

Assessing Macrofungi of Special Concern for Conservation in Forested Ecosystems

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ABSTRACT

Species of fungi which produce conspicuous sporocarps are a major component of forest ecosystems. They are essential to ecosystem function in a number of ways and are the source of a multimillion dollar commercial industry. Many are mycorrhizal and form long-lived symbioses with the roots of plants. In this role, the fungus provides the host plant with critical soil nutrients and can increase drought tolerance as well as enhance protection against pathogens. Saprobic fungi are essential to decomposition and nutrient cycling, and pathogenic fungi affect plant health and forest stand structure. Mushrooms and truffles are also an important food source for wildlife. In spite of their economic importance and critical ecosystem functions, relatively little is known about fungal community structure, biodiversity, natural history, and rarity of species. In order to identify rare species, long-term monitoring must be conducted. To determine the fungal taxa present in a given ecosystem, both aboveground and belowground sporocarps must be monitored. In addition, mycorrhizal root tips must be assessed to identify taxa not represented in sporocarp collections. Numerous factors affect species diversity, distribution and abundance. In western North America, difficulties in assessment are compounded by diverse topography, climates, soils, and vegetation cover. At the ecosystem level, important factors include plant species composition, stand structure and age, soil type, fire, forest management practices, and commercial mushroom harvesting. British Columbia possesses a rich fungal biota. Establishing a proper monitoring system is a critical first step in identifying species potentially at risk and developing a strategy which will integrate forest fungi into ecosystem management and conservation plans.
