CHANJ

Connecting Habitat Across New Jersey

Connecting Habitat Across New Jersey

Sustainability Speaker Series | March 21, 2024

Gretchen Fowles
Brian Zarate
MacKenzie Hall

NEW JERSEY DEP
Fish and Wildlife

Wildlife Need to *MOVE*

for Food, Shelter, Mates

Wildlife Need to *MOVE*

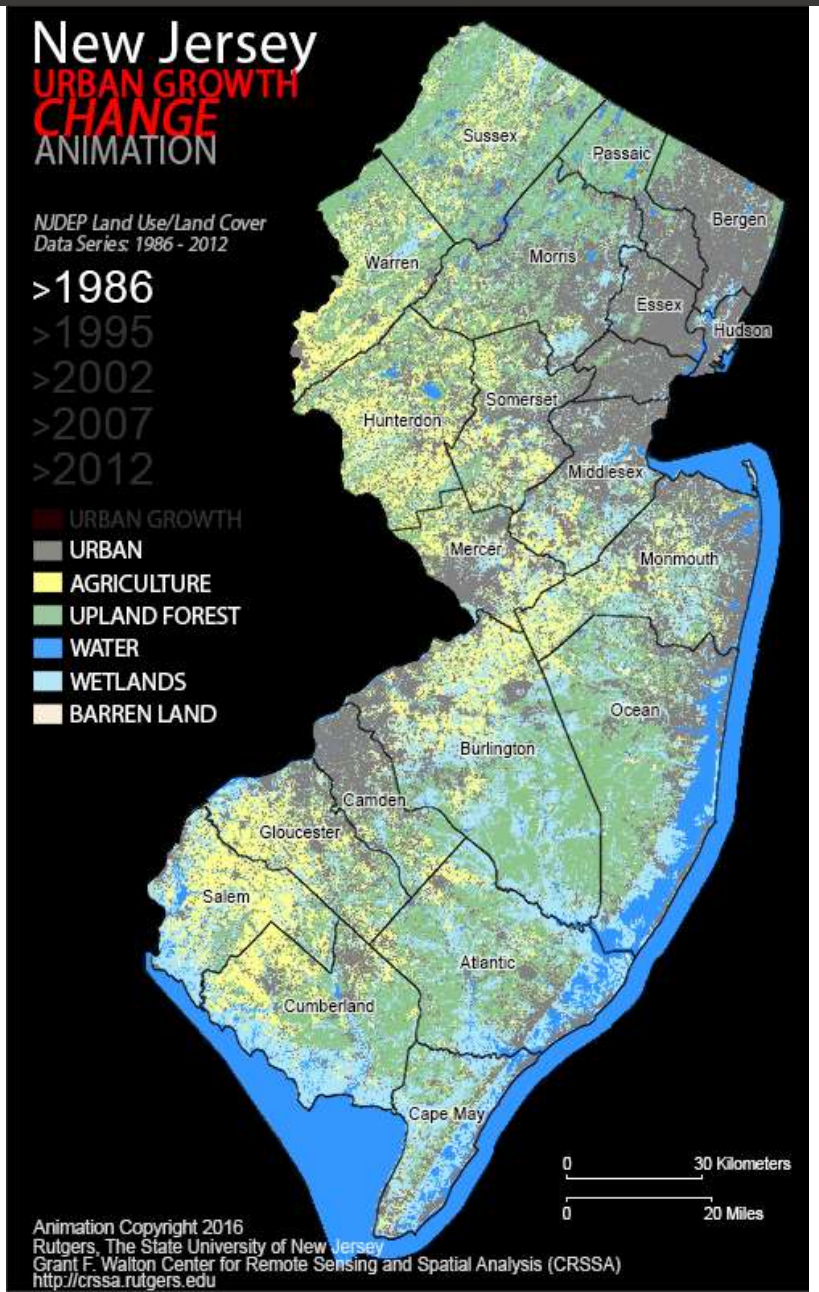
NEW JERSEY DEP
Fish and Wildlife

to Adapt

Habitat Loss & Fragmentation

"Habitat loss or modification is the greatest threat to New Jersey's wildlife" *-NJ Wildlife Action Plan (2017)*

Black Bear
Courtesy of Jeff Crawn



Roads

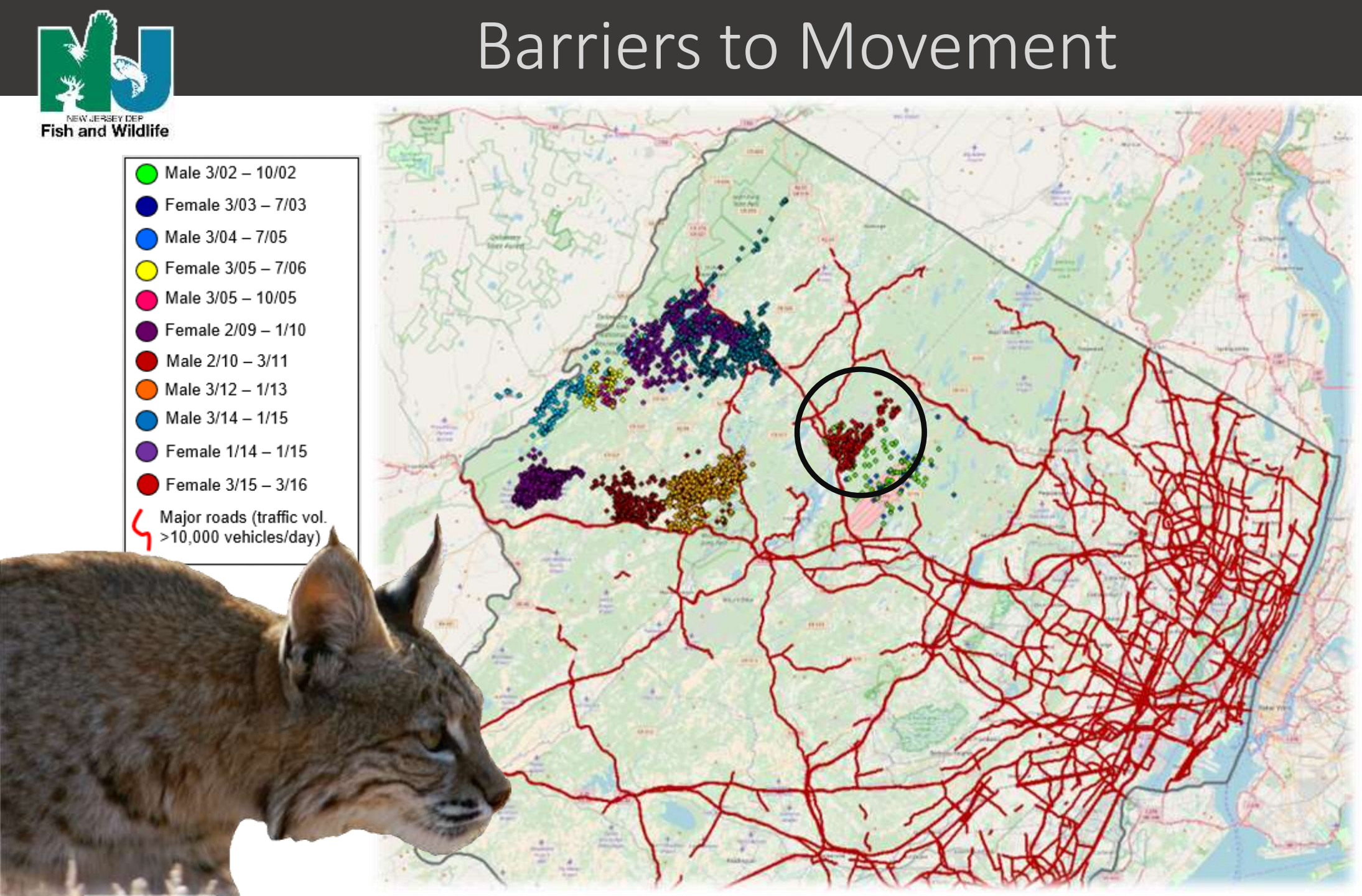
Wildlife on roads are a threat to driver safety and property

