

Road Cruising for Dead Wildlife

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Introduction

This morning I stopped to check out a dead snake on Highway 100, near the entrance to the Swisher Lakes subdivision. After parking on the grassy shoulder, I climbed stiffly out of my CR-V and walked over to inspect this roadkill. It was badly smashed against the pavement but still recognizable as a red ratsnake. It was not there last evening. As I stared at the crushed carcass, my mind wondered: “Could it be one of the red ratsnakes I had seen previously near my own property?” How many times have I stopped in my lifetime to examine a dead reptile. Maybe hundreds.

Standing on the shoulder this morning, I watched lines of cars and trucks stream by me. A speeding 18-wheeler blew my favorite yellow Scooby ballcap right off of my head. My fleeting thoughts were, “I must be standing too close to the edge of the road. No wonder animals, including this ratsnake, are being killed on this highway!” And then, walking over to retrieve my hat from the grassy median, I thought: “how many hats have I lost along highways over the six decades of road-cruising?” Even at the age of 80 years, I impulsively stop for roadkills.

Road-Killed Wildlife

Drivers routinely kill huge numbers of wildlife on Florida highways annually. How many? Who knows! I am not aware of any systematic attempt to monitor these highway deaths, but it is obvious that tons of native biomass are lost each year to the rolling wheels of highway traffic.

What are the consequences of these massive losses to ecologically-sensitive systems? This disturbing question has haunted me ever since John E. Cooper brought me and other Baltimore high school students to Florida in the late 1950s to hunt snakes. Coop was a field scientist who taught us students the

value of keeping accurate notes. I still have my field notes from those earlier times. Coop also exposed us to various snake-collecting techniques, including road-cruising. One of the most invaluable contributions he provided me personally was the opportunity to interact with many notable Florida field herpetologists whom we met along the way. Coop knew them all! Imagine the impact that these early experiences had on a born-and-raised city kid like me with an appetite for snakes and snake hunting. It was these early experiences that propelled me forward into a life of natural history inquiry.

Nuances of Road-Cruising

Road-cruising, an age-old technique for finding rare reptiles, has been practiced by snake-hunters (a.k.a. herpers) and other field-oriented naturalists for decades. This method typically involves driving slowly down rural byways, often at dusk, picking up both live and dead snakes from the surface of the highway. Road-cruising herpers usually refer to the dead ones as DORs (Dead-on-Road).

So why do snakes move onto roads? An interesting question. Every road-cruising herper has his own set of guiding environmental conjectures that, in his mind, constitutes what makes for a good road-cruising night. Some of mine are the timing of earlier rain events, the amounts of accumulated rainfall, a moonless night, falling or rising barometers, and road-surface temperatures. Ultimately, though, it comes down to a simple matter: “Tonight just feels right I need to GET OUT OF THE HOUSE.”

Paynes Prairie Experiences

My fascination with driving on roads across marshes began on a specific night in April 1959, when the Florida field herpetologist, Doc Neill (a.k.a. Wilfred T. Neill), suggested to Coop that we drive up from Silver Springs to check out the snakes at Paynes Prairie, a huge freshwater marsh south of Gainesville.

It was a moonless night. A slight misty rain greeted us upon our arrival. As we parked on the road shoulder, we were greeted by literally hundreds of snakes moving up from the marsh onto US 441. At that time, the old two-lane was being converted to four with a median strip. As we stood there, on what was to become the south-bound lane, we were surrounded by moving snakes, some even crawling over our boots. Most of these vagrant serpents from the marsh

were green and banded water snakes, supplemented by occasional ribbon snakes, mud snakes, striped swamp snakes, and red-bellied swamp snakes. The most exciting discovery that night, however, was a live 6-foot long Florida kingsnake. We had read about them on Paynes Prairie in Carl Kauffeld's book, *Snakes and Snake Hunting*.

