Southwest Florida Road Hot Spots
2024 Update

INTRODUCTION

The first Hot Spots GIS map was created in 2016. Annual updates have occurred since then to add new panther-vehicle collision (PVC) data collected by the Florida Fish and Wildlife Conservation Commission (FWC). The data is recorded by FWC in the Panther Mortality and Injury Master List and used in the annual updates. Twenty-nine (29) PVCs were recorded in 2024. Twenty-eight (28) of the PVCs occurred on Roadway Characteristics Inventory (RCI) Major Roads and one PVC occurred on a "rural road" (a non-RCI Major Road).

FWC data is reviewed and organized into three datasets:

1. Total PVCs recorded on RCI Major Roads between 1972 and the current update.
    a. This dataset includes all recorded PVCs on RCI Major Roads.
    b. With the 2024 updates included, there are a total of 481 PVCs.
    c. This dataset is called "Panther_Vehicle_Collisions_through_2024" and is exported to a GIS shapefile, a GIS layer file and a Google Earth KMZ file.
2. PVCs that are used to develop the Hot Spots road segments.
    a. This dataset uses the data described in item 1 above and is filtered to exclude historic PVCs within road segments that have since undergone mitigation, such as the addition of wildlife fencing. Appendix A provides details on the filtering process.
    b. With the filtered 2024 updates included, 436 PVCs have resulted in 229 Hot Spot segments.
    c. This dataset is called "HotSpots_Dec31_2024" and is exported to a GIS shapefile, a GIS layer file and Google Earth KMZ file.
3. Total PVCs recorded on "rural roads" (i.e. non-RCI Major Roads)
    a. This dataset consists of PVCs recorded on rural roads.
    b. With the 2024 updates, a total of 15 PVCs are included on rural roads.
    c. This dataset is called "PVCs_RuralRoads_2024update" and is only exported to a Google Earth KMZ file.

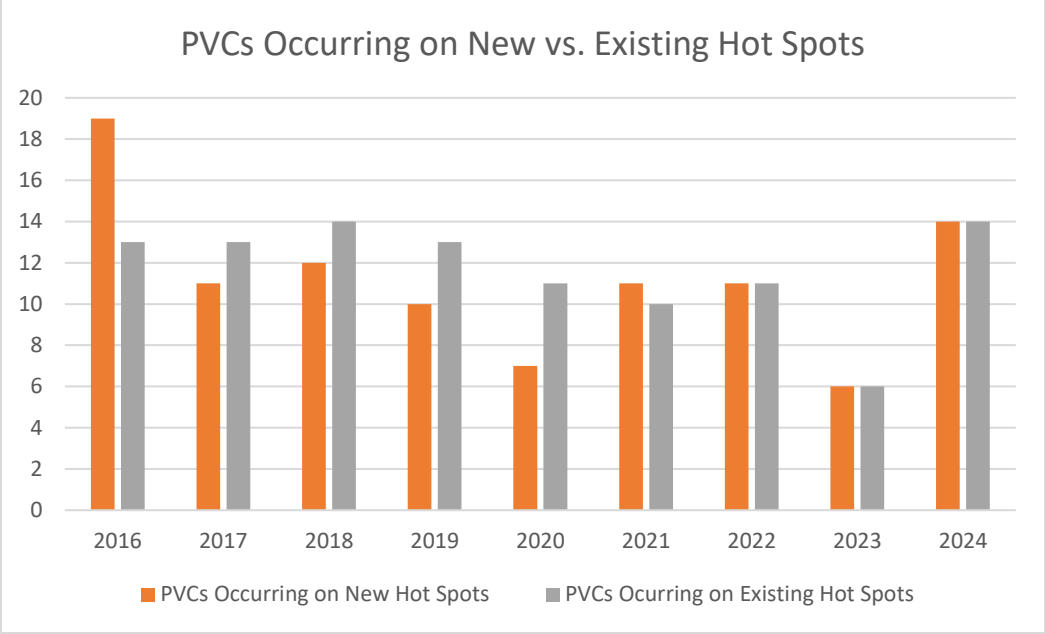
To create the 2024 Hot Spots map, a 500-meter (m) buffer was applied to the filtered PVC dataset described in item 2 above. The roads were buffered by a 200-m boundary. The intersection of the buffered road boundary within 500 m of each collision produced a road segment called a Hot Spot. Following the same protocol as in previous years, a COUNT field was applied to produce a shapefile that included the number of collisions within each Hot Spot segment, and color-coded symbology was used to indicate a range of low to high collisions in the segment.