120+ native NJ wildlife species are threatened by fragmentation

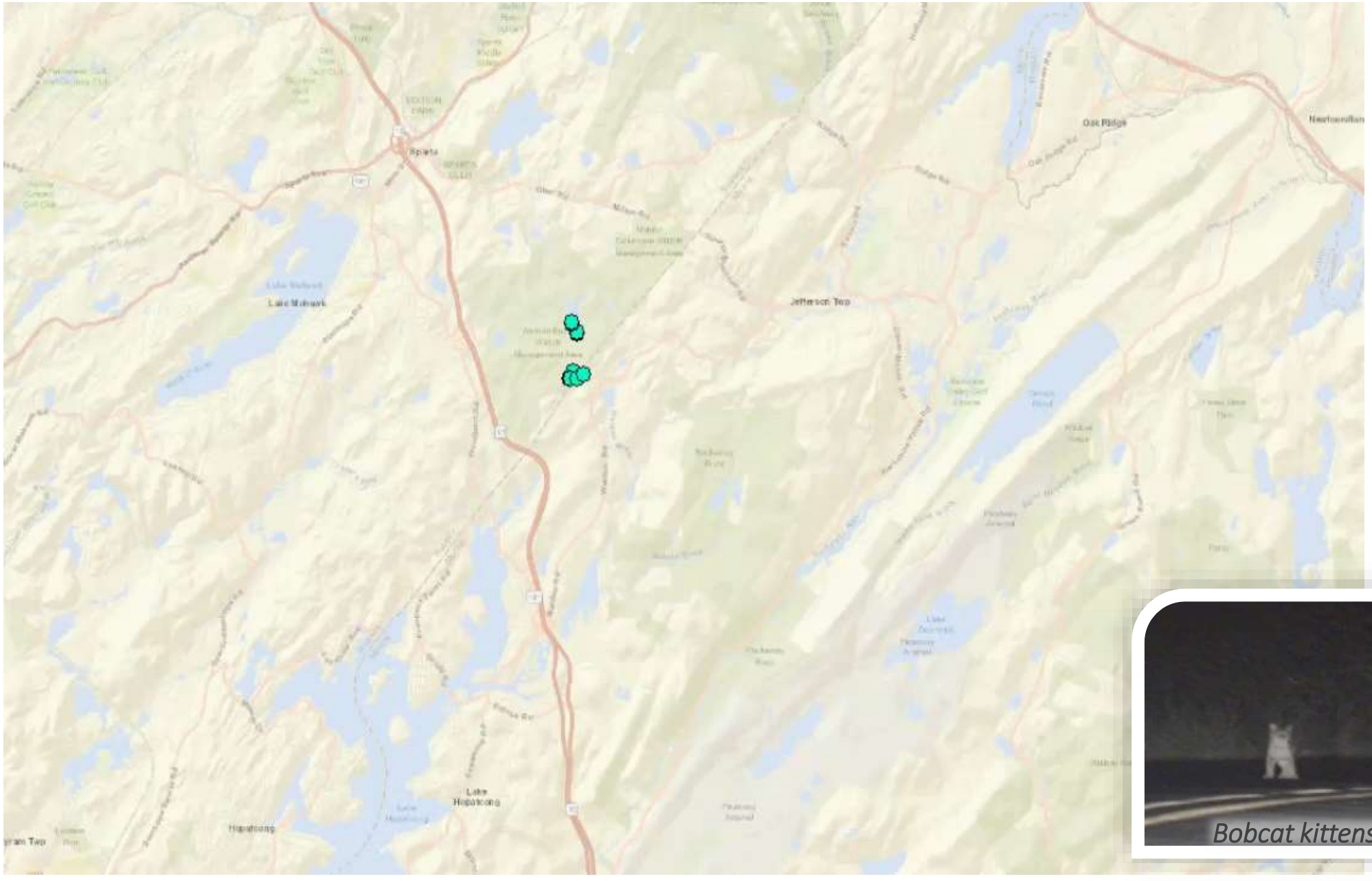
Barriers to Movement

NEW JERSEY DEP
Fish and Wildlife

- Male 3/02 – 10/02
- Female 3/03 – 7/03
- Male 3/04 – 7/05
- Female 3/05 – 7/06
- Male 3/05 – 10/05
- Female 2/09 – 1/10
- Male 2/10 – 3/11
- Male 3/12 – 1/13
- Male 3/14 – 1/15
- Female 1/14 – 1/15
- Female 3/15 – 3/16
- Major roads (traffic vol. >10,000 vehicles/day)

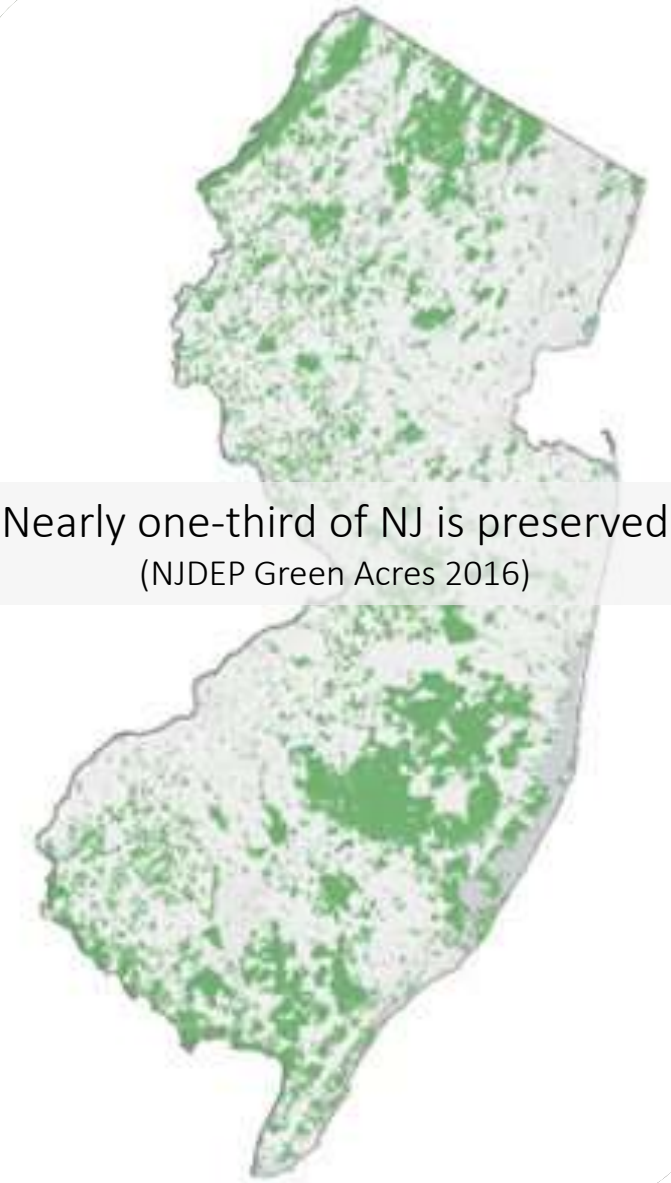


Bobcat Movements: 1 Year



Bobcat kittens on road

NJ: A Leader in Open Space Preservation



Nearly one-third of NJ is preserved

(NJDEP Green Acres 2016)

How can we integrate habitat connectivity in land & transportation planning?