Those early experiences eventually led Sylvia Scudder and me to start a five-year-long study, starting April Fools Day, 1973. I first met Sylvia when we were graduate students and worked at the Florida Museum of Natural History. We later joined the museum staff as scientists. She and I met every Tuesday evening and drove back and forth multiple times across a 1.8-mile section of this highway, recording numbers of each kind of serpent. The study continued until the end of March 1978. Our project included the capture of live snakes that we released back into the marsh following a brief assessment of their body conditions. The DORs were kept for later dissections at the museum, where we would evaluate each specimen for size, body weight, food in the GI tract, reproductive condition, fat bodies, and helminth parasite loads in the lungs and GI-tracts.

During that study, we recorded about 2,700 snakes moving onto the road. Extrapolating from our counts, we estimated that at least 13,500 snakes, consisting of twelve species, moved up slope from the marsh's edge over that five-year period. Those movements represented approximately 1.4 tons of reptile biomass. Road mortality was extreme - we estimated that one snake in seventeen managed to escape the road alive.

A side note. The Paynes Prairie story about our snake-monitoring efforts was published in *The Gainesville Sun* newspaper, where it got picked by news commentator Paul Harvey for his radio program, *The Rest of the Story*. Based on my 40-year old memory fragments, his commentary started out with something like - Would you believe this? - and ended with him speculating about the project's possible costs. The truth was it cost taxpayers nothing. We recorded snakes on our own time, with gas money from our own pockets. Even the Tuesday-night costs for occasional beer-purchases at the Red Lion tavern with herper friends were funded with loose coins from our own pockets and mad searches of the cars' floors.

On a positive note, these snake data were used by a group of concerned UF wildlife students to persuade the FDOT to construct barrier walls (with underpasses) to keep snakes and other wildlife from emerging onto the highway. Later studies proved these walls to be very effective on US 441 in reducing the numbers of wildlife deaths (Smith and Dodd 2003. *Florida Scientist* 66(2):128-140; Dodd, Barichivich, & Smith 2004. *Biological Conservation* 118 (2004) 619–631).

Monitoring Wildlife Deaths on SR 100

Fast forward fifty years. After moving to Putnam Hall, I drove to Palatka on SR 100 several times each week to buy groceries and later volunteer at the Water Works Environmental Education Center, a city park next to Ravine Gardens State Park. On each trip to Palatka, I watched for blooming native plants and road-killed animals. It became obvious that SR 100 was both a beautifully flowered roadside and dangerous to both wildlife and humans.

This Spring I decided to monitor animal carcasses on this roadway to evaluate the magnitude of slaughter. In developing my study plan, I chose to apply my traditional road-cruising skills to inventory dead animals on a 18.2-mile segment of this road in western Putnam County. I incorporated several novel deviations from my more traditional road-cruising practices to include the inclusion of mammals, birds, reptiles and amphibians in the sampling effort and to shift the timing of my road-cruising activities from night to mid-morning to meet the goals of the current project.

My road-cruising efforts began at Putnam Hall and ended at the junction of SR 100 and CR 216 (road to Georgia-Pacific paper mill), on the western outskirts of Palatka. I drove this segment of road in the mornings, between nine and eleven, three to five times a week, for parts of three months (March-June 2021). The cruises were grouped into two seasonal segments (Mid-Spring and Early Summer samples) with a twenty day hiatus between them. A single trip consisted of driving eastward towards Palatka, then turning around and driving back to Putnam Hall (junction of SR 100 and SR 26), a total distance of 36.4 miles (18.2 miles each way). I noted road-kills in both directions, which allowed me to make a more careful examination of both the travel lanes and shoulders.

This piece of highway intercepts human use areas, including four rural communities (Putnam Hall, Grandin, Florahome, Caraway) and numerous human-affected sites (Putnam Prairie at Putnam Hall, Vulcan sand mine quarries, occasional private dwellings, Q. R. Roberts Public Cambridge School, Etoniah Creek State Forest, the immense private Roberts Ranch at Caraway, Rice Creek Conservation Area (SJRWM), Rice Creek and its tributaries, and the Palatka Regional Airport). The road also parallels the Palatka-to-Lake Butler State Trail.