RESULTS

The 2024 update contains a total of 229 Hot Spot segments accounting for 436 PVCs. 14 new blue Hot Spots were added, and 14 existing Hot Spots incurred additional PVCs. Chart 1 below depicts the fluctuation of PVCs occurring on new versus existing Hot Spots since 2016. The comparison between PVC counts and segment color changes is provided in Table 1. To summarize, the addition of the 28 RCI PVCs from 2024 resulted in the following changes:

- 14 PVCs represent new blue segments
- 11 PVCs increased existing segments by one count
- 3 PVCs combined existing segments to form a single segment of a new color (see Corkscrew Rd/CR 850)

Chart 1



Totals do not include discrepancies or PVCs occurring on rural roads.

Table 1
Comparison of PVC Counts and Segment Color Changes for 2024 Update

2023 Update		2024 Update		Change Type	2024 Color	Notes	Latitude	Longitude
NAME	PVC COUNT	NAME	PVC COUNT					
		Bonita Beach Rd SE	1	new	blue		26.331519	-81.727378
		Alligator Alley	1	new	blue		26.170356	-80.993616
		Alligator Alley	1	new	blue		26.168904	-81.059359
		CR 17/Old SR 8	1	new	blue		27.100237	-81.382586
		I-75	1	new	blue		26.384133	-81.772067
		I-75	1	new	blue		26.164544	-81.719605
		Corkscrew Rd/CR 850	1	new	blue		26.478865	-81.552326
		CR-835	1	new	blue		26.472093	-80.980228
		County Line Rd	1	new	blue		26.326105	-81.270337
		Immokalee Rd/CR 846	1	new	blue		26.275899	-81.615040
		SR-70	1	new	blue		27.209696	-81.159820
		SR-29	1	new	blue		26.777903	-81.437455
		Camp Keais Rd	1	new	blue		26.351851	-81.416707
		Loblolly Bay Rd	1	new	blue		26.827495	-81.488593
SR 29	3	SR 29		increase	green	combine with other hotspot to form one; same color	26.017830	-81.345740
			1	new				
SR-29	1	SR-29		increase	blue	combine with other hotspot to form one; same color	26.447051	-81.434041
			1	new				
Corkscrew Rd/CR 850	4	Corkscrew Rd/CR 850		increase	orange	combine with two other hotspots to form one; new color	26.497227	-81.526860
				increase				
			2	new				
Immokalee Rd/CR 846	2	Immokalee Rd/CR 846		increase	green	combine with other hotspot to form one; new color	26.366574	-81.479499
			1	new				
Immokalee Rd/CR 846	9	Immokalee Rd/CR 846		increase	red	combine with other hotspot to form one; same color	26.341932	-81.595155
			1	new				
Corkscrew Rd/CR 850	3	Corkscrew Rd/CR 850		increase	green	combine with two other hotspots to form one; new color	26.452579	-81.700878
				increase				
			1	new				
Corkscrew Rd/CR 850	1	Corkscrew Rd/CR 850		increase	blue	combine with other hotspot to form one; same color	26.450885	-81.594401
			1	new				
County Line Rd	1	County Line Rd		increase	blue	combine with other hotspot to form one; same color	26.363769	-81.270985
			1	new				
CR 833/Josie Billie	4	CR 833/Josie Billie		increase	green	combine with other hotspot to form one; same color	26.353381	-81.010623
			1	new				
CR 833/Josie Billie	2	CR 833/Josie Billie		increase	green	combine with other hotspot to form one; new color	26.574105	-81.126988
			1	new				
CR-858/Oil Well Rd	1	CR-858/Oil Well Rd		increase	blue	combine with other hotspot to form one; same color	26.293759	-81.492657
			1	new				
Alligator Alley	1	Alligator Alley		increase	blue	combine with other hotspot to form one; same color	26.172771	-80.872652
			1	new				
CR-832/Keri Rd	4	CR-832/Keri Rd		increase	green	combine with other hotspot to form one; same color	26.605346	-81.233589
			1	new				

Electronic Files Transmitted with this update:

1. HotSpots_Dec31_2024.shp (Shapefile)
2. HotSpots_Dec31_2024.lyr (Layer File)
3. HotSpots_Dec31_2024.kmz (KMZ File)
4. Panther_Vehicle_Collisions_through_2024.shp (Shapefile)
5. Panther_Vehicle_Collisions_through_2024.lyr (Layer File)
6. Panther_Vehicle_Collisions_through_2024.kmz (KMZ File)
7. PVCs_RuralRoads_2024update.kmz (KMZ File)