Tools and Resources to Guide:

- Land protection
- Habitat management and restoration
- Mitigation of road barriers

www.CHANJ.nj.gov

Fish & Wildlife

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Conservation › Connecting Habitat Across New Jersey (CHANJ)

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Time for CHANJ

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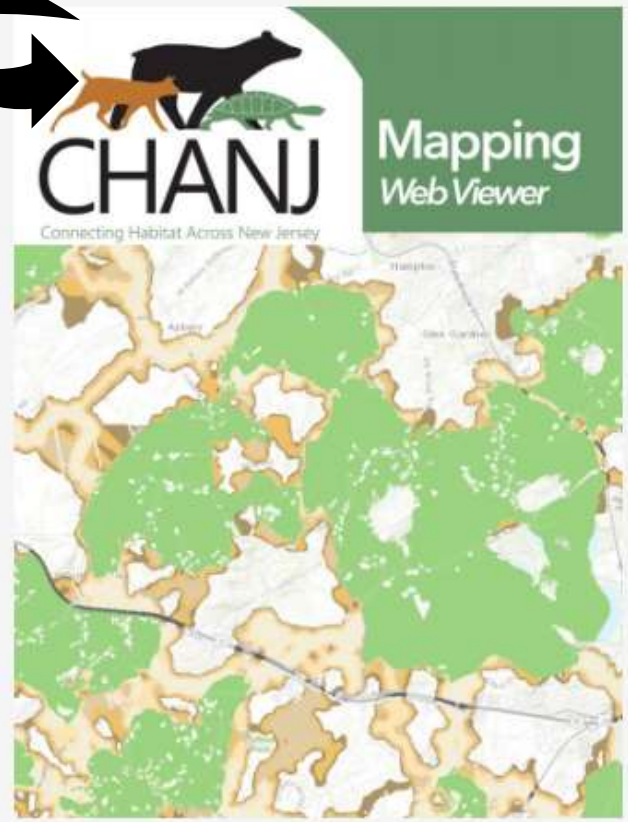

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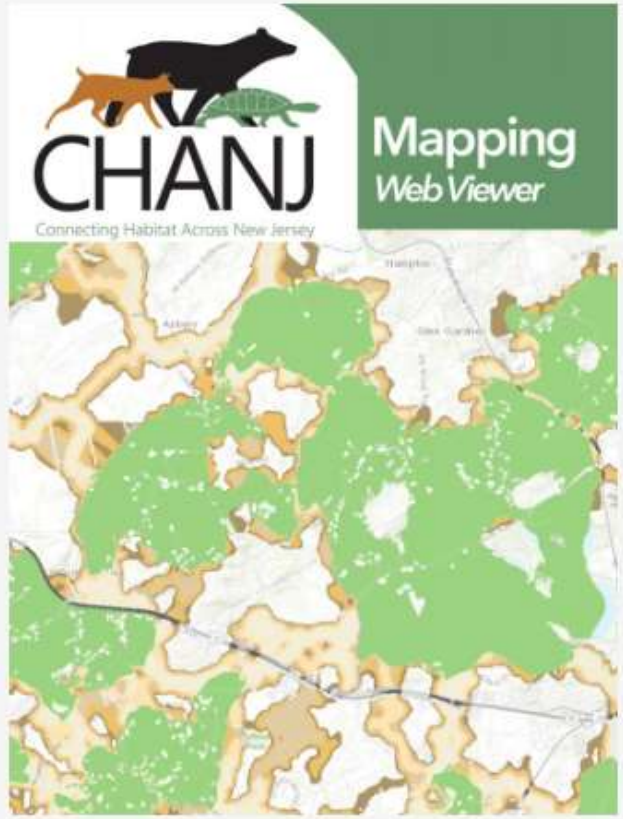

