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Folk Land Management, Inc.
WOODLAND AND WILDLIFE CONSULTANTS

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Folk Land Management, Inc. Newsletter

Leaves and flowers of a chinese tallow tree.

Photo courtesy of University of Georgia

Invasive Plants

In land management, there is an activity that requires year around vigilance. Failure to do so can result in habitat degradation and much higher costs down the road for control. This activity is control of non-native, invasive plants; animals, too, but we will focus on plants right now. Kudzu is a good state-wide example everyone is familiar with. It grows rapidly, will completely take over, it is hard to get rid of, and offers little benefit to anything, except erosion control which is why the USDA brought it here. These are all traits of invasives. Chinese tallow tree, wisteria, japanese climbing fern, and cogon grass are a few more examples. Non-native, invasive plants arrive in several ways: cars and trucks traveling through an infected area to one that is not, people transplanting them, nursery stock, ships, and trains are all ways these invaders get to new territory. As wide-spread as modern transportation is, it has made it possible for plants to seed-in from thousands of miles away to ecosystems that have no natural means of keeping it in check.

A hack and squirt treatment

One of the most common invasives in our area is chinese tallow tree; also known as popcorn tree. From eastern Asia, it was introduced to the US in the 1700's. It is an aggressive colonizer. Its decaying leaves are toxic to other plants, paving the way for more tallow tree. If left unchecked, it will completely take over an area. Its only wildlife benefit is nectar for honeybees. It spreads by seeds and root sprouts. The sooner an area or a single tree is treated, the cheaper and more possible control is. Because chinese tallow tree is a prolific seeder, it is important to deal with it immediately. If a tree is big enough, a "hack and squirt" application of herbicide between October to late November of Arsenal will kill it. This treatment method can work year around, but it is preferred in the fall since the tree will take the chemical to the roots along with the carbohydrates it is moving to the roots for storage during the winter. Smaller trees can be sprayed with a foliar application of Clearcast, Garlon 3A, or Arsenal anytime the tree is growing, but July to late October is best.

An Improved, Efficient Process for Routine Wetland Maintenance Regulation

Many landowners along the South Carolina coast own and manage impounded wetlands. Typically these are historic rice fields, but others were constructed in the mid 20th century. Because these are wetlands, much of the routine maintenance is regulated by state and federal wetlands law. Several years ago, *continued on page 4...*

Unmanned Aerial Vehicles

A technology that has gained a lot of public attention is drones, or unmanned aerial vehicles (UAVs). Unfortunately, a lot of this coverage is the result of someone using this technology in an irresponsible manner. This, along with the controversial use of armed drones overseas and potential domestic surveillance, has given this technology a negative connotation. UAVs can range is size from large military or commercial aircraft of 40 feet or more in length with internal combustion engines, to small hobbyist models that weigh a few pounds that are powered by a battery, similar to those that power your average cellphone. A similarity they all share is the ability to fly autonomously, although they can also fly with a person actively controlling them with a wireless controller. The autonomous capability is about where the similarities end. Advancements in small hobbyist UAVs have huge implications for a range of fields from land management and agriculture to real estate and construction. In some situations, small airplanes are and have been filling a role that UAVs can now do cheaper, safer and better. In other areas, there are completely new opportunities; close up real estate views is an example that manned aircraft can not perform but small UAVs can. High resolution vegetation and wildlife surveys are other new, and promising opportunities.

Above: UAV imagery at 1,114x848 pixels.
The picture covers about 65 feet.

Below: Google Earth imagery at 1,114x848 pixels.
The picture covers about 470 feet.

A few advantages of small UAVs:

1. Imagery collected by a UAV is easily and cheaply repeatable. Southern pine beetle outbreaks is an area where this will have a big impact. While we have been lucky for quite a few years now, these forest pests will cycle back, greatly impacting our forests. When an outbreak occurs, a small UAV can monitor the progress of an infected area on a weekly basis. Before this technology existed, rental of an airplane at was the only option. Because of their cost, this would be done infrequently. Once found, you would have to make an educated guess and at the direction and rate of spread since it is uneconomical to fly an area weekly. Since symptoms appear at the top of the tree, ground observation can be unreliable to establish cut boundaries and determine rates and direction of spread. With accurate and timely monitoring, you don't have to be extremely liberal with the area you clearcut to ensure you stay ahead of the infestation. Situational awareness of any spread can be known on a weekly or even daily basis.

2. Higher resolution and more frequently updated imagery than publicly available satellite imagery. A UAV can collect images with many times the resolution of Google Earth.

3. Liability insurance for personnel flying in manned aircraft does not apply.

Continued on page 4...

Unmanned Aerial Vehicles continued...

Disadvantage:

1. Due to limited flying times of batteries, large acreage mapping is difficult, especially with multirotor UAVs. Traditional aircraft can do this more effectively. With fixed wing UAVs, anything more than several hundred acres is more effectively done with traditional aircraft.

