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Alain Roques, Marie-Anne Auger-Rozenberg

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Specialist seed insects can affect the conservation of endangered conifer species

A Roques and MA Auger-Rozenberg

INRA, Unité de Zoologie Forestière, BP 20619 Ardon 45166 Olivet cedex, France,

Alain.Roques@orleans.inra.fr

Most insects exploiting conifer seed cones are highly host-specific. Several ecological adaptations, especially prolonged diapause, allow these insects to cope partially with the annual variations usually observed in host abundance. Long-term, standardized surveys were carried out in Europe and China in order to assess subsequent insect impact on the potential of natural regeneration of conifers. In widespread species (e.g., larches, *Larix* spp.), insect impact dramatically decreased the potential seed yield but a sufficient natural regeneration occurred when unforeseeable climatic events (e.g. late frosts) perturbed the natural synchrony between insect populations and cone abundance. Contrasted results were obtained for endangered conifers. In incense-juniper (*Juniperus thurifera*), a relict species with a very scattered range, low numbers of initial seeds per cone in Morocco and France resulted in a quasi-absence of viable seeds following insect attack whereas higher seed numbers allowed an important natural regeneration in Spain. In China, intensive forest exploitation limited the range of *Keteleeria xerophylla* and *Pseudotsuga sinensis* to very small, isolated plots where up to 100% of the seeds were annually destroyed by insects. Insect control seems the only way to prevent species disappearance.