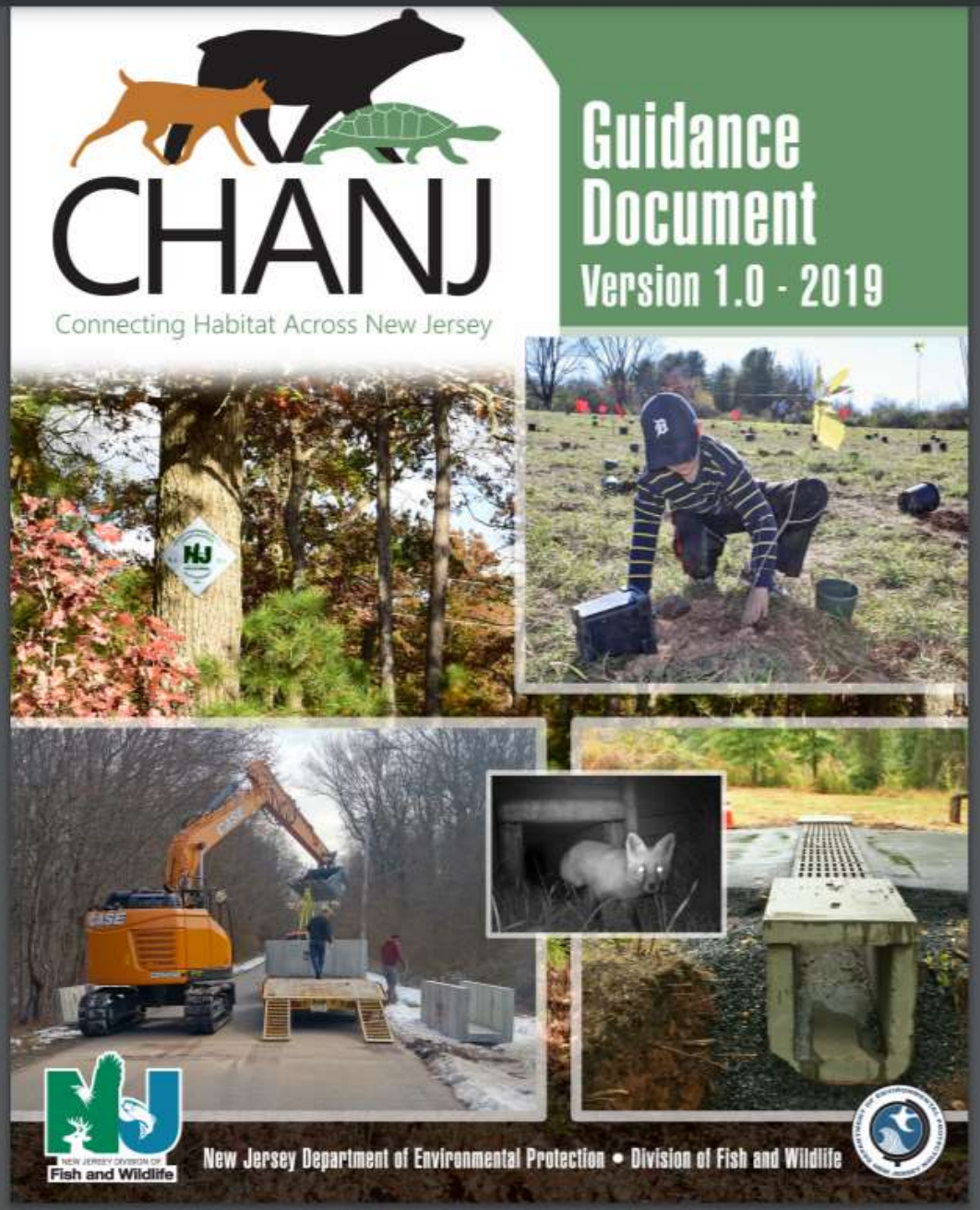

Bookmarks

- CHANJ Cover
- CHANJ_IntroPages
- CHANJ_Ch1_Intro
- CHANJ_Ch2_Mapping
- CHANJ_Ch3_Connectivity Assessments
- CHANJ_Ch4_Guidance
- CHANJ_Ch5_Action_Teams
- CHANJ_Appendices
- Appendix I Road Segment Report Outli...
- Appendix II Roadkill Survey Protocol
- Appendix III NAACC
- Appendix IV Photo Classification Proto...

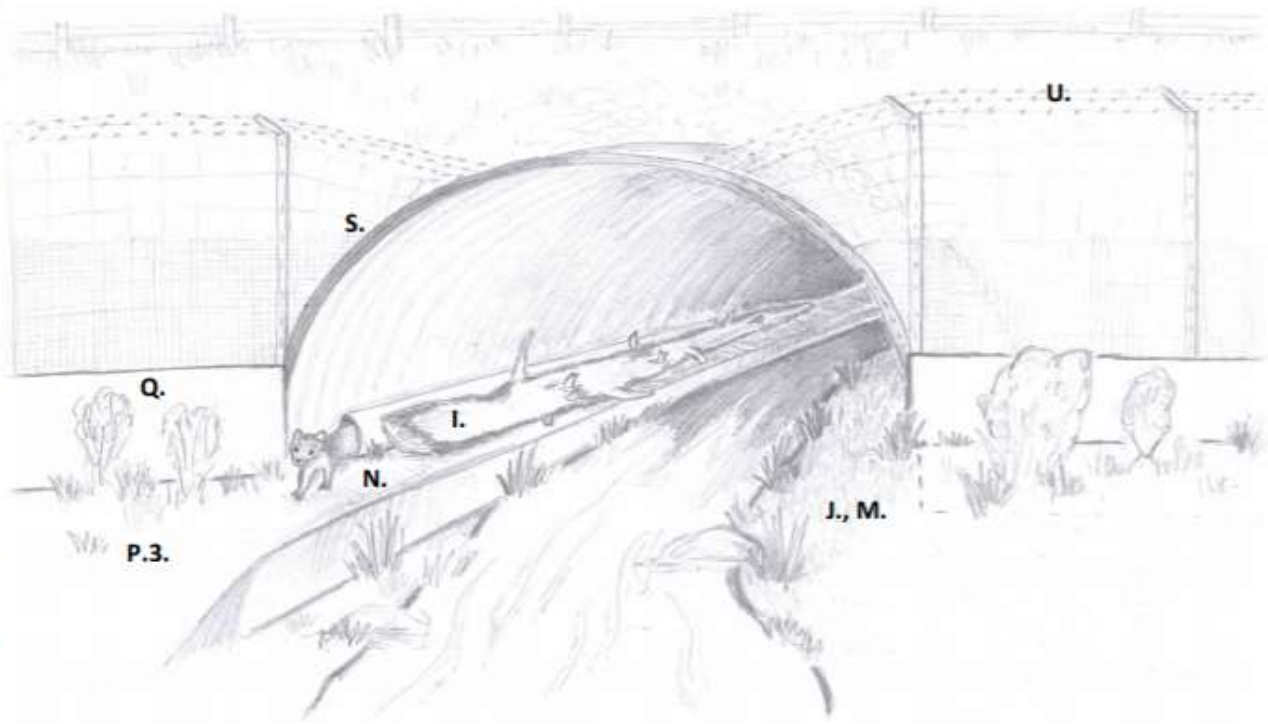

Figure 4.3. Sketch of a stream culvert with a shelf on one side and natural dry pathway on the other to facilitate terrestrial wildlife passage (described in P.1.). This example includes a shelf with natural substrate and vegetation (no exposed riprap or gabion baskets; N.), woody cover and a PVC tunnel for small animals (I.), and a smooth transition between the shelf and adjacent habitats (P.3.). Both the shelf and dry pathway have natural vegetation throughout the structure for continuity (J., M.). The guide fencing is tiered for animals of all mobility guilds (Q.), includes an overhang to prevent climbing (U.), and attaches flush with the crossing structure entrance (S.).

Fencing and Guide Walls

Q. Fencing/guide walls should be designed based on all species likely to utilize the passage structure.

R. Fencing/guide walls should angle out from each end of the crossing structure at approximately 25-45 degrees to help funnel animals towards the structure.

S. Fencing/guide walls should attach flush with the crossing structure entrance, with no gaps that small animals might slip through. Avoid any surface irregularities that might impede or distract animals moving toward the entrance.

T. Fencing/guide walls should be buried 6-12 inches into the ground to prevent animals from digging under it or gaps from being created by erosion.

U. The top of fence should have a 6-12-inch overhang or "lip" to prevent breaching by climbing animals. This is particularly important for reptiles and amphibians and some mammals. The overhang should face the habitat side (angled away from the roadway).

1. Eliminate or maintain vegetation and materials that would allow animals to climb over the fence and onto the roadway.

Wildlife Passage System Elements

Table 4.III. Wildlife passage system structure specifications recommended for different species mobility guilds.

