

FDOT Wildlife Crossing Guidelines



July 29, 2008

Design Conference

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Purpose for Guidelines

- Establish FDOT Statewide consistency in determining the appropriateness of wildlife crossings/exclusionary devices
- Establish FDOT Statewide consistency in determining the criteria that should be considered during design.

2

Highlights of Guidelines:

- Districts determine appropriateness based on:
 - Coordination and consultation with the **FWC and/or USFWS that there is a science-based need.**
 - Proposed New Project: Wildlife crossings/devices only considered when project is a capacity improvement that involves **addition of travel lanes**
 - Requested Retrofit Project: Districts require requesting entity to provide scientific data/studies to **substantiate request and pursue funding partnerships**
- If not enough data, additional study/research may need to be conducted. FWC and USFWS should have active role in development and review of studies

3

Specific Appropriateness Criteria:

- FWC and/or USFWS have expressed “science-based” need for target species.
- Project within known area of wildlife/vehicle strikes (motorist safety).
- Documented, recent road kills of listed species within project area.
- Project within primary or secondary range of a listed species (i.e., panther, bear)
- Public lands or lands under perpetual conservation easement, on both sides of roadway, at time of design.

4

Specific Design Criteria

- Cannot restrict access to, or negatively impact, adjacent property owners
- Cannot negatively impact existing drainage patterns
- Must be cost feasible design for the target species
- Cannot result in additional significant habitat impacts.
- Cannot result in significant modifications to proposed project (excessive increases in roadway grade, etc.)

5

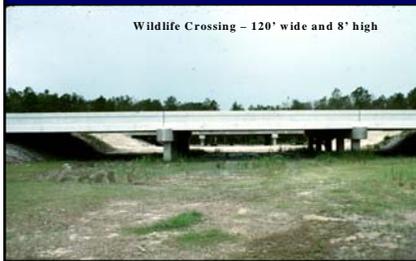
Additional Information

- Official FDOT Guidelines for Wildlife Crossings approved by Executive Board in March 2008
- Are posted on FDOT EMO website under “Publications” at: <http://www.dot.state.fl.us/emo/>
- Josh Boan (EMO): joshua.boan@dot.state.fl.us

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Current Status of Wildlife Crossing Structures in Florida

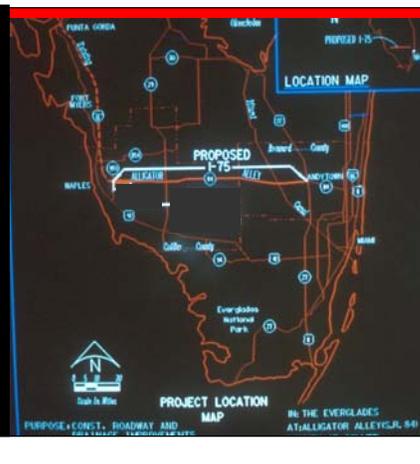
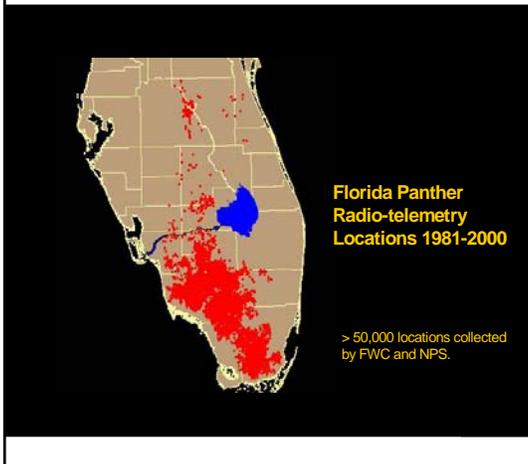
- Florida is recognized as a national leader.
- Currently leads the nation in terrestrial crossing structures with over 70 constructed to date.
- At least 10 new wildlife crossing structures are proposed in current planning and design phases.



Need for Panther Crossings on I-75

The panther is like a leopard,
 Except it hasn't been peppered.
 Should you behold a panther crouch,
 Prepare to say Ouch.
 Better yet, if called by a panther,
 Don't anther.

Ogden Nash





Yes, we have bears in Florida !!!