The following information was recorded for each DOR carcass: animal's identity, date and day of observation, adjacent roadside habitat, specific position on the roadway, and body condition (fresh, scavenged, or flattened) (Tables 1 & 2). Road-side habitats were classified as upland woodlands (including sandhills), pinelands (including pine plantations and recent clear-cuts), swamp forests and stream-bottoms, depressional wetlands, and urban areas. Positions of road-kills included the East and West Bound Lanes, White-lined Shoulders, and Vegetated Margins (Figure 1). Only DORs were listed in the counts, although I made note when I saw live individuals.



FIGURE 1- Highway divisions where carcasses were recorded: A) East-bound travel lane, B) West-bound travel lane, C) White-lined Shoulders, and D) Vegetative Shoulders.

Readers, please understand that the road-kill information presented here has an inherent body-size bias. Individuals, smaller than bullfrogs, sub-adult snakes, rats, and woodpeckers were unrecognizable at 50 mph and hence could not be counted. Older carcasses, listed in previous surveys, were usually identifiable as such, by their picked-over appearance or their bodies smashed and/or dried out by the time of the next survey. Many times, older carcasses had been moved by scavengers. All of these aspects, plus a decent memory, enabled me to distinguish the “newbie carcasses” from those seen previously.

Challenges of Road-Cruising on a Busy Road

The most challenging logistical concern of this study was my safety, as well as that of other travelers. This highway is a major travel corridor between Lake City (at I-75) and Flagler Beach (at I-95). Cars and pickup trucks, mixed with logging trucks, sand trucks, and cross-state eighteen wheelers, compete for space on this busy two-lane road. The peaks in traffic tended to coincide with the early morning hours (until about 9:30 a.m.), lunch times, and late afternoons (after 3:00 p.m.). During these peak times, there could be continuous lines of traffic, filling both lanes. Gaps in traffic during peak hours are few and far between. Some drivers, stuck in these strings of vehicles, become impatient, causing them to make unsafe passing decisions, sometimes leading to vehicular accidents and occasional human fatalities (Figure 2).

Now, add an aging naturalist with a blue streak in his hair, who drives under the speed limit, slows to checkout dead snakes and other wildlife, and makes occasional stops on the road shoulder to inspect curious bits of trash. This road-cruiser will also routinely pull off onto the road shoulder, of course after using his turn signals, to allow strings of traffic that have built up behind him to pass. I imagine that those impatient fasties conjure up all kinds of stories about this crazy old geezer’s driving habits, which then probably gets projected into colorful tales that gain traction with fellow workers around the morning coffee pot.

Road-Side Trash

When spotting an object on the road, a road-cruiser needs to make an identification. Is it an animal or a piece of roadside trash? The process requires a snap-decision. Discarding trash on Florida roadways is against the law, yet people use roadsides as their private trash bins and/or ash

trays. Why? Much of the local roadside litter comes from the windows of vehicles, trunks of cars, and beds of pickup trucks. One finds plastic bags, Styrofoam drinking cups, metal beer containers, sandwich wrappers, soiled diapers, wood debris, and in extreme cases, discarded sofas, mattresses, and entire bags of household garbage. Why do people feel so disconnected with their county neighbors to think it's okay to trash our roadsides? I'll never understand it!

As an attempt to clean up state highways, many states and local communities have enacted ordinances to control roadside dumping. Roadsides in Putnam County are particularly junked up with human refuse. What people forget is that, under Florida and local ordinances, individuals who litter less than 15 pounds could be fined up to \$100 for each littering event, and persons who litter



FIGURE 2- Crushed guard rail, at a site of an accident, near Rice Creek

more than that could face a first degree misdemeanor, having far more serious consequences. Littering also costs us taxpayers revenue to have county workers and/or prisoners, picking up this debris and hauling it away to the landfill. Remnants of road signs about littering fines still exist in Putnam County and

elsewhere in the state, but they are obviously no longer a deterrent. How could we once again put teeth into those regulations and clean up our roadsides?