Wildlife Passage System: Structure Specifications													
SPECIES GUILD	STRUCTURE TYPE*	SUBSTRATE	SPAN (if conveying water)	WIDTH (internal)		HEIGHT (internal)		LENGTH		SPACING of STRUCTURES		GRATED TOP (openings along road surface for climate)	
				recommended	*min*	*recom'd*	*min*	*recom'd*	*max*	*recom'd*	*max*	*recom'd*	*min*
Low mobility	Open bottom bridge / culvert	Leave natural	1.2x bankfull width at both ends, minimum	2'	18"	2'	1'	≤ 40'	125'	120'	200'	Entire length	At ends
	Box, circular, or elliptical culvert	Backfill with >6" natural substrate											
Moderate mobility	Open bottom bridge / culvert	Leave natural	1.2x bankfull width at both ends, minimum	4'	3'	4'	3'	≤ 40'	125'	500'	1,000'	Entire length	At ends
	Box, circular, or elliptical culvert	Backfill with >6" natural substrate											
High mobility	Open bottom bridge / culvert	Leave natural	1.2x bankfull width at both ends, minimum	8'	6'	8'	6'	≤ 40'	125'	500'	1 mile	-	-
	Box, circular, or elliptical culvert	Backfill with >6" natural substrate											
High Openness Fauna	Open bottom bridge / culvert	Leave natural	1.2x bankfull width at both ends, minimum	20'	10'	10'	8'	≤ 40'	125'	0.5 miles	1 mile	-	-
	Box, circular, or elliptical culvert	Backfill with >6" natural substrate											
NOTES:	• Tunnel should be perpendicular to road, situated at base of slope below road grade, completely level or minimum grading (3%) • Design for the needs of all species utilizing the area; multiple structures of different types and sizes may be preferable, and in general, the bigger the better. • Maximize continuity of native vegetation, natural material (e.g., rocks, logs), and soils adjacent to and within structure • * Overpasses are effective across all species guilds, especially when designs include natural substrate, continuous vegetation cover, a diversity of microhabitats, and separation from human use areas.												

A Good Example

Route 565 / Sussex County

Another Good Example

Another Good Example

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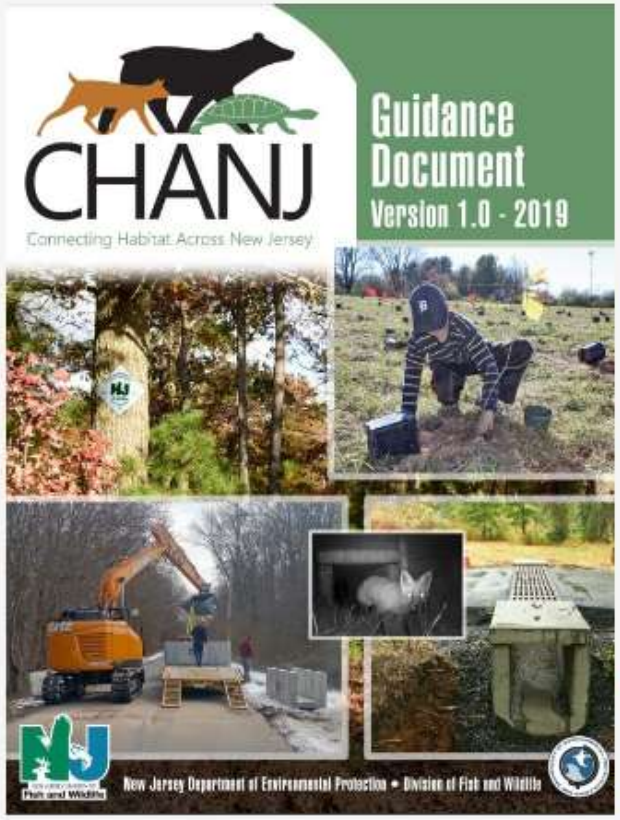
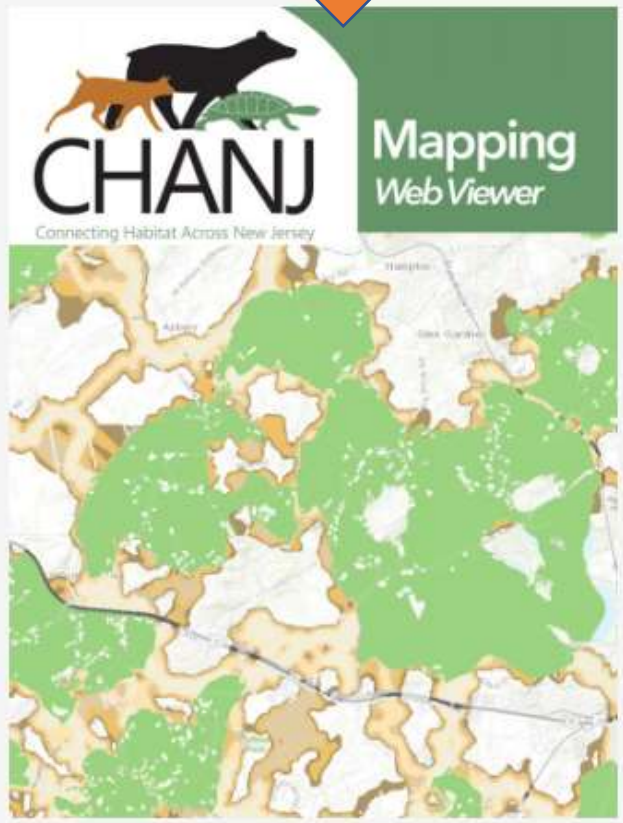
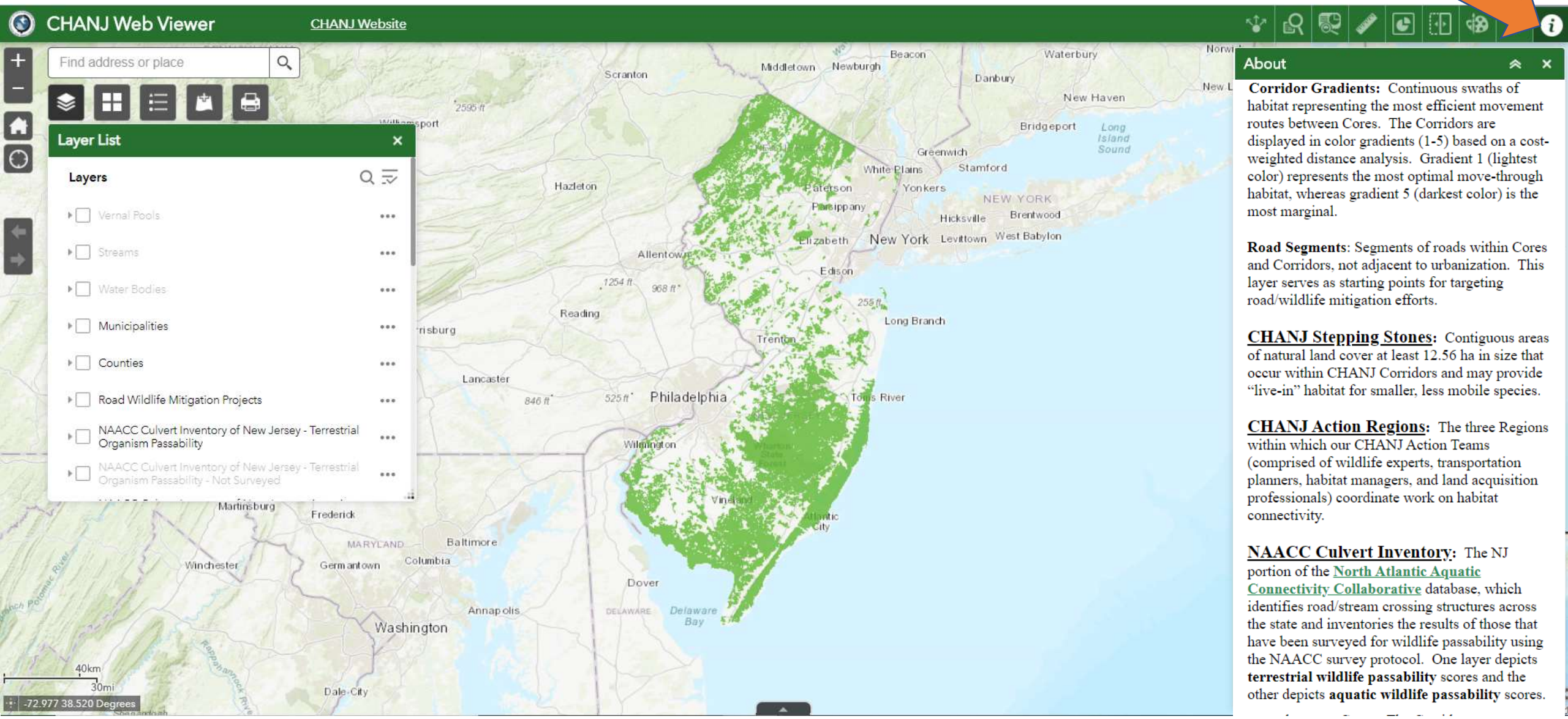




