

The White-tailed Deer Population on Stennis Space Center, a Growing Problem

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Abstract: NASA's Stennis Space Center (SSC) is located in Hancock County in southwestern Mississippi, east of the Pearl River and just north of interstate highway I-10. SSC is a space shuttle booster rocket testing and research base comprised of 6,462 ha acres with about 3,823 ha designated as controlled access areas for test facilities, laboratories, offices, and other operational facilities. The remaining 2,639 ha are primarily forested land within the large acoustical easement area that surrounds the rocket booster testing facility. No hunting is allowed on the base, so there has been concern about the health of the white-tailed deer (*Odocoileus virginianus*) population and associated habitat damage from deer herbivory. The deer population was monitored by spotlight counts for four fall-winter periods from 2001–2004 before Hurricane Katrina and one fall-winter period from 2006–2007 post-hurricane. During most survey periods, counts were conducted two nights/month from November to March. Nine routes along 32.3 km of roadway were surveyed during all periods. Statistical analysis indicated that deer population levels increased (Wilcoxon rank sum test, $P = 0.011$) after hurricane disturbance. Average counts were 26.7 deer/night pre-Katrina (34 survey nights) and 40.2 deer/night post-Katrina (10 survey nights). Also, the young-of-year (YOY) to doe ratio has increased (Wilcoxon rank sum test, $P < 0.001$) from 0.145 YOY/doe pre-Katrina to 0.416 YOY/doe post-Katrina. We hypothesize that more forage was available to deer on SSC after the hurricane impacted overstory trees allowing more sunlight penetration to midstory and ground cover vegetation. More abundant understory provided more forage for deer during post-hurricane years. Further analyses will examine more population parameters (e.g., buck/doe ratios) before and after the hurricane to investigate changes in population demographics over time.

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