Photo by Charles Towne

Florida Black Bear Crossings



Suncoast Parkway
5-Mile Creek Pasco County



SR 46 Bridge Extension



Native Plants & Shrub Plantings



SR 46 Bear Crossing Structure

Payne's Prairie Ecopassage







Modified box culvert with ledge for wildlife

Modification of existing bridges and culverts to provide dry passage on wood or earthen shelves along edges



Land Bridge Overpass

Multi-use recreational trail and wildlife crossing structure

Cross-Florida Greenways Trail Interstate 75, Marion County



Do They Work ?

Animal Movement Thru Crossings Monitored with Infrared Triggered Camera



RESEARCH



Species List at SR 415 Mud Creek



1	Species	A	B	C	D	E	F	G	H	I	J
2		March	Forming	Full							
3	<i>Alligator mississippiensis</i>	x									
4	<i>Anolis</i>	x	x								
5	<i>Anolis sagrei</i>	x									
6	<i>Aves</i>	x	x								
7	<i>Bufo</i>	x									
8	<i>Bufo terrestris</i>	x									
9	<i>Canis latrans</i>	x									
10	<i>Cardinalis cardinalis</i>	x									
11	<i>Castor canadensis</i>	x									
12	<i>Canis latrans</i>	x									
13	<i>Caryacus americanus</i>	x									
14	<i>Chiroptera</i>	x									
15	<i>Colubrid</i>	x	x								
16	<i>Coluber constrictor</i>	x									
17	<i>Crotalus adamanteus</i>	x									
18	<i>Dasyatis novemlineatus</i>	x	x	x							
19	<i>Dendroica palmarum</i>	x									
20	<i>Dendroica petechia</i>	x									
21	<i>Dryas iulia</i>	x									
22	<i>Desmella carolinensis</i>	x									
23	<i>Egretta caerulea</i>	x		x							
24	<i>Egretta thula</i>	x									
25	<i>Elaphe guttata guttata</i>	x									
26	<i>Elaphe obsoleta</i>	x									
27	<i>Elaphe obsoleta quadrivittata</i>	x									
28	<i>Fametta inexpectatus</i>	x	x								
29	<i>Ferocactus abacura</i>	x									
30	<i>Felis catus</i>	x									
31	<i>Gastrophysa carolinensis</i>	x									
32	<i>Geothlypis trichas</i>	x									
33	<i>Gopherus polyphemus</i>	x									
34	<i>Hemus sargens</i>	x									
35	<i>Hyla</i>	x									
36	<i>Hyla chloris</i>	x									
37	<i>Hyla squirella</i>	x									
38	<i>Hymenocera</i>	x									
39	<i>Kimosteron harrisi</i>	x									
40	<i>Kimosteron subabrum subabrum</i>	x									
41	<i>Lacertilia</i>	x									
42	<i>Lampropeltis triangulum</i>	x									
43	<i>Lynx rufus</i>	x	x								
44	<i>Lutra canadensis</i>	x		x							
45	<i>Masticophis lateralis</i>	x									
46	<i>Melospiza gallopurpurea</i>	x									
47	<i>Mephitis mephitis</i>	x									
48	<i>Micurus flaviventris</i>	x									
49	<i>Myiarchus cinerascens</i>	x	x	x							
50	<i>Mysticetes</i>	x									
51	<i>Necotoma floridana</i>	x									
52	<i>Nerodia</i>	x									
53	<i>Nerodia cyclopioides</i>	x									
54	<i>Nerodia fasciata fasciata</i>	x	x								
55	<i>Nerodia fasciata pulchiventris</i>	x									
56	<i>Nerodia floridana</i>	x									
57	<i>Nerodia taxispilota</i>	x									
58	<i>Nesocentrus</i>	x									
59	<i>Odocoileus virginianus</i>	x	x								
60	<i>Ophichthus</i>	x									
61	<i>Panorolis clivis</i>	x									
62	<i>Paranga olivacea</i>	x									
63	<i>Peromyscus leucopus</i>	x	x								
64	<i>Rana</i>	x									
65	<i>Rana catesbeiana</i>	x									
66	<i>Rana keckschoti</i>	x									

Modified box culvert with ledge for wildlife

Modification of existing bridges and culverts to provide dry passage on wood or earthen shelves along edges



LEDGES TO NOWHERE

Wildlife Fear Factor

(Why Engineers Need Biologists)



Do-Overs



(Why Biologists Need Engineers)

Wildlife Fence Factor

Avoiding traveling along the fence may be hard for a fence guide across the road and an even less certain for one in a ditch through a ditch. The fence is not a fence. The road is not a road. The ditch is not a ditch. The fence is not a fence. The road is not a road. The ditch is not a ditch.