APPENDIX

Data Filtering Notes

Notes regarding FWC Data

- Beginning in 2020, the Florida Fish and Wildlife Conservation Commission (FWC) combined multiple databases into one database to record panther mortalities. In preparing the Hot Spots update for 2020, it was noticed that the records for certain panther vehicle collisions (PVCs) did not carry over to the new database and the cause of death changed from "vehicular" to a non-vehicular type in other records. For consistency and assuming that the 2020 discrepancies were artifacts of combining multiple data sources, 22 PVC records are retained in the Hots Spots datasets, and the cause of death is kept as “vehicular” where appropriate. Refer to the Table of Discrepancies in this Appendix for specifics.
- Panther FP248 has two PVC records in FWC data; one for a PVC that resulted in injury and a second for the euthanasia of the animal as a result of its injuries in 2017. Both incidents occurred within the same Hot Spot segment and have the same coordinates. These two records will be treated as one incident to avoid over-counting at this Hot Spot.
- Based on the information above, the total number of discrete PVCs from 1972 to 2024 is 481 and are included in the Panther_Vehicle_Collisions_through_2024.shp file, layer file, and KMZ file.

Notes for Data Consistency

- For consistency with the first iteration of the 2016 Hot Spots, 24 PVCs all occurring prior to 2017, on I-75/Alligator Alley are not included in the annual updates. With the completion of nine miles of fencing between the Naples Toll Booth and Faka-Union Canal and terrestrial wildlife crossing features extending east to the Collier County Line, it was determined that Hot Spots resulting from PVCs prior to completion of these features should not be included. PVCs occurring on I-75/Alligator Alley subsequent to 2017 are included.
- Six PVCs in the FWC database on SR 29 just north of I-75 are not included in the annual updates for consistency with the first iteration of the 2016 Hot Spots.
- Fifteen (15) PVCs in the FWC database occurred on rural roads or private property not included in the Florida Department of Transportation – Roads Characteristics Inventory (RCI) Derived Major Roads shapefile (FDOT, 2019), which was used to create the Hot Spot segments. These 15 PVCs have not been included in the Hot Spots mapping but are included in a KMZ file called PVCs_RuralRoads_2024update.kmz to document these PVCs. One PVC during this reporting period occurred on a non-RCI roadway (UCFP475, 12/10/2024). A KMZ file of the historic 14 locations, plus the PVC from 2024, has been included with this submittal.

As a result of the above notes, 436 PVCs are used/counted in the Hot Spots update out of the 481 discrete PVCs.

