September 2007

GOPHERUS POLYPHEMUS (Gopher Tortoise) MORTALITY

Richard M. Engeman
USDA-APHIS-Wildlife Services, s_r100@yahoo.com

Henry T. Smith
Florida Department of Environmental Protection, Florida Park Service

Gregory S. Kaufman
Florida Department of Environmental Protection, Florida Park Service

GOPHERUS POLYPHEMUS (Gopher Tortoise). **MORTALITY.** *Gopherus polyphemus* has declined precipitously in range and numbers in Florida and recently was state-listed as a "threatened" species under the Florida Wildlife Code (Chap. 39, Florida Administrative Code). At ca. 1000 h on 27 July 2006, GK observed a 23 cm carapace length male *G. polyphemus* between the North-South railroad tracks on the eastern boundary of Savannas Preserve State Park (SPSP) in St. Lucie County, Florida (Fig. 1). The tortoise seemed uninjured, but was deceased. Eastern Box Turtles (*Terrapene carolina*) were recently shown to have great difficulty escaping railroad tracks, with overheating to critical levels likely to occur in 4.5–5 h (Kornilev et al. 2006. Herpetol. Rev. 37:145–148). Similarly, the most logical explanation for the Gopher Tortoise death would be entrapment between the tracks, followed by critical overheating and/or dehydration (high and average temperatures for the previous day had been ca 31°C and 28°C, respectively). Recent re-contouring of the railroad track right-of-way corridor with crushed rock had coincidentally created "ramps" (Fig. 2) increasing the feasibility for tortoises to scale the track rail to reach the interior portion of the tracks. Alternatively, access to the interior of the tracks could have been accomplished at the crossing intersection at nearby Walton Road, 186 m south of where the carcass was found, with the tortoise continuing to move along the tracks, instead of escaping by retracing its route. Turtle species with superior climbing abilities to *G. polyphemus* might be more able to escape entrapment between the 19 cm high rails (if they are of sufficient size). For example, Engeman (*in press*, J. Kansas Herpetol.) observed a 33 cm carapace-length *Apalone spinifera* climb a series of 14 stairs, each 18–19 cm high, indicating that such an individual might be able to escape the railroad tracks.

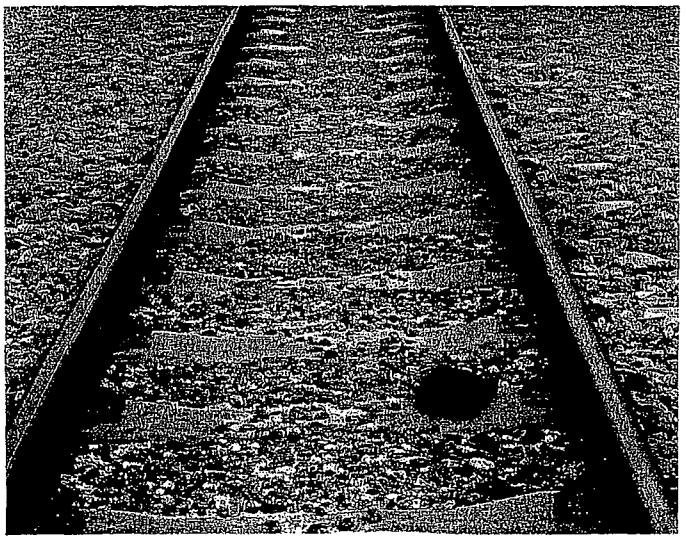

FIG. 1. Deceased *Gopherus polyphemus* found between railroad tracks at Savannas Preserve State Park, Florida. Photo by G. Kaufmann.

FIG. 2. View of tracks showing re-contouring of right-of-way with crushed rock, possibly allowing easier access to the interior of the tracks by *G. polyphemus*. Photo by G. Kaufmann.

Tortoises are subject to a variety of anthropogenic sources of mortality, with collisions with vehicles the most apparent for *G. polyphemus* in southeastern Florida State Parks (HTS, pers. obs.). Vehicles have likewise been well-documented as hazards for the related *G. berlandieri* (Engeman et al. 2004. Herpetol. Rev. 35:54–55), and *G. agassizii* (e.g., Boarman and Sazaki 1996. *In* Evink et al. [eds.], Trends in Addressing Transportation Related Wildlife Mortality, pp. 179–184. State of Florida Dept. Transportation, Tallahassee, Florida; Luckenbach 1982. *In* Bury [ed.], North American Tortoises: Conservation and Ecology, pp. 1–38. USFWS Wildl. Res. Rpt. 12). Additional causes of anthropogenic mortality for *Gopherus* spp. have included entanglement in wire fences (Engeman et al. 2004, *op. cit.*), although we have not detected this for *G. polyphemus* during fenceline searches in nearby Jonathan Dickinson State Park. Similarly, numerous patrols down the SPSP track corridor since Jan 2004 have not identified railroad related tortoise mortality prior to this observation. Therefore, we speculate that the re-contouring of the railroad track right-of-way may

have had made track entrance more likely for *G. polyphemus*.

Submitted by RICHARD M. ENGEMAN, National Wildlife Research Center, 4101 LaPorte Ave, Fort Collins, Colorado 80521-2154, USA (e-mail: richard.m.engeman@aphis.usda.gov); HENRY T. SMITH, Florida Department of Environmental Protection, Florida Park Service, 13798 S.E. Federal Highway, Hobe Sound, Florida 33455, USA; and GREGORY S. KAUFMANN, Florida Department of Environmental Protection, Savannas Preserve State Park, 9551 Gumbo Limbo Lane, Jensen Beach, Florida 34957, USA.