Wildlife Mimics

Most of the time I can easily distinguish roadkills from trash, although there are those times when this debris can look amazingly similar to an animal carcass. These snake, turtle, and mammal mimics often include broken pine limbs, pine cones, pine bark off logging trucks, clods of Spanish moss fallen from overarching oak trees, or clumps of grass sod that has fallen from sod trucks. The most problematic mimics, however, are those rubber hoses or shredded truck retreads, ubiquitous along the highway. Those, more than any other pieces of trash, are the most challenging to identify. Tire retreads, lying on the road shoulders, can be transformed in my mind's eye as a carcass of a dead turtle, snake, small gator, even a flattened raccoon (Figure 3).

Some of these items are so animal-like that they require a second look. So after a U-turn, it's back to the object to confirm its identity. Most times, these revisits turn out to be some odd shaped piece of rubber or possibly a wood chip. But, yes, some roadside oddities turn out to be a DOR animal smashed flatter than a pancake.



FIGURE 3- Roadside rubber retread mimic a DOR wildlife carcass.

Counting Rubber

During this field study, I stopped to do quick counts of rubber pieces, along six randomly selected sections of SR 100 to assess their highway frequency (see Table 1). With each count, I was amazed by the sheer numbers of rubber fan belts, hoses, and tire pieces that I encountered. Why does so much vehicle rubber end up along the highway? Based on their size and type, most rubber pieces are from large trucks. A lot of rubber tire pieces apparently originate with disintegrated re-manufactured tires.

It's time for me to fact-check "shredding tires" using the Internet. These retreads are often referred to as "recaps." They are less expensive than new tires, but their fabricated treads can break loose from the tire casing and peel away like a banana skin. This leaves the tire bald, a condition that places the driver with diminished control over the vehicle.

Now, what causes tire retreads to split from their tire casings? Tires take the brunt of abuse on any vehicle. They are responsible for making the ride smooth and keeping the vehicle on the road. Gravel roads or roads full of potholes can damage tires in a big way. For every hit or bump a tire experiences, it degrades further. Continued abuse weakens the tire belts, to the point where they begin to fail, and the results litter our highways. Heavily loaded logging trucks may be the major culprit since they are driven across unimproved timber-harvest tracts. Their tires are surely being subjected to major physical abuse since a load of logs on a flatbed trailer may weigh as much as 88,000 pounds (Figure 4).



FIGURE 4- Loaded log truck, at a clear-cut in the local area.

Counting pieces of rubber on each side of the SR 100 shows that east-bound trucks contribute more rubber clutter than its west-bound counterpart. Logging trucks with their heavy loads, traveling eastward, are probably the source of this rubber, as they head for the Georgia-Pacific paper mill in Palatka.

Table One-

Numbers of rubber pieces, in excess of six inches, found along the SR 100 study site. Rubber pieces included fragments of tire retreads, tire casings, engine hoses, and engine belts, recorded from between sequences of three telephone poles. Counts were made on each (east/west) travel lane and their associated road shoulders.

Transect Locations, starting with Putnam Hall, Mileage 0.0	Distance between 3 Telephone Poles	Rubber pieces East-bound Traffic Lane	Rubber pieces West-bound Traffic Lane	Collection Date
Mileage 0.3, vicinity of Putnam Prairie	740 feet/lane, 1480 feet for combined lanes	19	10	08/06/21
Mileage 3.0, west of Paran Church Road	588 feet/lane, 1176 feet for combined lanes	20	1	08/05/21
Mileage 7.5, east of QI Roberts School	688 feet/lane, 1376 feet for combined lanes	29	8	07/18/21
Mileage 14.0, west of Rice Creek	689 feet/ lane, 1378 feet for combined lanes	11	4	07/18/21
Mileage 15.1, east of Rice Creek WMD entry	740 feet/lane, 1480 feet for combined lanes	9	10	08/05/21