CHANJ Web Viewer: Intro



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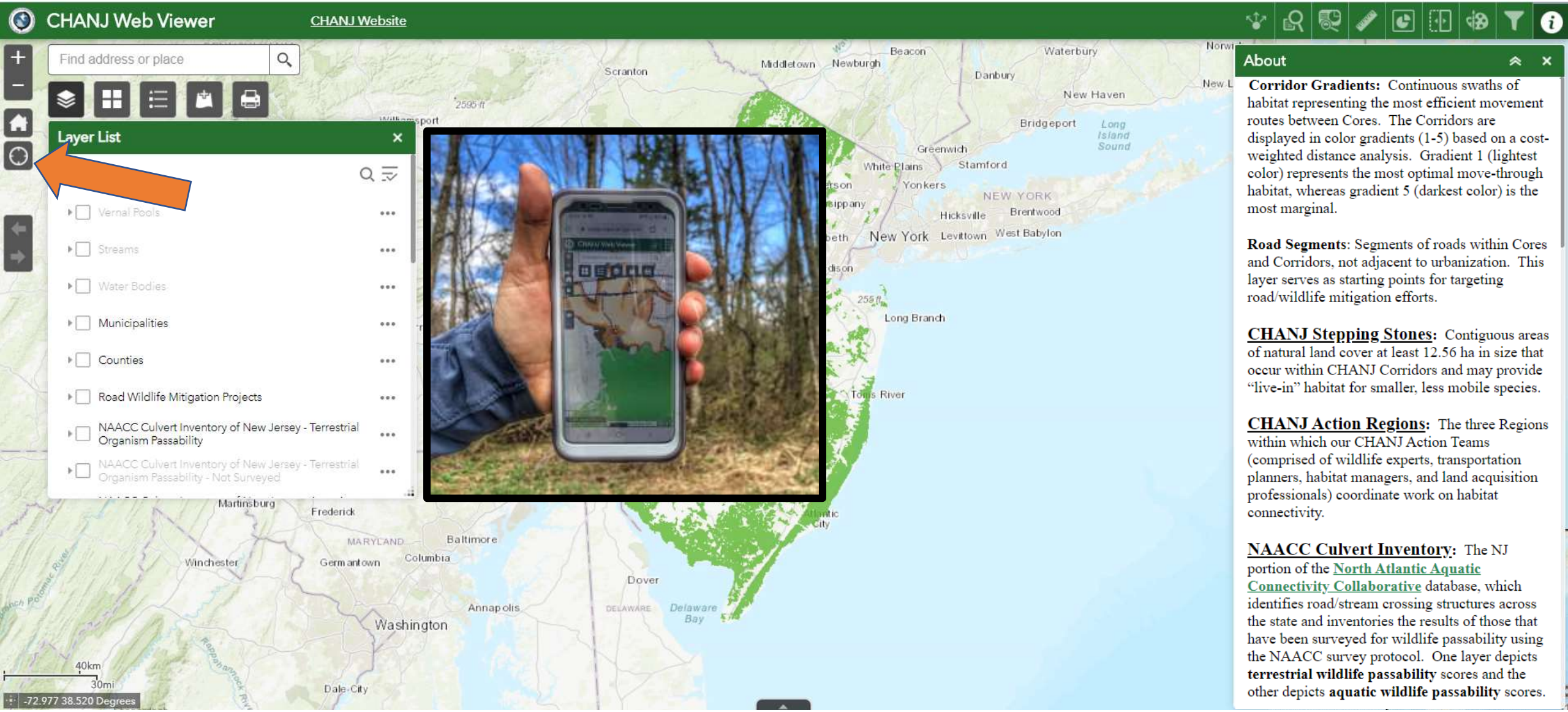