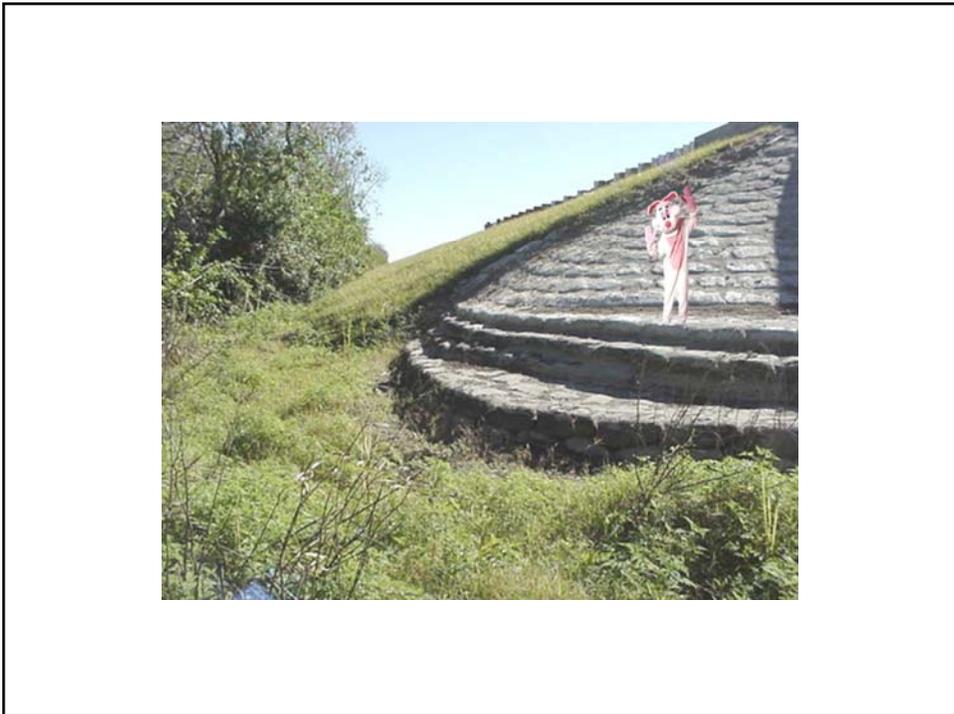
Permanent Fix

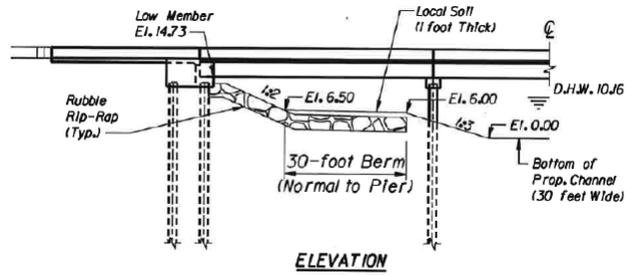


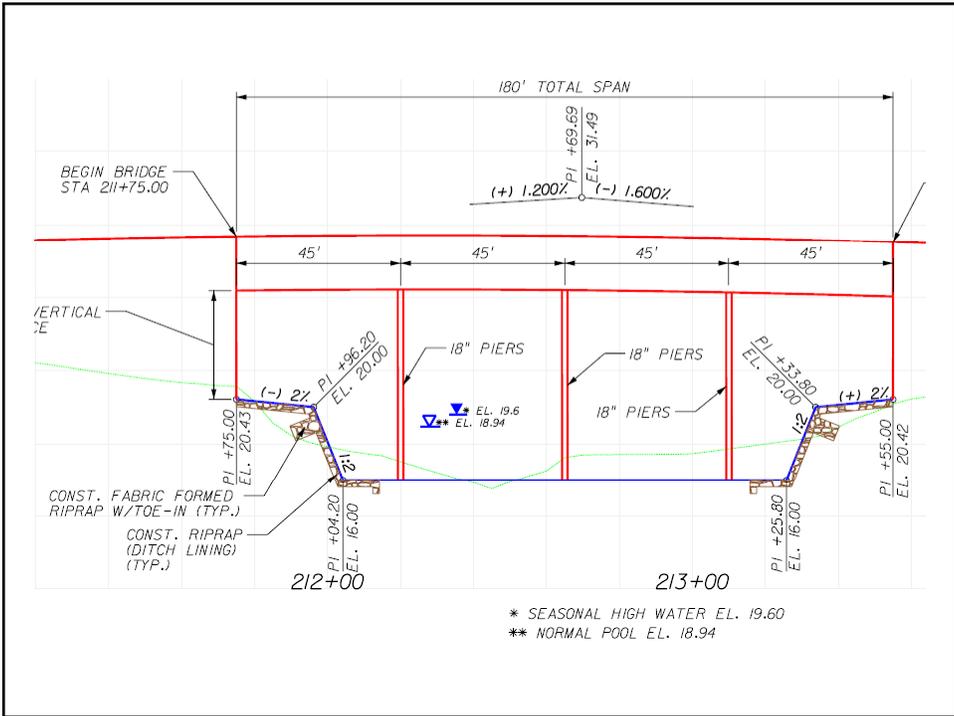
Permanent Fix
But where is the fence going?

