a native submontane beech forest as a control stand were compared. Indicator species analysis (IndVal approach) shows that deciduous forest species decreased significantly in abundance in the plantations, and they appeared in high abundance only in the native beech forest. Furthermore, species characteristic of open habitat increased remarkably in abundance in the recently established plantation. Carabids were significantly more abundant and more species rich in the native forest than in the plantations, while these parameters were not significantly different among the plantations. Multiple regression between the abundance and species richness of carabids and twelve environmental measurements shows that pH of the soil, cover of the herbs and density of the carabids' prey have a significant effect in determining abundance and species richness. Our results proved that plantation of non-native spruce species has detrimental effect on the composition of carabid communities and no regeneration can be observed during the growth of plantations even 50 years after the establishment. It emphasises the importance of an active nature management practice to facilitate the recolonization of the native species.

Index terms: carabid beetles, spruce plantation, species richness, indicator species, nature management.

**[1917] WOOD LOSS IN EUCALYPTUS PLANTATIONS BY COPTOTERMES SP. (ISOPTERA: RHINOTERMITIDAE) IN GOIÁS-BRAZIL**

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Eucalyptus is the main forest species grown in Brazil with a planted area around five millions hectares. Trees attacked by termites at harvest are very common to be found however; economic losses due to termites have not been determined. This study was conducted in a eucalyptus plantation belonging to CODEMIN S/A, at Niquelândia, Goiás. The species of termites in association with eucalyptus were collected and identified. Index of plants attacked and the volume of wood per tree also was estimated. The estimates of the volume of wood lost by termite infestation were obtained from 10 trees in six sample dates: 16/04/97, 21/08/97, 28/11/97, 13/03/98, 03/09/98, and 27/11/98. The index of plants attacked by termites was determined in areas harvested in 1997, 1998 and 1999. In each patch, the evaluations of the number of trunks attacked were made about 60 days after cutting in one complete row and in each 20 rows. The main species of termites observed associate to eucalyptus trees *Coptotermes* sp., *Nasutitermes* sp., *Labiatermes* sp., *Heterotermes* sp., *Cornitermes* sp. The genus *Coptotermes* was frequent found attacking central part of the trunk being the main responsible for this type of injury. The percentage of volume of wood loss by termite attack was variable among sampling dates. The highest loss was observed for Eucalyptus of species *E. citriodora* and the lowest for *E. urophylla* with mean of 1,36%. The incidence of trunks attacked was low, ranging from 0.65 to 14.40% and a mean of 6,81%. These results allowed to conclude that mean of losses in volume of wood/ha due to attack of termites were very low and were below 0.1% in all patches evaluated.

Index terms: termites, eucalyptus, wood loss

**[1916] NATURAL RESISTANCE OF TEN CUBAN FOREST SPECIES AGAINST TERMITE ATTACK**

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Wood samples of sapwood and hardwood of ten Cuban forest species were selected to study its natural resistance against *Cryptotermes brevis* (Isoptera: Kalotermitidae). Assays of alimentary selectivity and compulsory alimentation in laboratory conditions during 60 days were conducted. Species included in this work are: *Cinnamomum parviflorum* (White sweet potato); *Laurocerasus occidentalis* (Male Cuajani); *Swietenia mahagoni* (Cuban mahagoni); *Sapium jamaicensis* (Piniche); *Colubrina arborescens* (Guaguasi); *Pithecellobium arboreum* (Sabicu moruno); *Quercus cubana* (Oak); *Pithecellobium obovale* (Encinillo) and *Zanthoxylum elephantiasis* (Bayúa). The weight loss records were analyzed by the Newman-Keuls Test applied to a significance level of 5%. Results allow classifying the relative resistance of the sampled species that relating them with data from field studies will give a complete information of the resistance of these woods to termite attack.

Index terms: *Cryptotermes brevis*, durability, Cuban woods.

**[1918] SCOLYTIDAE TRAPPINGS IN YOUNG LOBLOLLY PINE (*PINUS TAEDA*) STANDS**

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Tropical (*Pinus oocarpa* and *Pinus caribaea*) and subtropical (*Pinus taeda*) pines comprise ca. 35% of the total reforested area in Brazil. Native Scolytidae beetles, the great majority of them originally found on hardwoods, are quickly adapting to these exotic pines. These insects are among the most important pests in temperate forests throughout the world, and they are quickly becoming important in Brazil, where they are growing in abundance and diversity. The results presented here originated from an experiment originally designed to monitor Scolytidae populations from implantation until harvest of a stand of pines, and to correlate/predict them through a time series analysis which includes factors as various as thinning, stand age, temperature, rainfall, humidity, delimbing, and stand density among others. The trap used was a vane flight intercept trap type baited with 95% ethanol, released at a rate of ca. 0.52 g/d at 21°C, and deployed in a *Pinus taeda* and *P. taeda* x *P. elliotii* hybrid stands, owned by Klabin do Paraná Papéis, and located in Telêmaco Borba, Paraná state, Brazil. The site (originally *P. taeda*) was harvested in November 1997 and planted in March 1998; stumps and abundant slash were present. Areas surrounding the experimental site were composed of woods (native vegetation), young loblolly pine and old loblolly pine (ranging from 13 to 22 yr old). Traps were placed in a 5 x 5 grid, spaced 100 m apart, on 11 June 1997, and beetles trapped were collected every 7 d. After 82 wk, in total 331,930 scolytid specimens (47 species) were trapped, the majority of them ambrosia beetles. The most abundant species were *Xyleborus ferrugineus* (90.8% specimens), *Hypothenemus eruditus* (8%), *Xyleborinus lineicollis* (0.7%) and *Hypothenemus obscurus* (0.3%). Results indicate that *X. ferrugineus* is developing in stumps and slash of larger diameter, while the remaining 3 species were developing in smaller diameter slash. "Border" traps (traps at the outer margin of the grid of 25 traps) caught significantly more specimens than "inner" traps for *X. ferrugineus* and *H. eruditus*, maybe due to a combination of competition among traps (border traps compete less with other traps than inner traps) and immigration of scolytids from nearby stands (there is a greater chance of those incoming beetles to meet a border trap than an inner trap). Traps closer to older stands (woods and old pine) caught significantly more individuals of the 4 species mentioned above than in traps closer to young loblolly pines.

Index terms: ambrosia beetles, trap competition, scolytid migration, *Xyleborus ferrugineus*, *Pinus taeda*.