Body Counts

A total of 96 animal roadkills, consisting of thirty different species, were encountered on SR 100 during the two inventory periods: Spring (March 20-April 30, 2021) and Summer (May 20-June 30, 2021). The combined species list includes nine mammals, nine birds, eleven reptiles, and one amphibian (Table 2). Three of those listed are considered domestic, presumably escaped from local residents, while the remainder are native wildlife species, three of which are state-protected (alligator, Florida pinesnake, and gopher tortoise).

The condition of the carcass may show evidence of scavenging (e.g., by insects, vultures, crows, and mammals), or it may become dried and flattened on the pavement, which can help to establish tentative times of death, i.e., the previous day, last night, or earlier that morning.

Carcass locations on the highway were also noted. Categories included which travel lanes (east or west), white-lined pavement shoulders, and the grass shoulders, each offering clues as to the circumstances surrounding an individual's demise. Was the cause of death an accidental road encounter, careless driving, or intentional murder?

Let's explore each option. First, deaths in the travel lanes are probably accidental, occurring when animals suddenly bolt onto the roadway from adjoining habitats. These fatalities are probably associated with normal animal activity which peaks at dusk, night, or morning twilight. The road shoulder kills are more complex to understand. Animals, such as this armadillo (Figure 5), probably died in the white line zones at the edge of the pavement. This zone is a safety net for drivers who need to make emergency stops. Other times, careless drivers occasionally swerve across the solid white line onto the road shoulder, where they could accidentally collide with an animal, such as this Virginia opossum (Figure 6). It is also possible that some carcasses, hit in the travel lanes, were later blown by passing vehicles onto road shoulders, or carried there by scavenging vultures or crows. Armadillos, raccoons, opossums, and turtles were the most common DORs found on this highway (Figure 7).

Then again, another possibility for road shoulder fatalities occurs when drivers deliberately try to hit animals as they emerge onto the roadway. I have watched

these kinds of inhumane acts on occasion during my decades-long efforts at road-cruising on Florida roads. One of the most insidious events that I ever witnessed occurred when a driver in a pickup truck in front of me intentionally crossed the grassy median strip into the face of oncoming traffic to hit a 5-foot alligator on US 441 at Paynes Prairie. Another example, described to me by Tom Hallock, involved an incident where he and his wife Julie were leaving Valdosta. They stopped to remove a live turtle from the roadway, when a driver behind them swerved into their path to run over the turtle before they could secure it. What causes some people to be so cold-blooded to participate in such wanton wildlife killings? It must reflect a twisted personality. It's not funny.

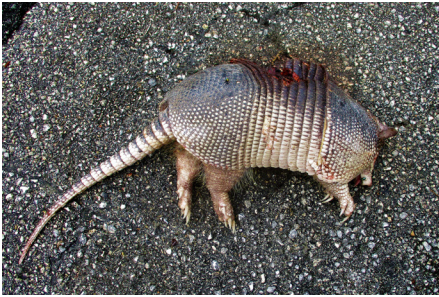


FIGURE 5- DOR Nine-banded Armadillo, killed on the east-bound lane, west side of Rice Creek bridge. White-line shoulder.



FIGURE 7- DOR Gopher Tortoise, killed on west-bound lane, near Caraway. White-line shoulder, west of Caraway.



FIGURE 6- DOR Virginia Opossum, killed on the west-bound lane, near junction with Bardin Road. White-line shoulder.

Road Cruising for Dead Wildlife

Table 2-

Road Mortality Tallies for SR 100, between Putnam Hall and Palatka.

Duration of each sample period:

22 trips within each 41 contiguous calendar segments.

