

## State Trust Lands Habitat Conservation Plan

### INTERACTIONS BETWEEN FUNGI & CAVITY NESTERS: APPLICATIONS FOR MANAGING SNAGS

An important component of maintaining or restoring complex forest habitat in upland and riparian areas is the management of snags (standing dead trees). Past management practices did not include snag preservation and safety considerations often require the removal of snags, so many of our forests have few snags. Creating cavities in live trees provides a way to bridge the current snag deficit by promoting use by cavity nesters (such as woodpeckers) until time and current practices (leaving legacy trees; preserving riparian forests) can create more snags. Cavity creation lets a manager determine snag placement to ensure compatibility with future operations and safety standards. This results in an increased ability to maintain these valuable structures in a managed forest.

Since 1996 a small group of landowners (including DNR) has been studying the ecology of cavity-nesting wildlife in the managed forests of western Washington. The interaction between primary cavity-nesting wildlife, such as the hairy woodpecker (*Picoides villosus*), and heartwood-decaying fungi is a keystone process in both natural and managed forest landscapes. In western Washington, 54 species of secondary cavity-nesters are reliant upon nesting and roosting substrate created by cavity-excavating species,



*Basidiocarp of a red belted conk (Fomitopsis pinicola) seen emerging from surface of a living western hemlock (Tsuga heterophylla) tree inoculated in 1997 (photo taken 3-years post treatment).*

primarily woodpeckers (Brown 1985). Heartwood-decaying fungi are commonly associated with woodpecker nest trees (Huss et al. 1999; Huss et al. 2002), indicating that softened wood is important for facilitating cavity excavation by woodpeckers. We are attempting to promote the further colonization of managed forest lands by woodpeckers and other cavity users through a novel management technique that introduces a species of heartwood-decaying fungus, the red-belted conk (*Fomitopsis pinicola*), to selected live trees.

In 1998 we used an experimental fungal inoculation technique to introduce the red-belted conk to 34 forest stands in western Washington. These lands are managed by Rayonier, DNR, Weyerhaeuser, the Campbell Group, and Fruitgrowers Supply Company (managed by Green Crow Management Services).

In 2000, we funded a study implemented by DNR and Rayonier on the nesting and foraging habitat of the hairy woodpecker, the most common primary cavity nester in the managed forests of western Washington. Data were collected on 25 radio-tagged hairy woodpeckers in two breeding seasons (2000 and 2001). These data will allow us to determine woodpecker home range size, habitat use within the home range, and habitat use in foraging trees (including determination of foraging tree species).

**Relation to HCP:** Long-term management of snags and down woody debris within riparian forests is a priority for the Riparian Forest Restoration Strategy. Information from this study and from additional research can be used to guide management decisions regarding the effectiveness of fungal inoculations for cavity creation and their effectiveness in snag management in both riparian areas and uplands.

**Project Status:** Initiated in 1996. Ongoing.

**Literature Cited / More Information:**

Brown, E. R., technical editor. 1985. Management of wildlife and fish habitats in forests of Western Oregon and Washington. Part 2-appendices. Publication number R6-F&WL-192-1985, Pacific Northwest Region, U.S. Forest Service, Portland, OR.

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Huss, M. J., J. C. Bednarz, D. M. Juliano, and D. E. Varland. 2002. The Efficacy of Inoculating Fungi into Conifer Trees to Promote Cavity Excavation by Woodpeckers in Managed Forests in Western Washington. in W. F. Laudenslayer, Jr., P. J. Shea, B. E. Valentine, C. P. Weatherspoon, and T. E. Lisle eds: Proceedings of the Symposium on the Ecology and Management of Dead Wood in Western Forests. Gen. Tech. Rep. PSW-GTR-181. Albany, CA: U.S. Dept. of Agriculture, Forest Service, Pacific Northwest Research Station: 777-794.

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