

Entomological Research in Mediterranean Forest Ecosystems

By François Lieutier, Coordinator of IUFRO 7.03.14; University of Orleans, France, and Mustafa Avci, Chair of the Local Organizing Committee, Suleyman Demirel University, Isparta, Turkey

IUFRO Working Party 7.03.14 MEDINSECT (*Entomological Research in Mediterranean Forest Ecosystems*) gathers scientists from different countries concerned with entomological problems in Mediterranean forest ecosystems. It meets periodically and held its fourth symposium on 9 to 14 April 2014 in Antalya, Turkey, (<http://iufro.sdu.edu.tr/>) together with IUFRO Working Parties 7.03.01 (*Cone and Seed Insects*), and 7.03.06 (*Integrated Management in Forest Defoliating Insects*), which mainly focus on long-term trends in forest insect populations. The meeting followed the 2nd Symposium of Forest Entomology and Pathology in Turkey, organized by Bartın University on April 7-9, 2014 with the support of General Directorate of Forestry: <http://enfito.bartın.edu.tr/en/index.html>.

The conference had a strong focus on Turkish research topics reflecting the fact that the particular geographic position and the geological history of Turkey has led to a high diversity of forest insects and a high diversity of tree-insect relationships at various scales. This diversity of species and relationships means numerous possibilities for forest entomological research, which should be exploited in the future through increased cooperation between Turkey and other Mediterranean countries. A total of 105 presentations were given, 21 of which resulted from 15 bilateral cooperative initiatives involving at least one Mediterranean country. This very positive result can largely be ascribed to the efforts of MEDINSECT and represents a promising way to improve the scientific quality of research in the area, including the education of young researchers.

The five main sessions dealt with the following themes:

Population genetics and insect biodiversity

Population genetics can be a powerful tool, as was clearly demonstrated through several presentations on the pine processionary moth (PPM) complex species and its parasitoids, as well as on *Platypus cylindrus* and the Turkish oak gall wasps. The power of this tool can be significantly increased at the landscape level. Several presentations looked at insect biodiversity in various ecosystems, especially oak and cedar forests. The possibility of using this faunal diversity as an indicator of ecosystem richness was discussed.

Emerging and exotic pests

Two main aspects were dealt with in this context. On the one hand, the focus was on the natural history, tree-insect relationships, and biocontrol of pests of the exotic host *Eucalyptus*. In addition, tree defense mechanisms and the possibility for the aggressors to modify host physiology were explored. On the other hand, presentations dealt with alien pests that have adapted to indigenous trees.

Insect biology and relation with host trees and other organisms

Tree/insect relationships were presented at different scales and under various modalities. The scale of the evolution was



Photo provided by François Lieutier: Discussion on a pine processionary spot during the field visit.

considered through complex interactions involving interspecific competition between insects, and association with bacteria conditioning the type of insect reproduction (*Megastigmus*). The effect of tree morphological parameters on insect infestation was also considered (*Megastigmus* on Douglas fir, longhorn beetles on Acacias), as was the role of tree defense mechanisms (spruce budworm).

Population dynamics and invasion processes

The introductory presentation offered novel insight into the causes of spatial synchrony of population cycles in relation to climate. This spatial approach was completed by a temporal approach aiming at understanding the strategies developed by seed insects, in relation to interspecific competition, to adapt to their highly variable resource. Prediction aspects related to insect spatial dynamics were also considered through modelling of PPM extension in Turkey under scenarios of climate change, and through analyses of the distribution of the vector of the PWN in Tunisia.

Forest decline, insect survey and control, and forestry practices

Silvicultural aspects related to oak decline in Turkey. Surveys concerned the search of new Cedar pests in Turkey and Morocco, and the analysis of PPM egg masses in Algeria. Regarding insect control, the effectiveness of pheromone traps against *Coroebus undatus* was assayed in Portugal. Also, the possibility of using insecticides against *L. dispar* in Algeria was investigated.

The joining of the three IUFRO groups was appreciated by all participants and it was decided to repeat such a joint meeting in two years at a place still to be decided. The proceedings of the meeting will be published in a special issue of the Journal of the Suleyman Demirel University, Isparta. The book of abstracts is available for download from the meeting website: <http://iufro.sdu.edu.tr/>