# INVESTIGATOR'S ANNUAL REPORT

**National Park Service**

**All or some of the information provided may be available to the public**

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| **Reporting Year:**<br>2005 | **Park:**<br>Yellowstone NP |
| **Principal Investigator:**<br>Dr James Blodgett | **Office Phone:**<br>(605) 394-6191<br>**Email:**<br>jblodgett@fs.fed.us |
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**Additional investigators or key field assistants (first name, last name, office phone, office email):**

**Name:** John E. Lundquist **Phone:** (970) 498-1095 **Email:** jlundquist@fs.fed.us

**Permit#:**
YELL-2005-SCI-5498

**Park-assigned Study Id. #:**
YELL-05498

**Project Title:**
Distribution, Species, and Ecology of Armillaria Fungi in Wyoming

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| **Permit Start Date:**<br>Jan 01, 2005 | **Permit Expiration Date**<br>Dec 31, 2005 |
| **Study Start Date:**<br>Jan 01, 2005 | **Study End Date**<br>Dec 31, 2005 |

**Study Status:**
Completed

**Activity Type:**
Inventory

**Subject/Discipline:**
Inventory Natural Resources

**Objectives:**
Armillaria root disease is associated with various forest tree declines worldwide, and commonly plays a role in tree mortality attributed solely to bark beetles. Our field survey is designed to examine the geographic distribution of Armillaria species causing root disease in various forest types throughout Wyoming, and to characterize relationships among hosts, site conditions, and Armillaria species. Plots were selected, site-unseen, across the state using GIS. Variables recorded for plots include: location; altitude; slope; aspect; forest cover type; organic matter thickness; frequency of rhizomorphs in the soil; number of stumps, snags, and logs per plot; and tree species and diameter at breast height (DBH) for all live trees per plot. When Armillaria is found, soil samples will be analyzed for organic matter content, pH, and texture. Variables recorded for host trees include: species, DBH, host condition (living or dead), crown position, percentage live crown, and associated stress/mortality agents.

**Findings and Status:**
We completed 11 plots in the park in 2005. Armillaria was not found in the park. To date, Armillaria has been found at 49 locations in WY and 69 isolates have been collected. Three Armillaria species have been identified so far in WY, with A. sinapina being the most common, followed by A. gallica and A. ostoyae. Many consider Armillaria to be a major driver of forest structure and composition.

**For this study, were one or more specimens collected and removed from the park but not destroyed during analyses?**
No

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| **Funding provided this reporting year by NPS:**<br>0 | **Funding provided this reporting year by other sources:**<br>0 |

**Fill out the following ONLY IF the National Park Service supported this project in this reporting year by providing money to a university or college**

| | |
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| **Full name of college or university:** | **Annual funding provided by NPS to university or college this reporting** |

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| | **year:** |
| n/a | 0 |