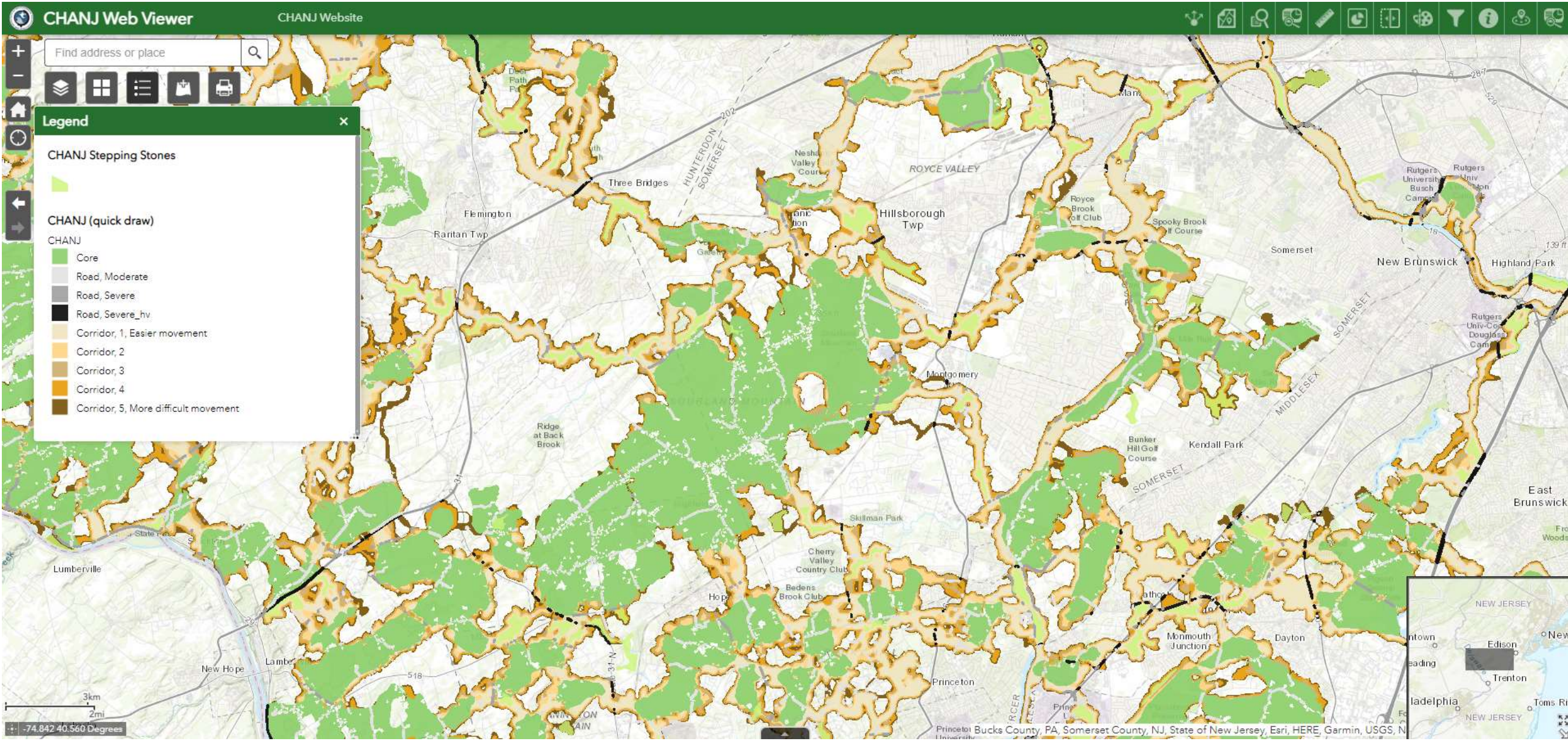
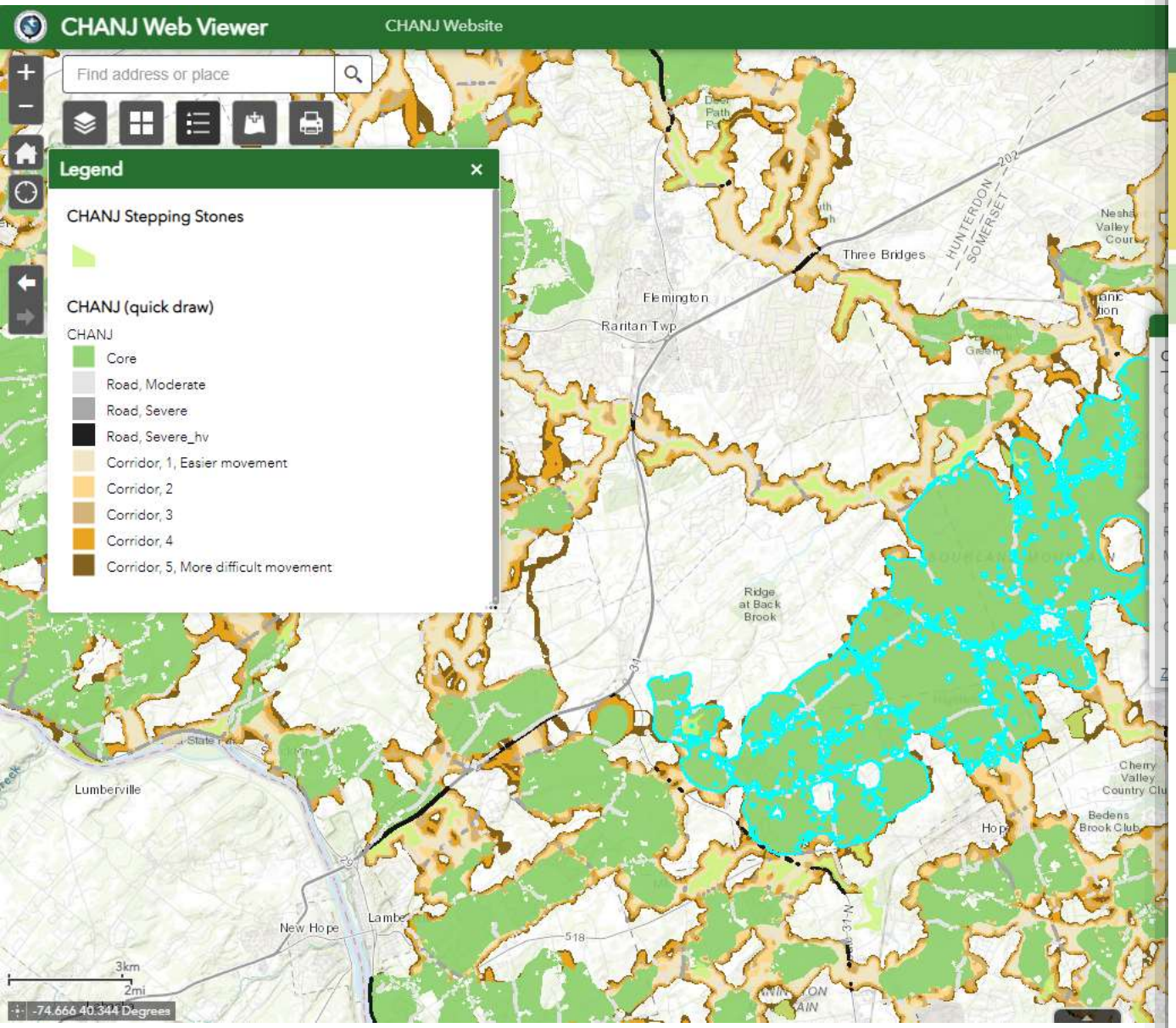


