

Southwest Florida Road Hot Spots 2022 Update – 500m Buffer

INTRODUCTION

For the 2022 Hot Spots update, the Florida Fish and Wildlife Conservation Commission (FWC) Panther Mortality and Injury Master List was obtained, and the panther-vehicle collision (PVC) data was selected for all years of available data (1972-2022). A shapefile of PVCs was created containing 439 PVCs. Twenty-five (25) PVCs occurred in 2022.

To create the 2022 Hot Spots map, a 500-meter (m) buffer was applied to each PVC. 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. The shapefile was exported to a GIS Layer File and a Google Earth KMZ file.

Before GIS work began, the 2022 FWC Master List was compared to the 2021 FWC Master List to look for discrepancies in the data that had been discovered previously or may be new to the 2022 FWC Master List. A table denoting these discrepancies can be found in the appendix. Other data consistency notes regarding certain PVC points are also noted in the appendix such as certain PVCs that are not included in the Hot Spots update.

RESULTS

The 2022 update contains a total of 212 Hot Spot segments accounting for 396 PVCs. Twenty-three (23) PVCs occurred on RCI Major Roads and were included in the 2022 update. Two (2) PVCs occurred on rural roads and are included in the PVCs_RuralRoads_2022update KMZ file, but not on the Hot Spots map. In the 2022 update, 11 new blue Hot Spots were added, and 11 existing Hot Spots incurred additional PVCs. The comparison between PVC counts and segment color changes is provided in Table 1. To summarize, 23 PVCs from 2022 resulted in the following changes:

- 13 PVCs represent new blue segments
- 8 PVCs increased existing segments by one count
- 2 PVCs increased an existing segment by two counts (see SR-82; three existing segments were combined to form one red segment)

Table 1
Comparison of PVC Counts and Segment Color Changes for 2022 Update

2021 Update		2022 Update		Change Type	2022 Color	Notes
NAME	PVC COUNT	NAME	PVC COUNT			
	0	ALLIGATOR ALY	1	new	blue	
	0	CR 591	1	new	blue	
CR-832/KERI RD	3	CR-832/KERI RD	4	increase	green	3 to 4 PVCs; same color
	0	CR-832/KERI RD	1	new	blue	
CR 833/JOSIE BILILE	3	CR 833/JOSIE BILLIE	4	increase	green	3 to 4 PVCs; same color
	0	CR 833/JOSIE BILLIE	1	new	blue	
CR 846	1	CR 846	2	increase	blue	1 to 2 PVCs; same color
IMMOCKALEE RD/CR 846	8	IMMOCKALEE RD/CR 846	9	increase	red	8 to 9 PVCs; color change
	0	FLAGHOLE RD	1	new	blue	
GOLDEN GATE BLVD	4	GOLDEN GATE BLVD	5	increase	green	4 to 5 PVCs; same color
	0	I-75	1	new	blue	
	0	JOEL BLVD	1	new	blue	
	0	POLK PKWY	1	new	blue	
	0	RATTLENAKE HAMMOCK	1	new	blue	
	0	SR 29	1	new	blue	
SR 29	8	SR 29	9	increase	red	8 to 9 PVCs; color change
SR-82	2	SR-82	11	increase	red	color change; combine with two other hot spots to form one
SR-82	2				red	color change; combine with two other hot spots to form one
SR-82	5				red	color change; combine with two other hot spots to form one
	0	TAMIAMI TRL	1	new	blue	
TREELINE AVE	1	TREELINE AVE	2	increase	blue	1 to 2 PVCs; same color
	0	US 27	1	new	blue	
US-27	1	US-27	2	increase	blue	1 to 2 PVCs; same color
	0	W KEYSVILLE RD	1	new	blue	

Electronic Files Transmitted with this update:

1. HotSpots_Dec31_2022.shp (Shapefile)
2. HotSpots_Dec31_2022.lyr (Layer File)
3. HotSpots_Dec31_2022.kmz (KMZ File)
4. Panther_Vehicle_Collisions_through_2022.shp (Shapefile)
5. Panther_Vehicle_Collisions_through_2022.lyr (Layer File)
6. Panther_Vehicle_Collisions_through_2022.kmz (KMZ File)
7. PVCs_RuralRoads_2022update.kmz (KMZ File)

APPENDIX

Notes regarding FWC Data

- Beginning 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 the records for certain 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, beginning with the 2020 Hot Spots update, the annual FWC updates are reviewed to ensure the missing records are retained and the cause of death is kept as "vehicular" where appropriate. Refer to Table of Discrepancies for specifics.
- In addition to the discrepancies table referenced above, panther FP248 has two PVC records, 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. The result of the PVC used in the 2021 update was "Injury."
- Based on the information above, the total number of discrete PVCs from 1972 to 2022 is 439 (440 – one incident of FP248 = 439 discrete PVCs).

Data Consistency Notes

- For consistency with the first iteration of the 2016 Hot Spots, 24 PVCs in the data set, all occurring prior to 2017, on I-75/Alligator Alley were not included in the 2022 update. With the completion of the 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. There are two PVCs (FP261, 1/31/2022; UCFP430, 7/21/2022) that have occurred along this stretch of road since the 2016 Hot Spots map creation and have been included in the 2022 update.
- Six PVCs in the data set on SR 29 just north of I-75 were not included in the 2022 update for consistency with the first iteration of the 2016 Hot Spots.
- Eleven (11) PVCs in the data set 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 11 PVCs have not been included in the Hot Spots mapping. Two PVCs during this reporting period occurred on a non-RCI roadway (UCFP417, 1/28/2022; UCFP426, 5/16/2022). These two PVCs were also removed from the Hot Spot analysis. A KMZ file of the historic 11 locations, plus the two PVCs from 2022, has been included with this submittal.

As a result of the above notes, 396 PVCs are used/counted in the Hot Spots update out of the 439 discrete PVCs.

Table of Database Discrepancies* Beginning with 2020 Annual Update

ITEM #	DATA AS RECORDED IN FWC RECORDS 1972-2019						DISCREPANCY IN DATABASES BEGINNING WITH 2020 FWC DATA	RESOLUTION STARTING WITH 2020 HOT SPOT UPDATE
	Date	PantherID	Sex	Age	Location	Cause		
1	11/2/1984	BIG GUY (FP200)	M	2 to 4	US 41 near Turner River	Vehicle - injured	No record in 2020, 2021, 2022 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 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 record 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 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 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 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 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 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 data	Include this record in future updates

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