

Magnificent spiral-horned antelope in papyrus marshes of Africa

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April 2015 marked the start of my first field season of research into the population and ecology of sitatunga (*Tragelaphus spekii*) in Uganda. Over four months I undertook field work on a study aimed at documenting the density, habitat selection, and diversity of this spiral-horned antelope species endemic to papyrus marshes and other wetlands. A major part of this effort is a mark-resight population estimation, which includes identification of individual sitatunga from their spot patterns and horn shape by using trail cameras and digital photography from viewing platforms. These data can be used to estimate density of sitatunga by using a spatially-explicit capture-recapture (SECR) program. Another aspect of the research was collecting hide samples from harvested sitatunga bulls for use in genetic diversity tests. At the conclusion of the field season in August 2015, I had over 500 encounters with sitatunga for the mark-resight part of the study, and I collected 28 hide samples for genetic tests. During the months following the field research, the painstaking process of identifying individual sitatunga began. Thus far, 78 unique sitatunga individuals have been identified from 95 encounters in 2015. This includes 69 bulls, 6 adult females, and 3 lambs (sex undetermined). From this small sample, I calculated a density of 10.6 (95% confidence interval: 6.0-18.6) sitatunga per square kilometer in the Mayanja River region of central Uganda. With an estimated 8.1 square kilometers of papyrus marsh, this represents approximately 85.9 (95% confidence interval: 48.6-150.7) sitatunga in my study area. We expect that the density estimate will change as more individuals are identified. During Winter Term, an undergraduate research student has been helping me by identifying individual sitatunga from images, a tedious task which must be completed by hand. In addition, we are completing the import paperwork to bring the sitatunga DNA samples to Canada for analysis. Next year's study goals include capture of adult sitatunga to fit them with GPS radiotracking collars. These telemetry collars will provide important data on movement patterns, habitat use, and home range size. These data will improve SECR density estimates, and provide information on habitat types important for sitatunga. We plan to capture both male and female sitatunga to determine if movement and habitat use differ between the sexes. Results of this research will be shared with the Uganda Wildlife Authority to enhance management decisions for the sitatunga herd and the harvest. Improved management can result in increased hunting revenue, which can spur economic development, reduce poaching, and encourage habitat conservation. Other regions of sitatunga range across sub-Saharan Africa also can benefit from my results. This research would not be possible without the support of organizations like SCI-NAC.