

Fire Atlas of the Okefenokee National Wildlife Refuge From Early 70's to Present

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Okefenokee National Wildlife Refuge, located in southern Georgia, occupies approximately 600 square miles of a large freshwater swamp. Much of the swamp's surface and subsurface is a thick layer of peat moss, covered with bald cypress (*Taxodium distichum*) and tupelo (*Nyssa sylvatica*) woodlands, and interspersed with open water bodies. As one of the most pristine wilderness areas in the eastern United States, Okefenokee is home to many wildlife species including threatened and endangered native species.

Okefenokee is also an area where frequent lightning strikes and causes large number of acres burned each year. Wildfires in Okefenokee are closely related to climate change, persistent drought, and significant changes in land cover, local hydrology, and wildlife habitats. Understanding recent fire history is important to refuge managers in developing wildlife conservation plans. Towards this end, a fire atlas has been developed for the Greater Okefenokee Area Landowners, which include the Refuge, private landowners, and industrial land uses such as mining and timber plantations.

The fire atlas was developed using archived Landsat imagery from early 1970's to present. Approximately one image per year was acquired and processed. Care was taken in selecting seasonally most meaningful dates of imagery to depict previous season's burns. Burn severity was modeled on the basis of differenced pre- and post-fire ratio of near infrared and shortwave infrared spectral bands. The differenced ratio values were grouped into four burn severity classes: no burn, low severity burn, moderate severity burn, and high severity burn.

This poster will display methods and results of the fire atlas. We will describe applications of the fire atlas in terms of understanding fire fuel and vegetation cover change over time and evaluating conservation planning options.