Spring sample:

March 20 and April 30: 17 trips with road kills, 5 trips without kills.

Summer sample:

May 20 and June 30: 20 trips with road-kills, 2 trips without kills.

Species	Summer Sample: Carcasses/ Trip Days	Position of Kills	Summer Sample: Carcasses/ Trip Days	Position of Kills
Softshell Turtle	3 carc/ 3 days	Travel Lane	4 carc/ 4 days	Travel Lane, White-line Shoulder
Box turtle	1 carc/ day	Travel Lane	None	-----
Florida Cooter	None	-----	3 carc/ 2 day	White-line Shoulder
Gopher Tortoise	None	-----	3 carc/ 3 days	White-line Shoulder
Banded Watersnake	None	-----	1 carc/ 1 day	White-line Shoulder
Red Ratsnake	1 carc/ day	Travel Lane	1 carc/ 1 day	White-line Shoulder
Yellow Ratsnake	None	-----	1 carc/ 1 day	Travel Lane
Pinesnake	None	-----	1 carc/ 1 day	White-line Shoulder
Coachwhip Snake	None	-----	1 carc/ 1 day	Travel Lane
Cotton-mouth Moccasin	None	-----	1 carc/ 1 day	White-line Shoulder
Alligator	None	-----	2 carc/ 2 days	Travel Lane, White-line Shoulder (both approx. 3-foot long)
Bullfrog	1 carc/ day	Travel Lane	1 carc/ 1 day	White-line Shoulder

Table Two (con't.)-

Species	Spring Sample: Carcasses/ Trip Days	Position of Kills	Summer Sample: Carcasses/ Trip Days	Position of Kills
Domestic Dog	1 carc/ 1 day	White-line Shoulder	2 carc/ 2 day	Veg Shoulder
Domestic Cat		Travel Lane	1 carc/ 1 day	White-line Shoulder
Domestic Chicken	1 carc/ 1 day	Travel Lane	None	-----
Raccoon		Travel Lane, White-line Shoulder, Veg Shoulder	1 carc/ 1 day	Travel Lane, (dispersing young)
White-tailed Deer	1 carc/ 1 day	Veg Shoulder	1 carc/ 1 day	Veg Shoulder
Armadillo		Travel Lane, White-line Shoulder	9 carc/ 9 days	Travel Lane, White-line Shoulder
Opossum		Travel Lane, White-line Shoulder	7 carc/ 7 days	Travel Lane, White-line Shoulder, Veg Shoulder
Grey Squirrel	1 carc/ 1 day	Travel Lane	5 carc/ 5 days	Travel Lane
Cottontail Rabbit		Travel Lane, White-line Shoulder	4 carc/ 3 days	Travel Lane
Turkey	None	-----	1 carc/ 1 day	White-line Shoulder
Black Vulture			None	-----
Whistling Duck	None	-----	1 carc/ 1 day	White-line Shoulder
Fish Crow	1 carc/ 1 day	Travel Lane	None	-----
Red-shoulder Hawk		Veg Shoulder	3 carc/ 3 days	Travel Lane, White-line Shoulder
Hairy Woodpecker	1 carc/ 1 day	White-line Shoulder	None	-----
Pileated Woodpecker	None	-----	3 carc/ 3 days	Travel Lane
Barred Owl	None	-----	2 carc/ 2 days	Travel Lane, White-line Shoulder

ROADKILL HOT SPOTS. First off, roadkills can occur any place along SR 100 including urban sites; however, I identified the following places where kills were most frequent: 1) Putnam Prairie wetlands, 2) sandhills between the Swisher Lakes Trail road and Grandin, 3) wetlands east of Florahome, 4) uplands areas adjacent to the Roberts Ranch fence near Caraway, and 5) flatwoods on both side of Rice Creek. These five sites represent a major part of the recorded road fatalities.

