



Viability and Utility of μ UAS for wetland monitoring μ UAS Research @ Pond Lily Preserve

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Osprey μ UAS is a Pilot Research program focused on determining the viability and utility of engaging μ UAS (micro drones) for open space and wetland monitoring, mapping and 3D Modeling. The selected Study Site is the Pond Lily Nature Preserve, Amity, CT. This section of wetland/stream system was re-engineered after the removal of an old Mill Pond Dam.

- Our hypothesis is that the "planting initiative" begun in Summer 2016, seeding native marsh and woodland/meadow species would accelerate the recolonization of the open areas and channel margins. The preserve authorities (New Haven Land Trust, CT Pond for the Environment and Sore the Sound) have accomplished a lot in the short period since the mill pond dam's removal; planting many small shrubs and trees.
- Some of these aspects may well be documented and visualized using μ UAS overflights, with GoPro Hero 4 cameras and employing Image Mosaics and 3D Modeling software (Pix4D Mapper).
- We hope to be able to re-fly/map the area over the coming seasons, to document the regrowth of the area vegetation.

Recent Views of the Pond Lily Preserve showing pre- and post-dam removal and stream channel re-engineering.

To-date, much of the stream channel margins remain sparsely vegetated, though significant "planting" has taken place. Some limited *Cat tail* survives in the lower SW corner, while channel margin vegetation is recovering. Vegetation along the "footpath" is anticipated to grow into a small woodland and meadow. The re-engineered stream channel now has riffles and pools, and should be easily navigable for migrating fish species. Further, while many species of wetland and wading birds have returned to the Pond Lily, a reinvigorated and healthy wetland/stream system is a few years off.



3DR Solo Piloting
Peter Broadbridge w/ Observer



Panorama of Lower-Pond Lily from μ UAS launch site
(March 23rd 2016)



Panorama of Lower-Pond Lily from μ UAS launch site
(August 5th 2016)



μ UAS 3DR Solo flight August 5th, 2016

"Pond Lily" GPS Coordinates for central riffles Lat 41.336488, Lon -72.976067



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3D Model processed with Pix4D Mapper Pro

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