Some limitations:

1. There has to be full, direct sunlight. This is a limitation of the camera that the UAV carries. Because of the vibration on the craft, the shutter speed needs to be set extremely high; 1/1000 of a second. In order to get a crisp picture, it has to be bright for the camera to be good exposure to avoid blurring

2. Wind has to be very low. The craft is very stable and can still maintain an accurate flight path, but as it adjusts to compensate for the wind, the pitch and roll will change in order to maintain a position and flight path. This creates photos that have an oblique angle, i.e., not taken straight down. This makes it much more difficult to stitch photos back together for the final product.

An Improved, Efficient Process for Routine Wetland Maintenance Regulation continued...

the Corps of Engineers and SC DHEC, with assistance from wetland managers, developed a general permit to cover much of this activity, plus emergency actions when dikes or water control structures fail.

This was a landmark achievement and represented a positive step forward for the recognition of how important managed tidal impoundments are to the ecology of the Lowcountry.

Use of provisions in the Managed Tidal Impoundment General Permit requires a property to be deemed eligible first. This is a simple process that involves written notification to the agencies of the type and location of your managed tidal impoundments. Many landowners will begin conducting annual maintenance procedures this coming summer. To utilize the General Permit, landowners should consider the eligibility process soon.

A ricefield trunk being positioned for installation

Certified Wood

Timberland certification is a process that is starting to offer landowners advantages when selling wood. Better prices for wood when selling, better access to more wood markets, immunity from wood quotas at mills, are all advantages to certifying your timberland, in theory. In our area, none of these benefits are being seen now, although there are parts of the country where these advantages do occur.

The whole idea of certification is that a third party organizations puts its seal of approval on your property, certifying that you are managing in a sustainable, environmentally sensitive, and ethical manner. There is more to it than that; social and economic benefits are also a factor. Sustainable Forestry Initiative (SFI) and Forest Stewardship Council (FSC) certifications are costly and time consuming and are not realistic for tracts under many thousands of acres in size. In these, you can participate in a group certification with a number of other people, lessening the burden on you. Certification in the American Tree Farm is not as rigorous and wood certified in it also qualifies under SFI. It is suited for much smaller properties. This idea was a product of trying to practice forestry in a more sustainable, less destructive (slash and burn, or clear cutting jungles for agriculture or grazing) manner; typically in third world countries. The push for this has come from companies that want to associate themselves with more environmentally conscious forestry practices. When you see the below logos, some or all of the wood products from that company came from certified sources. Certification can be a huge ordeal, so there has to be some incentive for landowners to do it. The above mentioned reasons are good ones, but right now, none of those benefits are being seen here in the Lowcountry right now.

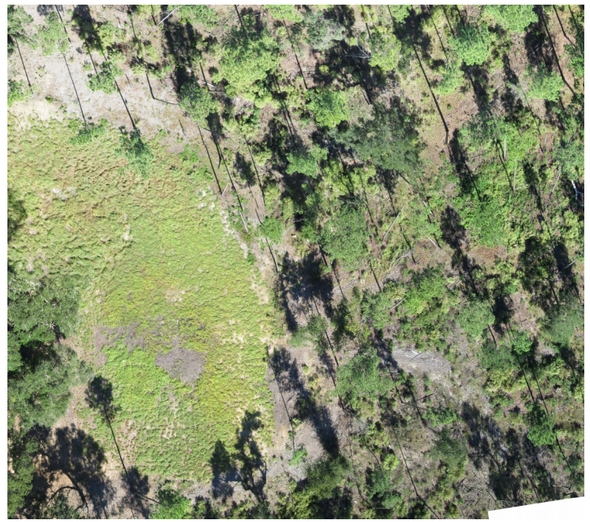
FSC ©

WOOD WATER CERTIFIED TREE FARM RECREATION WILDLIFE

SFI℠

What is GIS and why is it useful?

The short answer is that Geographic Information Systems (GIS) is a computer program that allows for managing and analyzing spatial information, and ultimately producing a map to act upon. The result of these analyses can be extremely helpful in making land management decisions. Mapping has always been an essential tool in forestry, wildlife management, and numerous other fields. Now, with more data available and increased capabilities, it provides information that was not commonly available even five years ago. This means more information to help you make management decisions and gaining new understandings how how things change over time.



The final image from numerous UAV photos stitched back together. If zoomed in, you can easily make out individual blades of grass and pine needles. The resolution is 7,613 x 6,785 pixels.

