

USACE – NOVA UAS Makes Great Strides for Ecosystem Restoration

The Jacksonville District U.S. Army Corps of Engineers (USACE) identified the Unmanned Aircraft Systems (UAS) as having unique abilities to monitor “change over time” for vast environmental restoration projects being designed and constructed by the District. An overview of the commercial market did not reveal an available small airframe and payload design which could satisfy the Corps’ specific mission requiring a waterproof payload and airframe capable of water landing and mosaic image production. Further investigation uncovered a UAS program at the University of Florida which met those needs.

The Corps, under the Memorandum of Understanding between the Department of Defense and the Federal Aviation Administration (FAA), has been flying selected missions under an approved Air Worthiness Release by the Army Aviation Engineering Directorate, UAS Division, and a Class G Clearance by the FAA. These missions have proven valuable in confirming the early expectations of finding a platform and payload which can operate in a challenging water environment, gather extraordinary high resolution data and provide selected georeferenced mosaics of the flight images.

Mission profiles have included invasive plant control and spread estimations, identification and quantification of invasive plants, construction monitoring, levee condition assessment and wildlife population estimation. The NOVA UAS has proven that UAS can be an effective tool for civilian applications and can replace or supplement other types of more expensive or

more dangerous monitoring. Photographic imaging is only the beginning. Gathered images can be used with commercial software for analysis to determine plant species composition as well as plant population and diversity.

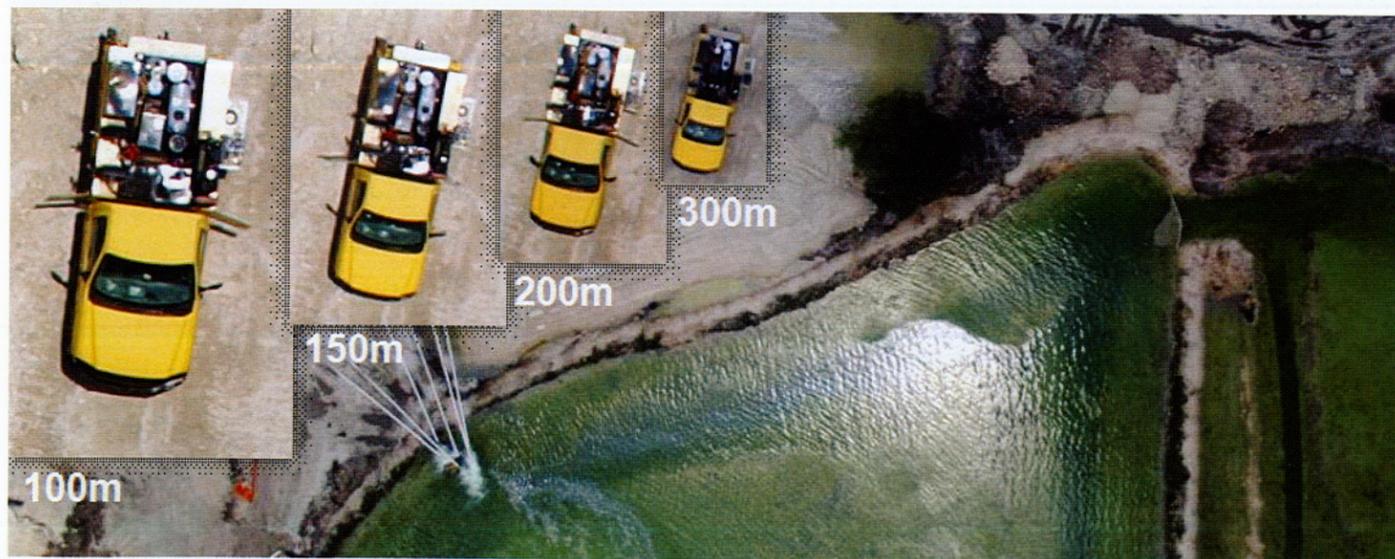
The future is bright for civilian applications for natural resources UAS applications and the only application limitations seem to be our own imagination. Already, ideas are being presented for use in other Corps of Engineers activities from quantity estimations for beach renourishment projects, to regulatory monitoring and shoreline management at Corps of Engineers water resource projects as well as damage assessment during time of natural disasters. Some of the most intriguing future mission profiles are the application of a thermal infrared sensor to detect leaks or piping in levees and to further test the use of the thermal imager in the ongoing attempt to determine location and population size estimation from a growing Burmese and African Rock Python community in South Florida.

This successful UAS program has been a collaboration between the Corps of Engineers, the University of Florida, U.S. Geological Survey and the Army Aviation Engineering Directorate, UAS Division.

UAS Coordinator, U.S. Army Corps of Engineers, Jacksonville, FL



Pictured: (Above) NOVA view of bird population from above; (Below) NOVA UAS launched from airboat



Construction with high resolution detail seen from UAS