Some Notable Deaths on SR 100

It is always startling when large animals or humans fall prey to the automobile. These images have stayed with me for years. The most notable incidents in my recent years of driving SR 100 and adjacent CR 26 include the following stories:

Caution - Bear Crossing! A few years ago, my friend Nancy Albury and I were driving to Water Works Environmental Education Center in Palatka, via SR 100. This was a day like so many other gorgeous spring mornings in western Putnam County. The skies were clear, and the day was going to be sunny and warm. Traffic on SR 100 was unusually light. As we drove eastward, we talked tortoises.

Approaching the Roberts Ranch area, we were met with a slow-down in traffic, with some vehicles pulling off onto the grass shoulder. I assumed another vehicular accident - a common occurrence on this busy highway. As we approached the scene, Nancy and I saw about a dozen people gathered around an immense black object lying on the grassy part of the road shoulder.



FIGURE 8- DOR Black Bear, killed in east-bound lane.

We pulled over onto the shoulder to find a massive male black bear, dead in the grass shoulder of SR 100 near Roberts Ranch (Figure 8). We estimated that the bear had been dead for only a short time, since no scavengers had arrived to feed on its remains. It was obvious that the bear had collided with a vehicle earlier that morning. We walked around the body, taking photographs, and attempting to identify the vehicle assailant. Without question, a late model Volvo sedan was involved in the collision, based on the debris field scattered about the carcass.

I called FWC in Gainesville to report the death. Then Nancy and I drove on to Water Works, to spend time with the penned gopher tortoises. By the time we wandered back across SR 100 later in the day, the carcass had disappeared. I never heard whether FWC picked it up, or whether somebody else grabbed it for a rug.

Much of the Roberts' property is surrounded by eight-foot metal fencing, including the site of this bear-kill. This section of the property intercepts one of the travel corridors used by bears, traveling between the Ocala National Forest, several Florida state forests and parks, and the Osceola National Forest. I have occasionally seen where the top several feet of the Roberts' fence had been bent down, and have been told that bears climb over this fence on their way north or south. I have wondered if that fence contributed to the number of our recent bear fatalities on this road.

Sandhill Crane Killed at Putnam Hall. I had gotten a call from my wife, Melanie, one morning about a freshly killed sandhill crane on the white-lined shoulder near Putnam Hall. I drove to the site at the north edge of Putnam Prairie and found the stiffening sub-adult, lacking its adult red-head cap. It had been hit a few hours before. That day, July 1, 2021, was the day after my final day of the Summer Sampling Period (hence, not included in Table 2). Fire ants had already found its crumpled body and were swarming all over its face and neck.

I find it unfathomable to see such a majestic wading bird killed by yet another traffic wildlife encounter. I listen to these cranes most every morning, while sitting on my back porch, sipping my coffee. My Wall Lake porch overlooks a huge wet prairie, home to about a dozen resident Florida cranes. It is also the



FIGURE 9- DOR Subadult Sandhill Crane, killed at Putnam Hall.

site where hundreds of migrating cranes spend each winter. Tears welled up in my eyes to think that another member of my local sandhill crane clan lost its life on this highway (Figure 9).

Human Fatality. It was Saturday morning, June 19, 2021, and I had started my morning ritual for surveying for roadkills. I reached Florahome and encountered a disturbing sign, one that alerted drivers that both lanes were closed due to a traffic accident. The blockage began at the Dollar General store. I had never seen this road completely shut down before. This must have been a very bad accident. I turned around and headed back home. Later, I found the following Internet message:

A 19-year-old Palatka man died early Saturday in a crash on State Road 100 west of Indian Lakes Forest Road near Florahome. The Florida Highway Patrol said the victim's pickup truck left the road and collided with a tree on the westbound shoulder. A passenger, also a 19-year-old Palatka man, suffered minor injuries in the 5:52 a.m. crash, according to the FHP report. The tree

fell, obstructing the westbound lane of State Road 100, causing another car to leave the road and overturn, the Highway Patrol said. The driver of the car, a 73-year-old Crescent City man, suffered minor injuries. FHP did not release the victim's name. (*Palatka Daily News*).

