Impacts of variation in resource quality for larvae of the European woodwasp (*Sirex noctilio*) in South African *Pinus patula* plantations. Garnas, J., Termer, K., Hurley, B. (*FABI-University of Pretoria, South Africa; jeff.garnas@fabi.up.ac.za; katie.termer@fabi.up.ac.za; brett.hurley@up.ac.za*).

Variation in resource quality can influence oviposition choice, growth and survival, and ultimately population dynamics. The authors examined biotic and abiotic determinants of body size and sex ratio in *Sirex noctilio,* the globally invasive European pine woodwasp. Sex ratio has been observed to be highly male biased (>10:1) with female adult body size varying up to fourfold. Careful dissections of *S. noctilio*-infested logs collected at three time points during the larval developmental period were examined to understand how natural variation in factors hypothesized to correlate with resource quality may influence age and gender-specific larval growth and survival. Specifically, the authors investigated the role of wood moisture, tree section, larval density, sapstain abundance, and density of co-occurring insects on larval growth rate, survival, and resource use efficiency. Preliminary analyses indicate that larval mass is uniformly low at high larval densities, consistent with intraspecific competition. Growth rate increased as moisture increased, and male bias decreased. Effects on sex ratio appear to result from female oviposition choice as larval mortality was low. Larval resource use efficiency does not appear to be influenced by any of the factors considered. These findings form part of a more comprehensive understanding of resource quality from the perspective of *Sirex* larvae.

Linking phylogeographic history, niche divergence, and biological invasion risks: the case of North American *Dendroctonus* bark beetles. Godefroid, M., Rasplus, J., Rossi, J. (*National Institute for Agricultural Research (INRA), France; martin.godefroid@supagro.inra.fr; rasplus@supagro.inra.fr; jean-pierre.rossi@supagro.inra.fr*).

Species often display geographically structured intra-specific diversity resulting from past geologic and climatic events. Such phylogeographic histories may—or may not—have led to actual intra-specific niche divergences. Species distribution models (SDMs) depict the realized niche by linking species occurrences to environmental descriptors and are widely used to assess the risk of biological invasion. However, these SDMs are usually constructed at the species level without considering the potential differences between phylogeographic lineages. In the present work, the authors investigate how much their estimation of risk changes as the phylogeographic structures are accounted for while elaborating the SDMs. They tackle the question at a continental scale and consider five bark beetle species of the genus *Dendroctonus* which are among the most destructive organisms of North and Central American conifer forests. The focus is on their potential distribution in Europe and the associated risk. Results reveal that distinct phylogeographic lineages correspond to partially non-overlapping potential distributions in Europe. As a result, species-level niche models generally underestimate the potential range of *Dendroctonus* species in Europe. The authors conclude that risk assessment should rely upon SDMs incorporating phylogeographic structures whenever possible.

Updated list of Scolytid species occurring in commercial tree plantations in Uruguay. Gómez, D., Martinez, G. (*Instituto Nacional de Investigación Agropecuaria, Uruguay; dgomez@tb.inia.org.uy; gmartinez@tb.inia.org.uy*).

Commercialization of wood packing and plant materials, together with climate change, has led to an increased dispersion of pests and diseases worldwide, causing the colonization of new areas by bark and ambrosia beetles. In this context, it becomes necessary to work toward identifying new invasive species of scolytids. A dramatic increase in tree plantations began in Uruguay in the 1990s after a new forestry law went into force in the country, leading to more than 1 million ha forested with exotic trees (mostly *Eucalyptus* spp. and *Pinus* spp.) to date. In December 2009, after a severe drought episode, high mortality was recorded on pine tree stands during the first economically significant outbreak of bark beetles recorded in the country. Here the authors present an updated list of bark and ambrosia beetles recorded in commercial tree plantations in Uruguay, after 3 years of surveying. Bark and ambrosia beetles are part of the fauna commonly occurring in pine tree and eucalyptus plantations in Uruguay. Beetle species mainly belong to Dryocoetini, Ipini, Hylesinini, and Xyleborini.

Modeling stomatal ozone deposition in Mediterranean annual pastures using a multilayer-multispecies model. González-Fernández, I., Calvete-Sogo, H. (*Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT), Spain; ignacio.gonzalez@ciemat.es; hector.calvete@ciemat.es*), Büker, P., Briolat, A. (*University of York, UK; patrick.bueker@york.ac.uk; alan.briolat@york.ac.uk*), Elvira, S., Sanz, J. (*Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT), Spain; susana.elvira@ciemat.es; j.sanz@ciemat.es*), Emberson, L., Bermejo, V., Alonso del Amo, R.

Risk assessment of ozone effects on vegetation within the framework of the UNECE Convention on Long-range Transboundary Air Pollution (CLRTAP) is increasingly being based on modeled stomatal ozone deposition. Current models used to calculate ozone deposition fluxes represent the vegetation surface as a big leaf placed at the top of the canopy. However, this approach presents some limitations when used in species-rich plant communities with complex canopies like those of pastures. Species coexisting in the pasture have different gas exchange rates and sensitivity to ozone, affecting the deposition of ozone to individual components and its potential effects for sensitive species. A multilayer-multispecies model designed at the Stockholm Environment Institute, University of York, based on the existing deposition of ozone for stomatal exchange (DO_3SE) model used within the CLRTAP, has been parameterized using a 3-year-long database of meteorological variables, ozone concentration, and pasture physiological measurements on a Mediterranean annual pasture in Spain. Ozone fluxes were also calculated using the same approach for an ozone fumigation experiment in open-top chambers aiming at relating ozone stomatal fluxes to effects observed in the experiments. The ultimate goal of this study is deriving improved methodologies and novel ozone critical levels useful for risk assessment.

Characterizing Great Basin bristlecone pine tree chemistry. Gray, C., Jenkins, M. (*Utah State University, USA; curtis.gray@aggiemail.usu.edu; mike.jenkins@usu.edu*), Runyon, J. (*U.S. Forest Service, USA; jrunyon@fs.fed.us*).

Great Basin bristlecone pine (GBBP) typically co-occur with other similar pine species in the same ecological niche, such as Limber pine. Limber pine may be infested with mountain pine beetle (*Dendroctonus ponderosae* Hopkins), yet pine beetle has not been observed to infest GBBP. The authors hypothesize that the attraction of beetles could be due to differences in monoterpenes