Does Coyote Predation Negatively Affect White-tailed Deer Populations in Florida?
By Emma Willcox, William Giuliano, John Olson, and Jim Selph

In the mid to late 20th century the range of the coyote (*Canis latrans*) expanded dramatically. Once confined to the western United States, this species is now common across the Southeast, including Florida. The expansion of the coyote’s range into the Southeast is likely a result of habitat change, loss of higher predators, in particular the wolves, and intentional and accidental release by humans.

Many people are concerned about the negative effects coyotes may have on white-tailed deer (*Odocoileus virginianus*). The rapid rise of the coyote has spawned numerous studies across the country, in places such as Texas, Maine, West Virginia, and Pennsylvania, to assess the impact this species is having on deer populations. However, the landscape, vegetation, and fauna of the Southeast differ considerably from that found in other areas of the coyote’s range. As a result, coyote behavior and food habits may also differ from other well-studied areas. Only by understanding how deer and coyotes...
interact in this region can appropriate management and control activities be recommended. Unfortunately, far fewer studies have been conducted in the Southeast and there are no large-scale studies specific to Florida, limiting our understanding of coyote-deer relationships and hindering management efforts. While coyote and deer have coexisted in Texas and the west for many years, the situation is expected to be different in Florida. As coyotes are relatively new to the state, deer populations are likely not adapted to deal with such a generalist predator. Florida deer populations have very low productivity and additional mortality due to coyote predation could have greater population effects.

Some of the more recent coyote-deer research in the Southeast comes from South Carolina. Between 1997 and 2006 the estimated deer population in South Carolina declined by 36%. The state’s deer population is currently estimated at 750,000 individuals, a substantial reduction from the 1.1 million individuals of the mid 1990s. There are likely many reasons for deer population declines, including habitat loss due to land-use change. However, declines also closely mirror the growth of the coyote population. The ratio of fawns to adult females in the harvest from a 78,000 hectare study site in western South Carolina indicates fawn survival has declined in recent years. Between 1965 and 1990, the number of fawns per adult female ranged from 0.81 to 1.27. In the early to mid-1990s, there was a precipitous decline, resulting in a fawn to adult female ratio in the late 1990s and early 2000s ranging from 0.21 to 0.55. Are coyotes responsible for this decline? Evidence from a coyote food habits study on the same site points to a direct link between coyotes and deer fawn mortality. During May 2005 and 2006, 31% and 38%, respectively of coyote scats contained deer fawn remains. This period coincides with the peak of the fawning season. Percentages for June during the same two years were 15% and 23% respectively, with fawn remains detected in scat through August when the fawning season ended. Study results suggest the coyote’s affinity for newborn fawns is resulting in increased fawn mortality and that this predation pressure could be contributing to population declines.

Two further studies conducted in Alabama also imply coyote predation is causing reductions in deer numbers. The first of these studies assessed fawn to adult female ratios before and after coyote and bobcat removal. Prior to predators being removed, the fawn to adult female ratio was 0.41. A year later, after 22 coyotes and 10 bobcats had been removed, the fawn to adult female ratio was 1.20, indicating greater fawn survival in the absence of coyotes. The second study, conducted near Auburn, Alabama found coyotes were responsible for 42-63% of all fawn mortality.

A new research project spearheaded by Bill Giuliano and John Olson, a professor and graduate assistant in the Department of Wildlife Ecology and Conservation at the University of Florida, is scheduled to begin in Florida later this year. As part of this research, biologists will place vaginal radio transmitter implants in does captured on study sites. As does give birth, the implants will fall to the ground with the fawns. The signals transmitted by the implants will then be used to locate each fawn. Once found, fawns will be fitted with radio collars that allow biologists to track their movements for the first 6 months of life. If a fawn dies, its carcass will be collected and a
necropsy performed to determine the cause of death. If the necropsy suggests a fawn died from predation, saliva samples will be taken from the carcass and DNA analysis conducted to confirm the identity of the predator (i.e., coyote, bobcat, etc.). This information will be used to calculate the percentage of fawns killed by coyotes. In addition, coyote scat will be collected and examined for fawn remains to support necropsy findings. Later in the study, fawn survival will be compared among study sites with different coyote densities. For more information on this new study contact Bill Giuliano at (352) 846-0575 or docg@ufl.edu.

