

and 1955, during an extended drought, severe fires occurred in the Okefenokee Swamp and surrounding uplands in southeast Georgia and northeast Florida (Cypert 1961). The severe fires have altered the substrate of the swamp and reinforced the dominant hydrologic patterns at the swamp by favoring fire tolerant species, maintaining openings in the vegetation, and creating scattered depressions. Private industrial forestland, refuge facilities, and the growing urban interface areas adjacent to the refuge create challenges to maintaining this fire regime (USFWS 2006).

Aggressive fire suppression and other silvicultural and land use changes within the southeastern coastal plain have altered the natural fire regime and vegetation distribution (USFWS 2006). Because of fire suppression, slash, loblolly and pond pines, once confined to wet areas due to frequent upland fires, are now able to encroach into the open longleaf pine communities. Hardwood understory species unable to survive the periodic growing season fires are replacing the open upland understory. Fires no longer approach the swamp on a several mile front due to the burning out of areas comprised of scrub/shrub and scrub forest within the swamp or the burning of depressions into the peat layer during drier periods. Without fire, open marsh areas and ponds within the swamp are no longer created or maintained (USFWS 2006). The fires of 2007 and 2011 indicate that large fires still occur naturally on the refuge. These large fires covered extensive areas of scrub/shrub forest, transforming burned areas into marsh habitat. The prescribed burning program at Okefenokee NWR has been very effective at maintaining pine-dominated upland habitat while reducing the hardwood understory (S. Aicher, personal communication, August 26, 2014).

4.7 Climate

4.7.1 Historical Climate

Climatic information presented in this WRIA comes from the U.S. Historical Climatology Network (USHCN) of monitoring sites maintained by the National Weather Service (NWS) (Menne et al. undated), the Hydro-Climatic Data Network, and the Parameter-elevation Regressions on Independent Slopes Model (PRISM) climate mapping service, which is the U.S. Department of Agriculture’s (USDA) official method of serving climatological data (PRISM 2010). The period of record for the USHCN precipitation data and temperature data is from 1893 to 2013, and from 1892 to 2013, respectively. The PRISM data represents 1971-2000 climatological normals. The closest USHCN station within the Suwannee River Basin is located in Waycross, Georgia, approximately 15 miles north of the refuge. For the PRISM location, a central point within the refuge was selected (latitude, longitude) and used to access the PRISM Data Explorer (PRISM 2011). Climate station information and locations are detailed in Table 4 and Figure 10. Gebert et al. (1987) collected soils and hydrologic data for over 12,000 gaging stations between 1951 and 1980 in order to estimate runoff for the coterminous United States. Figure 10 also shows the estimated annual runoff in inches for the Okefenokee NWR RHI.

Table 4. Climate monitoring stations located near the Okefenokee National Wildlife Refuge acquisition boundary [Sources: NACSE, USDOC, USGS].

Number on Figure 10	Station ID	Name	Type	Agency
1	099186	<u>WAYCROSS, Georgia</u>	USHCN	USDOC
2	02314500	<u>Suwannee River at Fargo, Georgia</u>	HCDN	USGS
3	N/A	<u>PRISM Climate Normal</u>	PRISM	NACSE