

A \$4.6 million study underway in southern Oregon has scientists from BLM and Oregon State University inquiring into the possibility of logging in northern spotted owl habitat without destroying the habitat. Researchers will take detailed measurements of existing stands to identify what makes them attractive to owls, develop logging methods to reproduce those characteristics, and devise computer models to estimate timber yields. The study will be conducted over the next 10 years in the BLM's Medford District, neighboring private lands, and much of the Rogue River and Siskiyou national forests – an area covering about 3 million acres that is home to about 450 pairs of spotted owls. The study area has been logged over for decades, leaving a patchwork of clearcuts, partial cuts, old growth, and second growth that also has been shaped by fires, windstorms, and insect infestations.



How Earth's biota will respond to the next major (possibly anthropogenically induced) environmental change can be predicted best on the basis of the fossil record, according to Scott Elias, a research associate

at the Institute of Arctic and Alpine Research, U/CO, Boulder. Elias's article in **BioScience** (Sept. 1991, pp 552-559) examines the insect fossil record of the Rocky Mountains and finds that changes in insect distribution have taken place in a relatively short time, indicating that insect species are extremely mobile and able to move great distances to satisfy their ecological requirements in the face of changing climates.

"These distribution changes also suggest that the current insect communities of the Rocky Mountain region are simply the latest reshuffling of species," Elias notes, "and that insect species composition is probably in a more-or-less continuous state of flux." Elias suggests that the fossil record "forces us to ask ourselves how much we really know about rates of speciation" and related questions such as how long a population must be geographically isolated before it diverges from the species' gene pool.

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The Sept. 6, 1991 issue of **Science** (pp.1099-1104) contains an article by Geerat J. Vermeij (U/CA-Davis Geol. Dept) entitled "When Biotas Meet: Understanding Biotic Interchange." The author looks at the history of biotic interchange over the past 25 million years -- what happens when a barrier separating two biotas with long independent histories breaks down and species from the "donor biota" invade the "recipient biota." He then looks at the "unprecedented scale" with which barriers are being breached in the human-dominated biosphere -- both deliberately and accidentally, and reaches three tentative conclusions: (1) that many episodes of interchange are strongly asymmetrical; (2) biotas providing the bulk of invading species in asymmetrical interchanges contain species that have evolved high competitive, defensive, and reproductive performance in comparison with native species in the recipient biotas, and (3) biotas in which the magnitude of extinction before the onset of interchange was high are especially vulnerable to invasion.

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Laboratory exposure of bivalve molluscs (*Mercenaria mercenaria* L.) for 48 hours to 9 parent polynuclear aromatic hydrocarbons (PAHs) found in waste crank-case oil and analyzed over a 45-day depuration (cleansing) period found that the activated carbon filtration aquaria system did not depurate PAHs, but rather maintained them at detectable levels. The research, reported by NPS Ecologist John T. Tanacredi (Gateway NRA) and Raul R. Cardenas (Brooklyn's Polytechnic University) appears in **Environ. Scie. Technol.** 1991, 25, 1453-1461. The authors conclude that consumers of bivalve molluscs chronically exposed to persistent levels of PAHs in urban estuaries may be at higher than normal health risk. They recommend reevaluation of clam relay programs in urbanized estuarine systems and further research in this area.

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"Interdisciplinary Research in Historic Landscape Management" is the title of a supplement to Vol. 14: No. 6 of the **CRM Bulletin**, cultural resource management information bulletin published by NPS. Gerald Kelso, a supervisory archeologist in the NPS North Atlantic Regional Office, describes the principles and techniques (still evolving) for identifying, evaluating, and preserving the vegetation of historic landscapes, and uses the knowledge thus gained to reconstruct the

behaviors and guess at the attitudes behind the behaviors of the people who made up the early industrial inhabitants of what is now Lowell National Historical Park and environs.

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