About the authors: Emma Willcox, PhD. and Jim Selph, Regional Wildlife Extension Agent and retired Extension Agent, UF-IFAS Cooperative Extension Service; Bill Giuliano, PhD. and John Olson, Associate Professor and Graduate Assistant, UF-IFAS Dept. of Wildlife Ecology and Conservation.

Got Longleaf? NWTF and NRCS Team Up to Help Landowners Restore Longleaf Pine Forest Habitat
By Matt Palumbo, National Wild Turkey Federation

The National Wild Turkey Federation (NWTF) and USDA National Resource Conservation Service (NRCS) are teaming up to help landowners who currently have longleaf pine on their property and need help with management and/or landowners who are interested in restoring longleaf pine to their property. Historically, longleaf pine was the predominant pine species across the southern coastal plain of the US, including parts of North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, and Louisiana. In the 1900’s longleaf forests were replaced with agriculture, urban development and faster growing species such as slash pine. By 1995 longleaf forests occurred on only 2% of their historical range.

With improved genetic stock, the use of containerized seedlings, and science based management techniques, longleaf pine can be established with much more success than in the past. For landowners with habitat management objectives, longleaf pine is a great choice. It is adapted to fire, more resistant to some insects and diseases and, with its long tap root, is able to withstand high winds. If managed with fire, longleaf pine stands can be incredibly diverse, providing habitat for a multitude of flowering plants, insects, birds, reptiles and mammals. In terms of timber value, longleaf pine yields a much higher percentage of pole size and quality timber per stand than slash or loblolly pines. Poles command the highest price of all timber products and the pole market historically has been very stable.

The NWTF and NRCS have joined forces to assist landowners through the Wildlife Habitat Incentive Program (WHIP), which is one of many incentive programs offered via the Farm Bill to private landowners. Through this partnership, NWTF certified biologists will develop a conservation plan for landowners in North and Central Florida. Once a conservation plan has been finalized, the NWTF will then work with NRCS to determine what type of technical assistance they can qualify for through WHIP. The goal of this partnership is to develop 269 conservation plans across the 7 previously mentioned states. Twenty-five plans are specifically targeted for Florida. Additionally, each state will hold 2 field days to educate landowners...
about longleaf pine and appropriate management practices for timber and wildlife.

Interested landowners are interested in please contact your NWTF regional biologist, Derek Alkire dalkire@nwtf.net, cell: (352) 262-2373.

Congratulations Brian Cobble: National Tree Farm Inspector of 2011

We are very proud to announce that Brian Cobble (Florida Forest Service Forester, Suwannee County) is being recognized by the American Tree Farm System as the nation's top Tree Farm Inspector for 2011. Brian, who was honored as Florida's Tree Farm Inspector of the Year in 2010, has put much energy behind bringing the Tree Farm message of forest conservation, management and sustainability to the landowners of Suwannee County. During calendar-year 2010 Brian conducted 45 inspections, on 13,809 acres, including bringing 9 new properties into the American Tree Farm System. In appreciation for all of his hard work, Brian has been invited to attend the 2011 National Tree Farmer Convention, to be held August 9-11 in Albuquerque, New Mexico, and will be recognized as the National Tree Farm Inspector of the Year during the awards banquet. Congratulations Brian!

THANKS Forest Stewardship Program Sponsors and Supporters!!

A hearty THANKS to all the businesses and organizations that sponsored this year’s Forest Stewardship Program outreach events across Florida:

We also thank the Florida Forest Service and the Florida Sustainable Forestry Initiative Implementation Committee for their continued financial support of the University of Florida’s Forest Stewardship Extension Program.