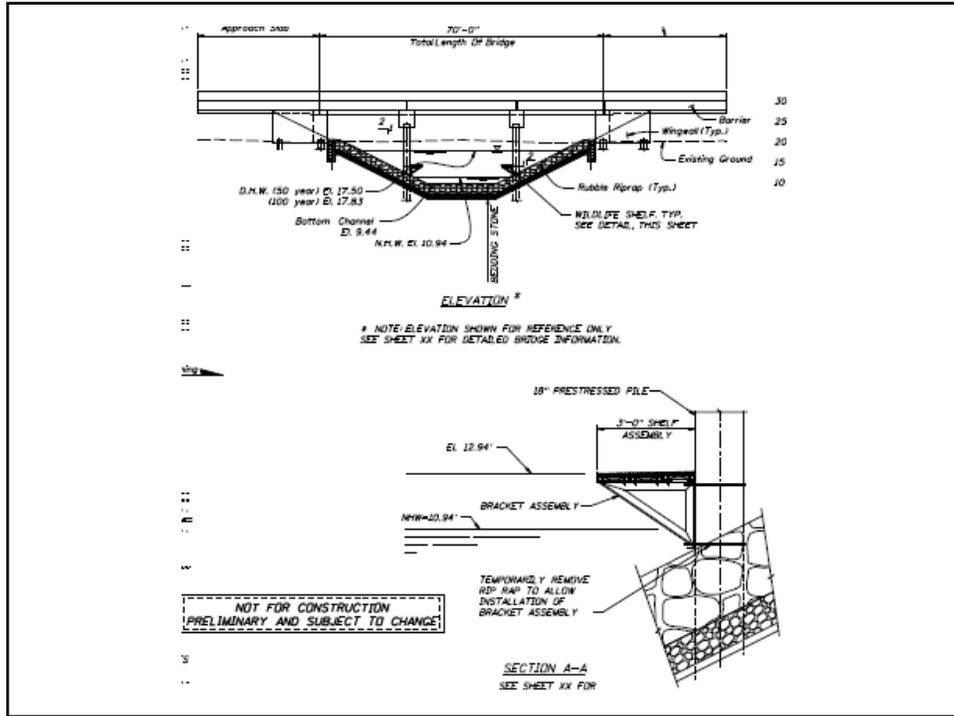


Project 1 - Wildlife Fence Factor
 The fence is not a fence. The road is not a road. The ditch is not a ditch. The fence is not a fence. The road is not a road. The ditch is not a ditch. The fence is not a fence. The road is not a road. The ditch is not a ditch.















Crossing Structures for Reptiles, Amphibians and Small Mammals



Pipe culvert systems





Land Bridge Overpass

Multi-use recreational trail and wildlife crossing structure

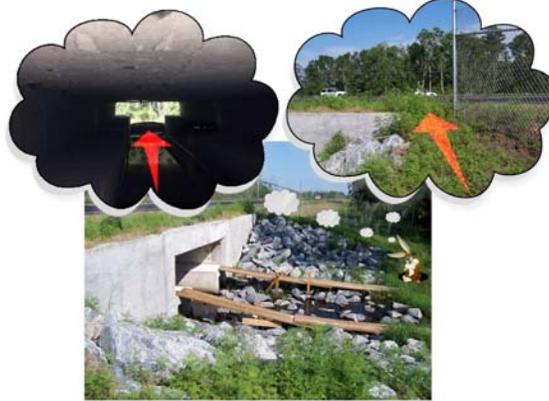
Cross-Florida Greenways Trail Interstate 75, Marion County