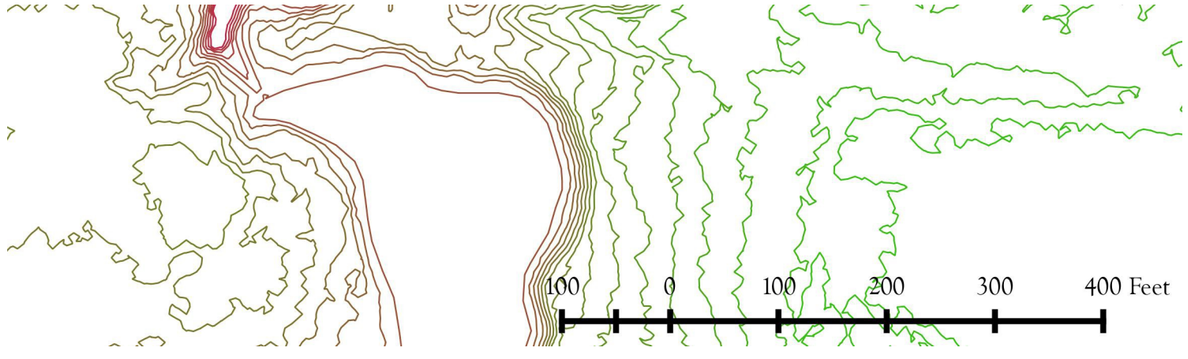
There are several main advances coming together at once that are making this tool evolve quickly.

1. The availability of never before collected and created data, particularly LiDAR (Light Detection and Ranging). This data is already paid for with tax dollars and free to download. Most of this data comes from state and federal governmental agencies. LiDAR works by sending out thousands of laser pulses a second, then measuring the reflection to determine where the ground is. LiDAR can be collected a variety of ways, but the data we use is collected from an airplane. The product of LiDAR is data that has not just the location of a pixel, it has an elevation, too. Ultimately, contour lines and digital elevation models can be created from this raw data.

2. The ability to cheaply and easily collect high resolution aerial photography with small UAVs. The collection of high-resolution imagery that only a few years ago would have costed thousands of dollars. The imagery is only a start, the software to process it actually makes it useful.

3. Post-processing Software. The addition of new capabilities and features to GIS software can generate useful information. Of greatest interest is recently available software that processes imagery from a UAV. The product of those programs can then be used by a GIS program. Programs at our disposal can take hundreds of individual aerial photos and seamlessly stitch them together to create one large mosaic of an area of interest, be it a timber stand, field, or even entire property, all at a much higher resolution than publicly available satellite imagery. Other programs can take these same aerial photos and create a three-dimensional rendering of a timber stand, house, mountain, or rock pile. Once a 3D model is created all sorts of analyses can be performed. Simple examples are calculating the volume of fill needed or used on a rice field dike or the average height of a timber stand.

GIS ties together numerous sources of data and turns them into something we can understand and use to inform management decisions.



Product of LiDAR. With 2' contour lines in Beaufort County.

Bird Migration

In the Lowcountry of South Carolina, we have birds arriving to nest here and others leaving to nest elsewhere. Two wonderful species of birds that are leaving our area are the Tundra Swans and the American White Pelican. They can most likely be seen at Bear Island Wildlife Management Area in Green Pond. Although the gate is closed Nov. 1 through Feb. 8, you may be able to view these at Mary's House Pond (outside the gate) and the Observation Deck on Bennett's Point Road. The best word to describe the Tundra Swan is "magical". They were once called the Whistling Swan because of the vocal calls to each other. They migrate from Northern Alaska and Canada, to as far south as Puerto Rico from Mid-November through early March then head back north to breed. They mate for life, which can be around 20 years. Their grace and elegance is what makes them "magical". The American White Pelican breed in Alberta and Saskatchewan south to Northern California, Utah and Colorado. They winter in the Southern United States, California, Arizona, Gulf Coast States and south to Panama. American White Pelicans are different than the Brown Pelican in color and the way they feed. The Brown Pelicans dive up to 65 feet for their fish, while the White Pelicans sit on the water's surface and beat the surface with their wings to chase the fish towards them. They do this in a group to form a net and then grab the fish under water.

As our Winter is coming to an end, there are several birds that will be on their way home to other areas to nest. The American Goldfinch is one you may have seen this winter. They winter here and are common all year in the mid-United States and nest in the Northern United States and Lower Canada. They nest to coincide with the seeding Thistle plants. The breeding color of the male is a magnificent yellow with a black cap and black wings. He is beautiful, while the female is a dullish yellow brown with black wings. Occasionally, a pair will nest in our area.

There are many more that will be arriving. A few that are worth looking for: Yellow Throated Warblers, Prothonotary Warblers, American Yellow Warblers, Northern Water Thrush, Ruby-throated Hummingbirds, Painted and Indigo Buntings, Yellow-billed Cuckoo, Eastern King bird, Orchard Oriole, Blue Grosbeak, and for a short time, the Rose-Breasted Grosbeak, and of course, the American Robin.

There are many bird species that are arriving and leaving at this time of year. We have a wonderful area in this part of South Carolina to take advantage of watching many of those birds.

A pair of swans at Bear Island WMA