More Discussion on Uneven-aged Pine Management

The articles on uneven age management (UAM) in the last issue of the Forest Steward; “Uneven-aged Management of Southern Pines” by Josh Dickinson, Don Handley and Chris Demers and “The Passive Alternative: Is Group Selection a Viable Alternative in North Florida Flatwoods?” by Jeff Main; have sparked some lively discussion. The original intent of the “Uneven-aged Management of Southern Pines” article was to inform landowners of the benefits of managing lobolly pine in an uneven-aged system and was based on examples of this in South Carolina. However, longleaf pine
and slash pine were included in the article since these species are also of interest to the readership. This necessitated some discussion on the selection system, which Jeff Main addressed in his article. Some follow-up discussion on these methods follows:

**Josh Dickinson**: Jeff Main is correct in stating that the dominant management strategy for pine in the Southeast over the last half century has been the even-aged plantation. This model has been promoted by the forestry community and accepted and used by a significant number of forest landowners. However, for a growing number of forest owners with smaller acreages, this approach may not be the best option. The high up-front costs of site preparation and planting, with a once-in-a-lifetime major harvest revenue, may make the even-age plantation model uneconomical for landowners with smaller acreages.

Main offers as an alternative to plantations “group or gap selection” in north Florida, presumably on sites most suitable for longleaf (and slash?) pine. This is an excellent model for sites unsuitable for loblolly pine. However, given that loblolly is the dominant second growth pine species across the Southeast, from central Florida to Texas, we believe that the uneven-aged management model we discuss has wider application. This management model was successfully introduced in the Southeast in the 1920s, but is virtually unknown as a field practice among consulting foresters today.

In contrast to the group selection model presented; with loblolly: a) group selection is not required; selective thinning back to a 60 sq.ft. basal area is sufficient to achieve regeneration, b) bare mineral soil is not required; the wings on seeds quickly detach allowing the small seeds to work their way down through litter to germinate in mineral soil, and c) the dense carpet of seedlings is not a disadvantage: the dense seedling crop suppresses hardwood competition with most dying off as dominant individuals form the next size class.

This discussion clearly illustrates the importance to family forest owners of working with foresters with a grasp of the complexity of site characteristics, species options, economics, and owner preferences. Both approaches - group selection and uneven-aged management – offer welcome alternatives to the industrial plantation.

**Jeff Main** replies: My article was targeted to north Florida specifically. This area was, and to a large extent still is, dominated by our pulpwood markets. Both industry and the NIPL’s (nonindustrial private landowners) have almost exclusively practiced plantation forestry, true tree farming. The small marginal price difference between pulpwood and most solid wood products still encourages fiber production, not lumber, if return on investment is your highest priority. This is not the case in much of South Carolina.

As far as species are concerned, loblolly occurs here but was never dominant, even in our small red hills region. Time and experience has shown it’s not the species of choice for timber production on our phosphorus deficient loamy sands (which are 90% of the timber base). During the early 80’s loblolly was planted on significant acreage in north Florida. We still have the remnants of off-site loblolly stands, 20 years old, 3” DBH’s and 20’ tall. Unfortunately we don’t have the depositional clays and coastal spodic
soils South Carolina does. I've worked in Allendale, Estill and around Columbia in the past. This is very different.

In regard to financial performance, given equal soils and sites, good planted pine stands will out-perform uneven-aged stands every time. Natural stands simply cannot produce the growth a planted pine stand can with its improved genetics, beneficial site prep and spatial design.

Be that as it may I applaud what Josh and Don are doing and believe it is good advice for many landowners. However, the aesthetic, wildlife and joy of ownership qualities of naturally managed, uneven-aged stands are the regime’s strong points. I'd love to see more landowners take that approach. Nevertheless, comparison based solely on financial metrics will always fall to planted stands.

Florida Division of Forestry now Florida Forest Service

As of July 1, 2011, the Florida Division of Forestry is the Florida Forest Service. The mission of the agency remains the same: to protect Florida and its people from the dangers of wildland fire and manage the forest resources through a stewardship ethic to assure they are available for future generations. Florida Forest Service’s core program areas are: Wildfire Prevention, Detection and Suppression, State Land Management, and Forestry Technical Assistance.

Austin Cary Memorial Forest Conference Center Destroyed by Fire

As many of you have already heard, on the afternoon of Tuesday July 19, a fire destroyed the Conference Center at the Austin Cary Memorial Forest. No one was hurt or injured as a result of the fire. As of the writing of this piece, we still do not know the cause of the fire. This is a great loss to the School of Forest Resources & Conservation, UF-IFAS and all who have enjoyed an event, celebration or meeting at this marvelous facility. We look to the future and consider possibilities to rebuild.

Get Email Updates!
Don’t miss out on upcoming events and news. Send an email to cdemers@ufl.edu to be added to the Stewardship listserv.

UF and Florida A&M Extension Invite Your Feedback

Florida Extension is a partnership between the University of Florida and Florida A&M University to improve the quality of life for citizens through education. In the coming decade, decisions will be made by Florida Extension that may influence you and your community. We invite you to participate in our Community Input Survey to give your opinions about certain issues that may impact these decisions. The focus of this survey is your community – where you live, shop, work and play. The survey runs through August 19, 2011. Access the survey here: http://solutionsforyourlife.com (see the “We Need Your Advice” link)
Congratulations Certified Forest Stewards and Tree Farmers!

Mrs. Erika Simons (R) with Brian Cobble, Florida Forest Service, Suwannee County

Lloyd Adams (R) with Brian Cobble, Florida Forest Service, Suwannee County

Samuel “Bart” & Susan Strang, Suwannee County

Ira & Shirley Wood, Suwannee County

For more information about becoming a Certified Forest Steward or Tree Farmer, call your County Forester or learn about it at:

http://www.fl-dof.com/forest_management/cfa_steward_index.html
http://www.floridaforest.org/tree_farm.php
Property Tour
Canaan Ranch
Property Nolan Galloway and Family
Gilchrist County, FL

Date: 
Tuesday, September 13, 2011; meet and greet at 9:00 AM ET. Program begins promptly at 9:30.

Tour: 
Canaan Ranch was originally purchased by Nolan’s great grandfather in 1944, who operated the property as a cattle farm, but sandy soils provided insufficient browse. Giving up on cattle, he began to plant pine trees. With about 2,000 acres of naturally regenerated longleaf pine and another 1,200 acres in a mixture of planted slash pine, longleaf, and oak hammocks, the family has harvested trees when needed and replanted when financially feasible. Nolan’s long-term goal for the property preserve much of the naturally regenerated longleaf pine / wiregrass habitat forever, while bringing the sparsely populated longleaf areas into better production by planting containerized seedlings. Prescribed fire has been and will continue to be an important management tool. A small amount of Japanese climbing fern was found on the property and promptly treated. Challenges have all been financial but, with the help of financial assistance from Florida Fish and Wildlife Conservation Commission, Division of Forestry and Natural Resources Conservation Service, several management dreams have been realized. Nolan is working toward a perpetual annual harvest and regeneration cycle that will allow the ranch to pay for itself as well as fund future investments. According to Nolan, “Managing this property is a life-long passion for me. I do not get paid for my efforts at the ranch but I take great pride in the property and consider my work there to be my legacy.” Join us for a tour of Canaan Ranch.

Register: 
Cost is $10 per person, lunch and materials included. Please register on-line at http://fsp-tour091311.eventbrite.com/. Directions posted on web. Those without Internet access can reserve a space by calling Chris Demers at (352) 846-2375. Payment can be made on-site with cash or check, payable to University of Florida. Space will be limited so please register early. Please share this announcement with others who may be interested. Contact Chris Demers, (352) 846-2375, cdemers@ufl.edu, with questions about this or other Florida Forest Stewardship Program events.

Funding for Florida’s Forest Stewardship Program is provided by the USDA Forest Service through the Florida Department of Agriculture and Consumer Services Division of Forestry and a grant from the Sustainable Forestry Initiative.
Florida Master Naturalist
Upland Habitats Module

Six Week Course
Thursdays, September 22 through October 27, 2011
8:30 am - 4:30 pm
Levy County Extension Office
625 N. Hathaway Ave (Alt. 27), Bronson, FL

Cost: $225
Includes student workbooks, 12 presentations, 3 field trips, 4 videos, certificate, patch, pin and more.

To register or for more information, go to http://www.masternaturalist.ifas.ufl.edu/ or call Emma Willcox at (352) 486-5131.

Extension programs are open to all persons without regard to race, color, sex, age, disability, religion, or national origin.
Property Tour
Little Creek Woods
Property of Bob Reid and Betsy Clark
Walton County, FL

Date:  
Thursday, October 6, 2011; meet and greet at 9:00 AM CT.  
Program begins promptly at 9:30.

Tour:  
Having made great strides in their habitat restoration efforts since our last tour at 
Little Creek Woods in 2004, Bob and Betsy are inviting us back to see the progress.  
Little Creek Woods consists of 890 acres but this tour will focus on a core of about 
200 acres where efforts are underway to restore longleaf sandhill habitat.  We’ll also 
see an experimental installment of planted pines to measure the growth of different 
pine species on high and dry sites.  The goal at Little Creek is to develop a multi-age 
forest, supporting a full complement of wildlife, while providing a permanent source 
of income for future generations.  Having been in the Forest Stewardship Program 
for many years, Bob and Betsy have opened their gate several times over the years to 
share their experiences with other landowners and natural resource professionals 
who are trying to achieve similar or related goals.  We’ll do some walking so wear 
appropriate boots and clothing, and be prepared for rain.

Register:  
Cost is $10 per person, lunch and materials included.  Please register on-line at 
http://fsp-tour100611.eventbrite.com/.  Directions posted on web. Those 
without Internet access can reserve a space by Walton County Extension Office at 
(850) 892-8172.  Payment can be made online or at the tour with cash or a check, 
payable to University of Florida.  Space will be limited so please register early. 
Please share this announcement with others who may be interested.  Contact Chris 
Demers, (352) 846-2375, cdemers@ufl.edu, with questions about this or other 
Florida Forest Stewardship Program events.

Funding for Florida’s Forest Stewardship Program is provided by the USDA Forest Service through the 
Florida Department of Agriculture and Consumer Services Division of Forestry 
and a grant from the Sustainable Forestry Initiative.
Timber Price Update

The timber pricing information below is useful for observing trends over time, but does not necessarily reflect current conditions at a particular location. Landowners considering a timber sale are advised to solicit the services of a consulting forester to obtain current local market conditions.

Price ranges reported in the 2nd Quarter 2011 Timber Mart-South (TMS) report were:

<table>
<thead>
<tr>
<th>Florida Stumpage Prices</th>
<th>Biomass Fuel Prices*</th>
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</thead>
<tbody>
<tr>
<td>• Pine pulpwood: $16 - $32/cord ($6 - $12/ton), ↓ from 1st Qtr 2011</td>
<td>• In-woods whole tree pine: $14 - $19/ton ↓</td>
</tr>
<tr>
<td>• Pine C-N-S: $28 - $51/cord ($11 - $19/ton), ↓</td>
<td>• In-woods whole tree hardwood: $13 - $17/ton ↓</td>
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<tr>
<td>• Pine sawtimber: $57 - $90/cord ($21 - $34/ton), ↓</td>
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<tr>
<td>• Pine plylogs: $63 - $87/cord ($24 - $33/ton), ↓</td>
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<tr>
<td>• Pine power poles: $82 - $158/cord ($30 - $59/ton), ↓</td>
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</tr>
<tr>
<td>• Hardwood pulpwood: $10 - $28/cord ($4 - $10/ton), ---</td>
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Trend Report

Average stumpage prices in the second quarter remained weak across Florida and the Southeast region. In the case of pulpwood, average prices were affected, in part, by the quantity of extra timber on the market due to tornado and fire damage. Pine sawtimber and chip-n-saw prices hit lows not seen since 1992. Economic recovery slowed this quarter with concerns about inflation and U.S. debt contributing to uncertainty. Remember that “Gloom, despair” song from the old TV show, Hee-Haw?

Average Pine Stumpage Prices for Florida
1st Qtr 1997 through 2nd Qtr 2011
### Upcoming Stewardship, Small Farm and Other Events

<table>
<thead>
<tr>
<th>Date</th>
<th>Event, Location, Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>August 25</strong></td>
<td><strong>WFREC Extension Farm Field Day, UF-IFAS West Florida Research &amp; Education Center Research Facility, Jay, FL.</strong> For more information contact Robin Vickers, <a href="mailto:rvickers@ufl.edu">rvickers@ufl.edu</a>, (850) 983-5216 ext. 113.</td>
</tr>
<tr>
<td><strong>September 7-8</strong></td>
<td><strong>Florida Forestry Association Annual Meeting, Renaissance Hotel at World Golf Village, St. Augustine, FL.</strong> To register, please complete the registration form at <a href="http://www.floridaforest.org/events.php?event_id=153">http://www.floridaforest.org/events.php?event_id=153</a>. Contact Debbie Bryan, Florida Forestry Association, (850) 222-5646, <a href="mailto:debbie@forestfla.org">debbie@forestfla.org</a></td>
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<tr>
<td><strong>September 9</strong></td>
<td><strong>Forest Stewardship Food Plot Field Day, 9 am - 3 pm, Blitch Plantation, property of John &amp; Shirley Rudnianyn, Marion County.</strong> $10 fee, lunch and materials included. More details and on-line registration page to come. Call the UF-IFAS Marion County Extension Office at (352) 671-8400 to reserve a space.</td>
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<tr>
<td><strong>September 13</strong></td>
<td><strong>Forest Stewardship Tour: Canaan Ranch, Property of Nolan Galloway and Family, Gilchrist County, 9 am - 1 pm, ET.</strong> $10 fee covers materials and lunch. Details and registration at <a href="http://fsp-tour091311.eventbrite.com/">http://fsp-tour091311.eventbrite.com/</a></td>
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<tr>
<td><strong>September 22 – October 27 (Thursdays)</strong></td>
<td><strong>Florida Master Naturalist Upland Habitats Module, 8:30 am - 4:30 pm ET, UF-IFAS Levy County Extension Office, Bronson, FL.</strong> $225 registration fee covers workbooks, presentations, field trips, videos, certificate, patch, pin and more. For more info, see <a href="http://www.masternaturalist.ifas.ufl.edu/">http://www.masternaturalist.ifas.ufl.edu/</a> or call Emma Willcox at (352) 486-5131.</td>
</tr>
<tr>
<td><strong>October 3-5</strong></td>
<td><strong>Southeast Herbicide Applicator Conference, Edgewater Beach Resort, Panama City Beach, FL.</strong> CEUs abound! See website for details: <a href="http://www.conference.ifas.ufl.edu/sehac/">http://www.conference.ifas.ufl.edu/sehac/</a>. Questions can be directed to Jhanna Gilbert, Conference Coordinator, UF-IFAS, Office of Conferences &amp; Institutes, (352) 392-5930, <a href="mailto:jhanna@ufl.edu">jhanna@ufl.edu</a></td>
</tr>
<tr>
<td><strong>October 6</strong></td>
<td><strong>Forest Stewardship Tour: Little Creek Woods, Property of Bob Reid and Betsy Clark, Walton County, 9 am - 1 pm, CT.</strong> $10 fee covers materials and lunch. Details and registration at <a href="http://fsp-tour100611.eventbrite.com/">http://fsp-tour100611.eventbrite.com/</a></td>
</tr>
<tr>
<td><strong>October 11</strong></td>
<td><strong>UF-IFAS North Florida REC Fall Field Day, Quincy, FL.</strong> For more information contact NFREC at (850) 875-7100.</td>
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<tr>
<td><strong>October 26</strong></td>
<td><strong>WFREC Fall Specialty Crop Production Field Day, UF-IFAS West Florida Research &amp; Education Center Research Facility, Jay, FL.</strong> For more information contact Robin Vickers, <a href="mailto:rvickers@ufl.edu">rvickers@ufl.edu</a>, (850) 983-5216 ext. 113.</td>
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</table>

For more Forest Stewardship Program information see: [sfrc.ufl.edu/forest_stewardship](http://sfrc.ufl.edu/forest_stewardship)