Results and Discussion

The 12 survey ponds were sampled from 27 February− 9 March 2019. My surveys included 17.25 person-hours dip netting and 175 trap-nights. No frosted flatwoods salamander larvae were found. On these surveys I captured 2 species of salamanders, 6 species of anurans, 9 species of fishes, and 4 species of snakes (Tables 2 and 3). During the same period frosted flatwoods salamander larvae were found on Fort Stewart, Georgia, indicating the species bred at this site during the fall-winter of 2018-2019 (Chris Coppola, U.S. Fish and Wildlife Service, pers. comm., 2019).

The disappearance of the frosted flatwoods salamander from Chesser Island and Okefenokee National Wildlife refuge lands is most likely attributed to anthropogenic disturbances the region suffered prior to being acquired by the U.S. Fish and Wildlife Service (Jensen 1995). Large-scale declines and extirpations of frosted flatwoods salamanders have been attributed to habitat loss and degradation from commercial forestry practices (Means et al. 1996, Palis 1997). In fact, the impetus, in part, for the federal listing of the species in 1999 was widespread loss of habitat due to silviculture (US FWS 1999). It is probable that my inability to document frosted flatwoods salamanders − as well as two easily sampled frog species typical of pine flatwoods habitats, the southern chorus frog (*Pseudacris nigrita*) and ornate chorus frog (*Pseudacris ornata*) – on Twin Pines is due to their extirpation, historically, from habitat changes caused by forestry operations (Figure 7).

The uplands on the Twin Pines site − although in some areas underlain by hydric-to-mesic flatwoods soils that historically may have supported the specific pine savannah habitats required by frosted flatwoods salamanders− are, as detailed above, grossly degraded from commercial forestry operations that (based on a review of aerial photographs) date at least to the early 1970s (Figures 8 and 9). Today, these uplands no longer support intact ground vegetation (e.g., wiregrass, *Aristida stricta*) as is typical of habitat still occupied by this species.