Concluding Thoughts

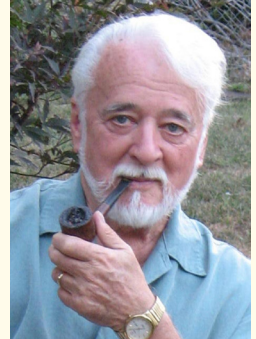
What steps could be taken to reduce the numbers of road-kills on this road? And, by extension, on Florida roads in general? This is a tough one.

- Issuing more speeding and reckless driving tickets on SR 100 by state and county police may reduce fatal human and wildlife encounters. Lowering SR 100 speed limits from 60 to 55 mph might help.
- Add signs that say: Slow Down for Wildlife or Give Wildlife a Brake.
- Create more Eco-Passes under the road, particularly in areas where bears, bobcats, and other landscape species are known to travel. Keep the passes cleared of vegetation and visible to wildlife emerging from adjoining habitats.
- Avoid the use of vertical cement curbs along the edges of roads. These can trap turtles and other less agile animals in the travel lanes. If gutters are necessary for drainage purposes, then use V-shaped curbs, so these species can escape the roadways.

A TRIBUTE TO MY TEACHER AND MENTOR

John E. Cooper (1929-2015)

After completing a bout in the U.S. Marine Corp (1951-1953), John entered John Hopkins University in 1953, receiving a B.A. degree in the Biological Sciences in 1957. He joined the faculty of the Baltimore City College (high school) in January 1958, teaching Biology. I first met Coop at this high school in the midst of my Junior year. Upon his arrival, John formed the City College Herpetology Club and I became one of its first members.



During these early days, Coop took small groups of the herp club members on weekend jaunts to collect snakes and other assorted amphibians and reptiles in Maryland. He later expanded his field trips to other states, which provided us the opportunity to go snake hunting with him over Spring and Summer breaks to Florida, South Carolina, and Alabama. These snake hunts allowed us to see and hold amphibians and reptiles that we had only met in our reptile books. On our field forays, we kept our non-poisonous wiggling serpents in the back seat of John's fancy 1956 red and white Chevy sedan. Here we were able for the first time to closely examine our captures. The poisonous snakes were relegated to snake bags in the trunk of the car. On night cruises, Coop often allowed some of us to take turns sitting on the hood of his car, where we could have a better look for reptiles along the shoulders. Obviously, traffic was very light at night "back in them olden dazes." I was wise enough not to tell my mother about that activity.

Coop kept the scientifically-important individuals for the collections at the Maryland Natural History Society in downtown Baltimore and for the Smithsonian Institution. We students were very glad to receive his cast-offs, for many of them were new to us. That meant we ended up with the common species, such as the banded water snakes, red rat snakes, ring-necks, and worm snakes. But, we appreciated them just the same.

On trips south, I learned to pin and hand-grab my first water moccasins and canebrake rattlesnakes. In time, my scientific knowledge and experiences matured. It was these early experiences that lead me back to Florida and the Florida Museum of Natural History in 1970.

Coop completed his Master's degree in 1968, and Ph.D in 1975, both from the University of Kentucky. His dissertation research focused on the ecology of the cave crustaceans in the subterranean waters of Shelta Cave in downtown Huntsville, Alabama. His final gigs were as Director of Research and Collections and Curator of Invertebrate Zoology at the North Carolina State Museum of Natural History. Coop retired from the NC museum in 2000, after 25 years of service, but continued his fervor for crustacean systematics for the rest of his life. For a complete review of Coop's accomplishments see: John E. Cooper's obituary, published by James W. Fetzner, Jr., in the journal *Freshwater Crayfish* in 2015, 21(1):7-15, ISSN: 2076-4324 (Print), 2076-4332 (Online)

John, Thanks for the wonderful ride,
Dick Franz