Table of Database Discrepancies* Beginning with 2020 Annual Update

	DATA AS RECORDED IN FWC RECORDS 1972-2019							
ITEM #	**Date**	**PantherID**	**Sex**	**Age**	**Location**	**Cause**	**DISCREPANCY IN DATABASES BEGINNING WITH 2020 FWC DATA**	**RESOLUTION STARTING WITH 2020 HOT SPOT UPDATE**
1	11/2/1984	BIG GUY (FP200)	M	2 to 4	US 41 near Turner River	Vehicle - **injured**	No record in 2020, 2021, 2022, 2023, 2024 data	Include this record in future updates
2	5/12/1985	NONE	F	UNK	CR 951, 2 miles N of US 41	Vehicle	No record in 2020, 2021, 2022, 2023, 2024 data	Include this record in future updates
3	6/17/1987	FP020	M	3 to 4	CR 858 .8 miles E of SR 29	Vehicle - **injured**	1972-2019 data records FP020 on 6/17/87 with cause = vehicle beginning in 2020 FP020 is recorded on 8/24/88 with cause = unknown and different location	Include the 6/17/87 record where cause = vehicle Exclude the 8/24/88 recorded where cause = unknown
4	7/23/1988	FP021	F	2.5	1 mile E of US1 on Palm Drive	Vehicle - **injured**	1972-2019 data records FP021 on 7/23/88 with cause = vehicle beginning in 2020 FP021 is recorded on 12/26/97 with cause = other and different location	Include the 7/28/88 record where cause = vehicle Exclude the 12/26/97 record where cause = other
5	11/29/1988	FP028	M	1.5 to 2	Near Daniels Road, RSW Airport	Vehicle - **injured**	1972-2019 data records FP028 on 11/29/88 with cause = vehicle beginning in 2020 FP028 is recorded on 9/26/92 with cause = unknown and different location	Include the 11/29/88 record where cause = vehicle Exclude the 9/26/92 record where cause = unknown
6	4/7/1992	NONE	M	Unknown	Alico Road, Lee County	Vehicle - **injured**	No record in 2020, 2021, 2022, 2023, 2024 data	Include this record in future updates
7	2/14/1998	FP064	M	1.5	SR 29, at clearcut, FPNWR	Vehicle - **injured**	1972-2019 data records FP064 on 2/14/98 with cause = vehicle beginning in 2020 FP064 is recorded on 3/26/99 where cause = ISA	Include the 2/14/98 record where cause = vehicle Exclude the 3/26/99 record where cause = ISA
8	1/15/2000	FP063	M	5	SR 29, N of Pistol Pond	Vehicle-drowning	1972-2019 data records FP063 on 1/15/00 with cause = vehicle beginning 2020 FP063 is recorded on 1/17/00 with cause = other and different location	Include the 1/15/00 record where cause = vehicle Exclude the 1/17/00 record where cause = other
9	1/26/2003	UCFP050 (K033)	M	6.4	CR 846, 3.4 miles E of Everglades Blvd.	Vehicle	No record in 2020, 2021, 2022, 2023, 2024 data	Include this record in future updates
10	12/9/2003	UCFP060	M	2 to 3	US 41, 1 mile E of CR 92	Vehicle	1972-2019 data records UCFP060 on 12/9/03 with cause = vehicle beginning 2020 USFP060 is recorded on 12/15/03 with cause = other, but same location	Include the 12/9/03 record where cause = vehicle Exclude the 12/15/03 record where cause = other
11	3/3/2004	UCFP064	U	unknown	SR66, 0.75 miles W OF SR 635	Vehicle - **injured**	No record in 2020, 2021, 2022, 2023, 2024 data	Include this record in future updates
12	7/11/2004	FP120	F	4	US 41, 750 m W of Turner River Road	Vehicle - **injured**	1972-2019 data records FP120 on 7/11/04 with cause = vehicle - injured AND FP120 on 5/7/05 with cause = vehicle-death with similar location description as 7/11/04 beginning in 2020, FP120 is recorded on 5/7/05 with cause = vehicle-injury; the 7/11/04 record is missing	Include the 7/11/04 record where cause = inured and Include the 5/7/05 record where cause = death
13	9/15/2009	UCFP126	M	2	E of Ave Maria, Ranch 1 Orange Gr.	Vehicle	1972-2020 data records UCFP126 on 9/15/09 with cause = vehicle 2020 data records UCFP on 11/17/08 with cause = other and location in Georgia 2021 data records UCFP on 11/17/08 with cause = illegal kill in Georgia	Include the 9/15/02 record where cause = vehicle Exclude the 11/17/08 record where cause = other or illegal kill
14	11/19/2009	UCFP132	M	3 to 4	FL Turnpike, S of Yeehaw Junction	Vehicle (decapitated posthumously)	Cause = unknown in 2020 data	Use cause = vehicle
15	3/25/2011	UCFP159	F	4 to 5	SR 29, near Farmworkers Village	Vehicle (survived gunshot to head)	Cause = illegal kill in 2020 data	Use cause = vehicle
16	4/7/2012	UCFP169	M	9 wks	Orange grove N of Church Rd., Hendry County	Vehicle	Cause = unknown in 2020 data	Use cause = vehicle
17	12/11/2012	FP182	F	3yr 10mos.	US 41, near Turner River canoe launch, Collier County	Vehicle	Cause = unknown in 2020 data	Use cause = vehicle
18	5/13/2013	FP224	F	9 mos.	12th St NE, GGE, 200 m south of GG Blvd, Collier County	Vehicle	1972-2019 data records FP224 on two dates with cause = vehicle injury for both dates beginning in 2020, all records for FP224 are missing	Include both records in future updates
	12/29/2017	FP224	F	5.4	CR 951 at City Gate, Collier Co.	Vehicle (**INJURED**)		
19	4/14/2014	FP232	M	3	East Broadway Street, Ft. Meade, Polk Co.	Vehicle	No record in 2020, 2021, 2022, 2023, 2024 data	Include this record in future updates
20	4/25/2014	FP231	M	2	Golden Gate Blvd, just west of Everglades, Collier Co	Vehicle	1972-2019 data records FP231 on 4/25/14 with cause = vehicle beginning in 2020, FP231 is recorded on 8/4/14 with cause = unknown but same location	Use cause = vehicle
21	6/7/2017	PC1095 (FP250)	M	1.5	Immokalee Road, 260 m east of Krape Rd., Collier Co.	Vehicle	No record in 2020, 2021, 2022, 2023, 2024 data	Include this record in future updates
22	12/5/2018	PC1290	M	15 mos.	SR82, 920m east of junction with Nimitz Blvd, Lee County	Vehicle **(INJURED)**	No record in 2020, 2021, 2022, 2023, 2024 data	Include this record in future updates

*Starting in 2020, FWC combined multiple databases into one database to record panther mortalities. In preparing the Hot Spots update for 2020 it was noticed that certain records for PVCs did not carry over to the new database and the cause of death changed from "vehicular" to a non-vehicular type in other records. For consistency with historic data bases and believing that the 2020 discrepancies were artifacts of combining multiple data sources, the 2020 Hot Spots update and thereafter reviews and then modifies the FWC updates to include the missing records and causes of death as provided in this table.