

Hydrologic Alterations

Numerous studies have examined the hydrology of the Okefenokee Swamp and Trail Ridge (Hyatt 1984; Rykiel 1977, Blood 1981, Burklew 1988, Yu 1986). There are inconsistencies between studies indicating that the hydrologic system is complex and/or scientists have not perfected techniques or know how to study the ecological processes associated with the hydrological connections between the swamp and Trail Ridge. Trail Ridge forms a rim or geomorphological "dam" on the east side of the swamp contributing to the hydrologic budget of the swamp. The soil of Trail Ridge has a profile or distinct layers. This gives it water holding and water movement characteristics. The mining is proposed to go an average of 50 feet deep from the ground surface which is below the level of the Okefenokee Swamp depression. After heavy mineral removal the soil will be returned to the site. It will have been homogenized or mixed, and no longer have the same distinct layers it had before mining. This will likely change the hydrological properties both temporally and spatially of the entire area. There is much uncertainty as to how dramatic and far reaching this change will be. Similarly, it is uncertain what effects such hydrologic changes may have on the environment.

Alteration of surface water drainage patterns associated with soil disturbance on the project site could occur. Destruction of soil profiles that contain and channel surface and sub-surface waters may change the habitat properties of the site and those that they flow into. Impacts to ground water characteristics including water table elevation, and rate and direction of flow are also possible as the soil profile is permanently homogenized ~50 feet deep. Such changes could result in the potential for increased fire frequency and intensity in the swamp and surrounding private commercial forest associated with the changing hydrology. Other associated questions include issues such as changes to the seasonal water storage capacity of Trail Ridge and disruption of the interaction of surface waters with the natural aquifer and with the waters of the swamp.

Similarly, we have concerns regarding potential impacts on the swamp and local environment as a result of pumping ground water for mine processes. Disrupted seasonal hydrology can, in turn, influence fire frequency and behavior, ecosystem health, and plant and animal communities, some of which may contain ESA listed species. Vegetation is dependent on slight elevation changes and the associated soil moisture, characterized by the sandy soil which allows water to quickly move down from the surface or the humate barriers that hold the water near the surface. The depth of the water table, perched water, and subsurface water flows may be disrupted by ground water withdrawal, and thus disrupt hydrology that maintains the natural habitats.

ESA Concerns

The best available scientific information indicates single-event surveys for at-risk and federally-listed plants may be incomplete in the area of the proposed mining activity. Similarly, surveys for at-risk and listed animal species are limited to recent records and may insufficiently represent possible occurrence of these species on and near the proposed mining area. Based on the best available scientific information, however, we offer the following comments.