

BLUE-STAIN FUNGI AND THEIR TRANSPORT STRUCTURES ON
THE DOUGLAS-FIR BEETLE
(DENDROCTONUS PSEUDOTSUGAE, COLEOPTERA: SCOLYTIDAE).

A thesis

Presented in Partial Fulfillment of the Requirements for the

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By

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ABSTRACT

Parent and preflight-adult Douglas-fir beetles (*Dendroctonus pseudotsugae* Hopk., Coleoptera, Scolytidae) were collected from felled Douglas-fir trees (*Pseudotsuga menziesii* [Mirb.] Franco). Fungi isolated from the beetles included pathogenic blue-stain fungi, such as *Ophiostoma pseudotsugae* (Rumbold) Von Arx, *Ophiostoma* spp., *Leptographium terebrantis* (Barras and Perry), and *L. abietinum* (Peck) Wingfield, other ascomycetes, such as *Graphium* and *Leptographium* spp., yeasts and unidentified basidiomycetes. All fungal cultures derived from parent beetles, preflight adults, beetle eggs, larvae, frass, and bark from galleries had yeast present. *O. pseudotsugae* were visible in shallow pits on the elytra of both male and female beetles. *Graphium*, *Leptographium*, yeast and bacterial spores were observed in shallow pits on elytra and in much smaller but deeper pits on the scutellum of both sexes. This research indicates a close association between Douglas-fir beetles and fungi. Scanning electron microscopic revealed pit-like mycangia on the beetles that allows the dissemination of blue-stain fungi to new Douglas-fir hosts and substrates.

Study Site

Trees provided by Harold Osborne, in the experimental area. Four Douglas-fir trees averaging 8-12 meters in length and 20-47 centimeters in diameter were acquired from Moscow Mountain, Latah County, Idaho. The elevation of the site was 950 meters in a Douglas-fir and Ponderosa pine habitat. The trees were felled in January of 1993.



Location of Complete Research:

Author & Title: [Iewinsohn, Dalia](#)
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Beetle \(*Dendronctonus Pseudotsugae*, coleopteran: scolytidae\)](#)

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Other Sources: