Movement Behavior of Coyotes in Florida's Rangelands

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Published in *The Florida Cattleman and Livestock Journal*, September 2024

Coyotes are medium-sized dog-like carnivores, adult coyotes typically weigh between 25 – 40 lbs. Prior to the European colonization of North America, coyotes occurred primarily west of the Mississippi River. However, the clearing of forest for agriculture and changes to large predator community in eastern North America assisted coyotes in spreading eastward beginning in the early 1900s. Coyotes first began expanding into Florida in the 1960s and by the 1990s were abundant throughout the state.

Coyotes are a generalist predator, meaning they will consume a wide variety of plant and animal material to meet their energetic needs. Generalist predators are often assumed to be adept at switching between food sources as their availability or ease of access changes over space and time. Thus, while herbivores like white-tailed deer are often linked with vegetation types reflective of their preferred food, generalist carnivores are often not strongly linked to any particular type of vegetation or landcover. Because we don't understand the mechanism behind why coyotes move on the landscape and make the behavior choices that they make, predicting and reducing human-coyote conflict including potential livestock predation is difficult.

In a partnership between the Rangeland Wildlife Ecology Lab at the UF/IFAS Range Cattle REC and USDA Wildlife Services, we captured and fitted GPS collars to 15 adult coyotes on the UF/IFAS DeLuca Preserve in Osceola County, Florida in January 2024. We have been tracking these coyotes for more than six months and have already seen many interesting behaviors.

Some of the coyotes we are monitoring are residents, meaning they reuse the same area over and over. These individuals have an easily definable home range and defend their home range against incursion by other coyotes. In Figure 1a, you can see the movement paths of four resident coyotes (yellow, red, light blue, and light purple). The opposite of a resident is a transient. Transient coyotes want to become resident coyotes, because establishing a home range is the only way that coyotes can successfully raise pups (Figure 1c). They need to have an area where they can keep their pups safe and find enough food to feed them.

Transient coyotes use two different strategies for becoming a resident. The most common strategy transient coyotes use is to stay in one general area and wander around looking for empty space or a coyote with a home range but without a mate, we call animals using this strategy local transients. Local transients often use areas near where they were born. In Figure 1d, you can see

the movement paths of two local transient coyotes (green and dark blue). These animals might go weeks or months before reusing the same location and rarely invade resident coyote's home ranges. The other strategy that transient coyotes use to become a resident is to travel long distances actively looking for a space or a mate, we call animals using this strategy long-distance transients. Long-distance transients don't stick to the same area near where they were born and often never reuse a site until they find an area they can call their own. In Figure 2, you can see the movement path of one long-distance transient (yellow) – this animal traveled a straight-line distance of nearly 30 miles in 7 days.

As we continue to collect and analyze the coyote movement data for this project, we will be able to determine how coyotes interact with other animals that live at the DeLuca Preserve. For example, another wildlife research project conducted by my colleagues in the UF/IFAS Wildlife Ecology and Conservation Department is tracking wild turkey movement and space use. Together we will collaborate to answer questions like: Do some coyotes become wild turkey predator specialists? Does coyote hunting behavior coincide with times in which wild turkeys are most vulnerable to predation (e.g., when they are gobbling or on the nest)? Are wild turkeys good at detecting and avoiding areas of high coyote activity?

We are also looking at how coyotes interact with cattle. The DeLuca Preserve is home to nearly 1000 cow-calf pairs that graze in improved pastures and semi-native rangelands. We will be looking to see whether coyotes are actively hunting in pastures where cattle are grazing or if they just travel through pastures on their way to forested patches that have smaller prey. With collaborators from the Archbold Biological Station and the University of Central Florida we are also exploring plans to install a virtual fence system at the DeLuca Preserve that will allow us to monitor cattle movement more closely than ever before. This additional insight can allow us to directly look at coyote and cattle interactions and determine if cattle respond to coyote activity and move or change behavior when their calves could be in danger.

Our coyote project at the DeLuca Preserve is intended to run for the next few years, so we are just getting started. We are excited to see what we can learn about coyotes at the DeLuca Preserve in future. Any questions about this project or coyotes in general can be directed to Hance Ellington (e.ellington@ufl.edu). Note: All coyotes were safely captured and handled using techniques approved by institutional animal care and use committee by trained professionals on our team.

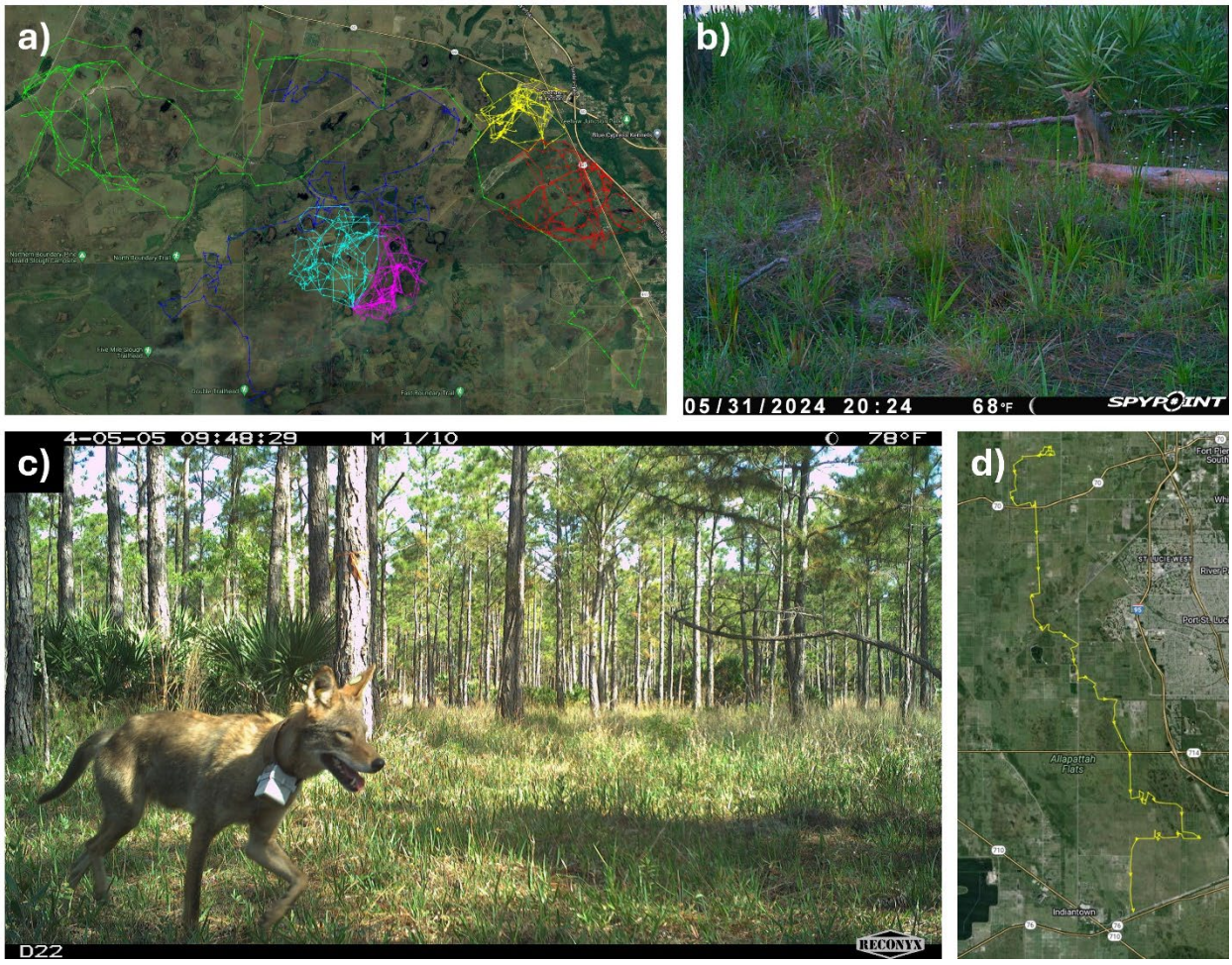

Figure 1. Movement paths of six coyotes (four resident coyotes [yellow, red, light blue, and light purple] and two local transient coyotes [green and dark blue]) from March 1st to March 14th, 2024, at the DeLuca Preserve in Osceola County, Florida (a). Coyote pup born at the DeLuca Preserve explores the area around its den (b). Male coyote with GPS collar observed at the DeLuca Preserve (c). Movement path of a long-distance transient coyote from February 2nd to February 9th, 2024, in St. Lucie County, Florida (d).

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Upcoming Events

Sept. 4 & 5 - Applied Reproductive Strategies for Beef Cattle (ARSBC) Conference – Athens, GA. Learn more about how to capitalize on reproductive technologies and reproductive management. See event details at https://beefrepro.org/arsbc/. Questions? Contact Dr. Philipe Moriel at pmoriel@ufl.edu.

Sept. 10, 11:00 – 11:45 a.m. Join us for the Ona Highlight 'A Beef and Forage Economics Program Update' with Hannah Baker. See our website calendar (link below) to register for the Zoom broadcast or register to attend in person by calling 863-735-1001.

Oct. 10, 8:00 a.m. – 3:00 p.m. UF/IFAS Range Cattle REC Field Day. Learn about faculty and student research, visit field sites, and enjoy a steak lunch. Early registration, $20 (ends 9/13); general registration $30 (ends 10/8). https://rcrec-2024-fd.eventbrite.com

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UF/IFAS Range Cattle REC - 3401 Experiment Station Rd., Ona - http://rcrec-ona.ifas.ufl.edu/