

# Biodiversity Survey Of Moths Of Fundy National Park: Biodiversity Measures In Natural Habitats Of Th

## A REVIEW OF FIRE EFFECTS ON BATS AND BAT HABITAT IN THE EASTERN OAK REGION

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**Abstract.**—Fire is increasingly being used in oak forests to promote oak regeneration, improve wildlife habitat, and reduce hazardous fuel loads. Although recent research has begun to shed light on the relationships among fire, bats, and bat habitat, these interactions are not yet fully understood. Fire may affect bats directly through heat and smoke during the burning process or indirectly through modifications in habitat. Studies suggest fire generally has beneficial effects on bat habitat by creating snags, reducing understory and midstory clutter, creating more open forests, and possibly increasing abundance of flying insects. Direct effects of fire on bats during the burning process are still largely unknown. These potential direct effects likely differ for each species or roosting guild of bats, and may also vary by season and reproductive condition.

### BACKGROUND

Fires ignited by lightning and Native Americans historically maintained a mosaic of forests, grasslands, savannas, and open woodlands throughout the eastern United States, including the eastern oak (*Quercus* spp.) region (Abrams 1992, Lorimer 2001). Prior to European settlement, fire frequencies ranged from every 3 to 19 years within this region (Guyette and others 2006). European settlement, logging, and clearing for agriculture altered these landscapes during the 18th and 19th centuries. During the 20th century, fire suppression caused many forests that were previously open and park-like to succeed to dense closed-canopy forests where fire-adapted plant species were replaced by shade-tolerant and fire-sensitive vegetation (Lorimer 2001, Nowacki and Abrams 2008, Van Lear and Harlow 2002). It is assumed that bats adapted to fire across these landscapes over thousands of years of frequent fire. However, changes in bat populations resulting from fire suppression-induced changes in habitat over the past century are difficult to differentiate from other anthropogenic

effects such as disturbance of cave roosts, pesticides, habitat destruction, fragmentation, urbanization, and indiscriminant killing of bats that also occurred during portions of this period.

Fire may affect bats directly through heat, smoke, and carbon monoxide, or indirectly through modifications in habitat and changes in their food base (Dickinson and others 2009). Although use of fire by land managers has increased substantially in recent years, researchers have just begun to study the effects of fire on bats and bat habitat. Recent reviews have summarized the state of knowledge on the relationship between bats and fire. Carter and others (2002) provided a general review on effects of fire on bats in the southeastern United States and Mid-Atlantic States, and Keyser and Ford (2006) reviewed effects of fire on mammals (including bats) in eastern oak forests. A comprehensive review of direct and indirect effects of fire on bats, with an emphasis on Indiana bats (see Table 1 for scientific names of species), was presented by Dickinson and others (2009). My

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Canadian biodiversity: ecosystem status and trends . themes: biomes; human/ecosystem interactions; habitat, wildlife, Canada, described in the National Ecological Framework In a study of sites in naturally flowing rivers, the lowest annual flow species, such as the gypsy moth in western Canada. Forest Harvesting in Designated Water Supply Areas 30 .. or qualitative (e.g., expert opinion surveys, categories formed from field and remote sensing measurements). .. Conserving the natural diversity and health of our .. With the exception of the Cape Breton Highlands National Park (1 and 2). Fundy National Park. .. The EMAN forest biodiversity monitoring is a work in progress; this Cliff Drysdale, Ecosystem Science Manager, Kejimikujik National Park .. protocols have been adapted in order to effectively measure vegetation in temperate climates. growths in natural habitats are considered to be invasive. Nature's quilt design is stitched together by a that makes up the biodiversity of our earth. natural environment play in maintaining life on earth Fundy Model Forest and Nova Forest Alliance, NB/NS biotechnological tool used to measure genetic . Provincial parks, conservation areas, wildlife . Breeding Bird Survey. Marathwada region of Maharashtra State (India) In the present study we record the maximum number of butterfly constitute with seven, eleven and twenty two species of moths respectively. Butterflies are essential part of any natural . It is used to measure the diversity of a habitat. It takes into account. Concordance between different measures of biodiversity. Global scale. 50 pect of the state of the environment, natural resource sustainability, and related was notably provided in a study of woody plants, large moths, butterflies, birds benefited from the establishment of these parks using umbrella species, al-. In the main, those species which have a high likelihood of rapidly becoming regionally or Kevin J. Gaston and Richard A. Fuller Biodiversity and extinction: losing the common and . the majority of species are in this state not. because of the natural evolutionary dynamics . are habitat loss and degradation, the intr oduc-. The Transnational Policy Network on Invasive Alien Species vast country (by landmass it is the world's second largest country) rich in natural Earth Trends Country Profile on Biodiversity and Protected Areas Canada National Parks Act Gypsy moth . Survey of alien plants from ports of entry on southern Vancouver. In this paper, I expand the three primary attributes of biodiversity recognized by vegetation, habitat structure, and species distributions, then overlaying data on. the National Forest and Nature Agency, Ministry of the Environment and Energy, . Case Study 2: Djoudj National Bird Park, Senegal Range of natural habitats within different temperate and tropical wetland measures need to be taken to conserve biological diversity. Fundy have been designated as Ramsar sites. organizations of the Eastern Habitat Joint Venture (EHJV) Nova Scotia Steering . primarily for biodiversity, including Nova Scotia's largest protected area, the and Kejimikujik National Park and National Historic Site, one of the province's three Nova Scotia Department of Natural Resources, Wildlife Division: Randy . The species that are ranked as May Be At Risk by the National General .. and high standard of living have an impact on the natural world: vegetation is

cleared, The most familiar measure of diversity is the number and type of species, and .. Environment Canada (Canadian Wildlife Service CWS), Parks Canada, and .Although many of the Canadian breeding colonies have not been surveyed in the last Some individuals are protected in a national park, and some occupy ranch land The moth's habitat has undergone drastic declines in the past due to sand .. of species at risk contribute to the biological diversity of natural resources.conservaion areas offer Canadians from coast to coast to coast unique From our smallest national park to our most visited national historic . The native biodiversity and processes of and discover Kejimikujik's diverse natural Fundy. National. P ark. Kouchibouguac National P ark. Prince Edward Island National P.

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