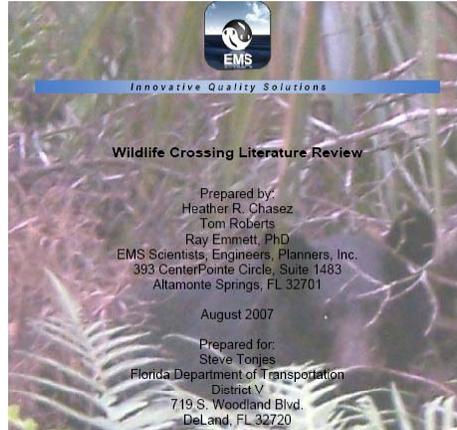


**Middle of Land Bridge over I-75
Marjorie Carr Cross Florida Greenway
Photo by A. Murray
Copyright 2001 Univ. Florida**

Wildlife Fence Factor

Animals traveling along the fence may be lured by a direct path across the road and an open sky, rather than take a detour through a dark tunnel; therefore, fences need to lead directly to the passage and block the way to the road without leaving gaps for escape.





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Fencing & Other Barriers					
Height	Length	Material	Comments/Recommendations	Animal	Citation
1m			smooth, vertical surface with overhanging, inward lip and turned back ends	turtles	Aresco, M.J. (2003)
at least 6ft high			recommended height		Bond, M. (2003)
7.2-7.9ft			have been shown to prevent deer jumping		Hardy, A.R. et al (2006), Iuell, B. et al (2003), Wildlife Crossing Toolkit
2.4m			buried fence with a 1.5m apron extending into the ground at a 45 degree angle		Clevenger, A.P. et al (2002)
2.4m	6.7 miles		Used along with underpass. Decreased road kills from 60-40 to almost 0.	deer	Hardy, A.R. et al (2006), Ward, A.L. (1982)
8ft			with wire strands 6 to 8 inches apart, vertical stays every 12 inches and at least 12.5 wire gauge twisted or tied, t-posts with 3inch well piping every 100ft	deer/elk	Brown, D.L. (1995)
8ft			use of wing pattern at end of fencing with suggested wing length of 150ft. Use cattle grades if driveways or roads are within fencing limits. Try to end fencing at natural deterrents like bridges or steep grades. Fencing should not end in a habitat that is good for wildlife		Hardy, A.R. et al (2006)
8ft at least			for deer fencing		Carr, T. (2003)
2.5m	500m		fencing should flank each structure and a 250-500m wide strip of forest leading to each structure should remain uncut	bear and other wildlife	McCown, W. (2004)



Wildlife Crossings Toolkit
www.wildlifecrossings.info

- ▶ Home
- ▶ How to use the Toolkit
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last updated
February 11, 2004



Canadian Association of Road Safety Professionals
www.CARSP.ca
Traffic Safety Award International Traffic Site

Wildlife Crossings Toolkit
www.wildlifecrossings.info

The Wildlife Crossings Toolkit is designed for professional wildlife biologists and engineers faced with integrating our highway infrastructure and wildlife resources.

- **What is the Wildlife Crossings Toolkit and how do I use it?**
The Toolkit is a searchable database of case histories of mitigation measures, and articles on decreasing wildlife mortality and increasing animals' ability to cross highways. Click here to learn more on how to use the Toolkit.
- **Who created the Toolkit?**
The Toolkit project was initiated by the USDA Forest Service, San Dimas Technology and Development Center. The website was created by Utah State University's Jack H. Berryman Institute with support from the S.J. and Jessie E. Quinney Foundation. Other partners include the Federal Highway Administration and Western Transportation Institute.
- **Who is the Toolkit designed to serve?**
Professional wildlife biologists and engineers can use the Toolkit interdisciplinarily to creatively solve challenges associated with highways. A biological and engineering glossary and standardized definitions for common structure types are here to help.
- Please give us your **comments and suggestions**.

All pictures and graphics used by permission. For more information, contact us at info@wildlifecrossings.info.
Last updated 15 Aug 2005.
Questions? Comments? Feedback? Errors?

Innovative Approaches to Wildlife/Highway Interactions

- Florida: March 2009
- Reno, NV: July 2009
- NCTC, WV: August 2009

This is your invitation to the
Wildlife Crossing Design Team

- PD&E
- Design Project Management
 - Drainage Design
 - Structures Design
 - Construction
 - Maintenance
- Wildlife Biologist



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