CHANJ Web Viewer: CHANJ Layers



CHANJ Cores, Corridor



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Last updated April 2019

Chapter 4. Guidance for CHANJ Cores and Corridors

- Habitat Protection, Restoration, and Management -

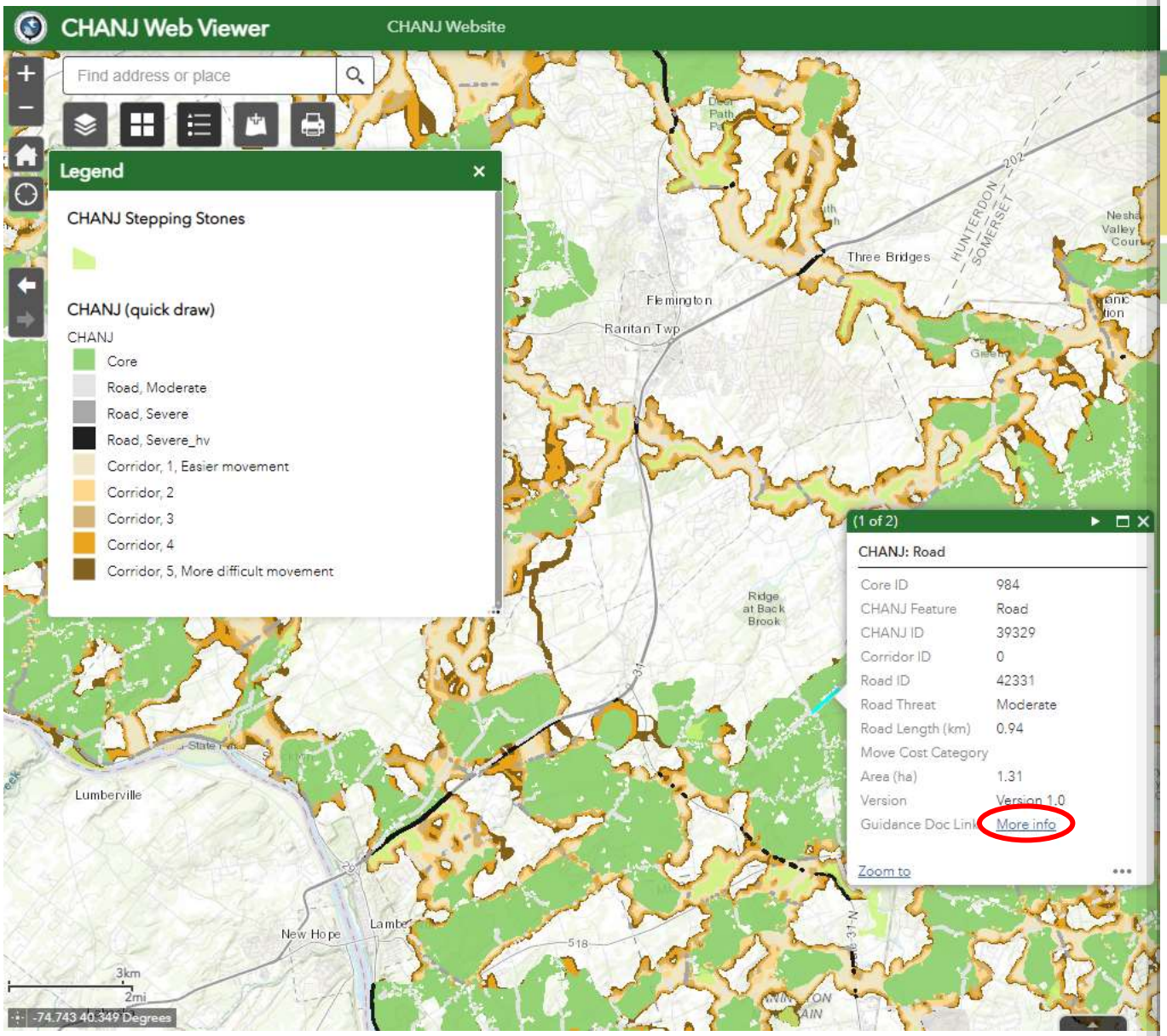
Skip to Habitat Protection
Skip to Habitat Restoration and Management

PRIORITIZING CONSERVATION ACTIONS

The Cores, Corridors, and Road Segments depicted in the CHANJ Mapping are meant to highlight the most advantageous places to implement conservation actions for wildlife connectivity, as they represent New Jersey's most contiguous remaining habitat areas and the best opportunities to keep those areas functionally linked. But when viewing this mapping from a broad, even statewide scale, tackling the connectivity challenge can seem very daunting. With resources being limited, it is important to prioritize our actions to have the greatest positive impact.

One approach is to prioritize areas based on high Biological Value and Opportunity or Need. Figure 4.1 offers scenarios from the CHANJ Mapping where conservation action – Habitat Protection, Habitat Restoration and Management, or Road Mitigation – would be most beneficial to terrestrial wildlife connectivity based on criteria of Biological Value and Opportunity or Need. The CHANJ Web Viewer provides supplemental mapping layers, detailed in the About section, to inform decision making as well. Revisit Chapter 2 of the full Guidance Document for details on how the mapping was developed.

Road Segr



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Chapter 4. Guidance for CHANJ Cores and Corridors

- Road Mitigation Practices -

Skip to Best Practices for Wildlife Passage Systems

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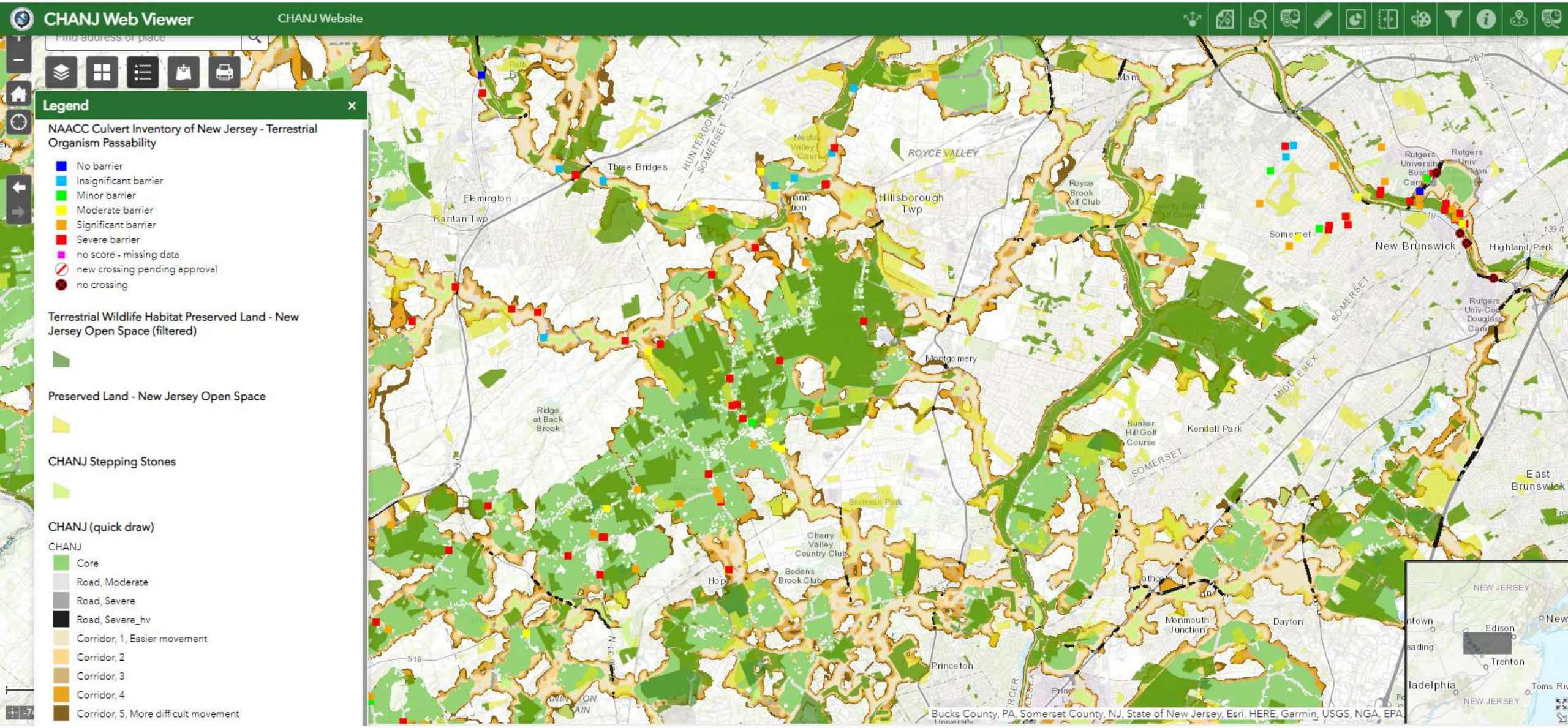
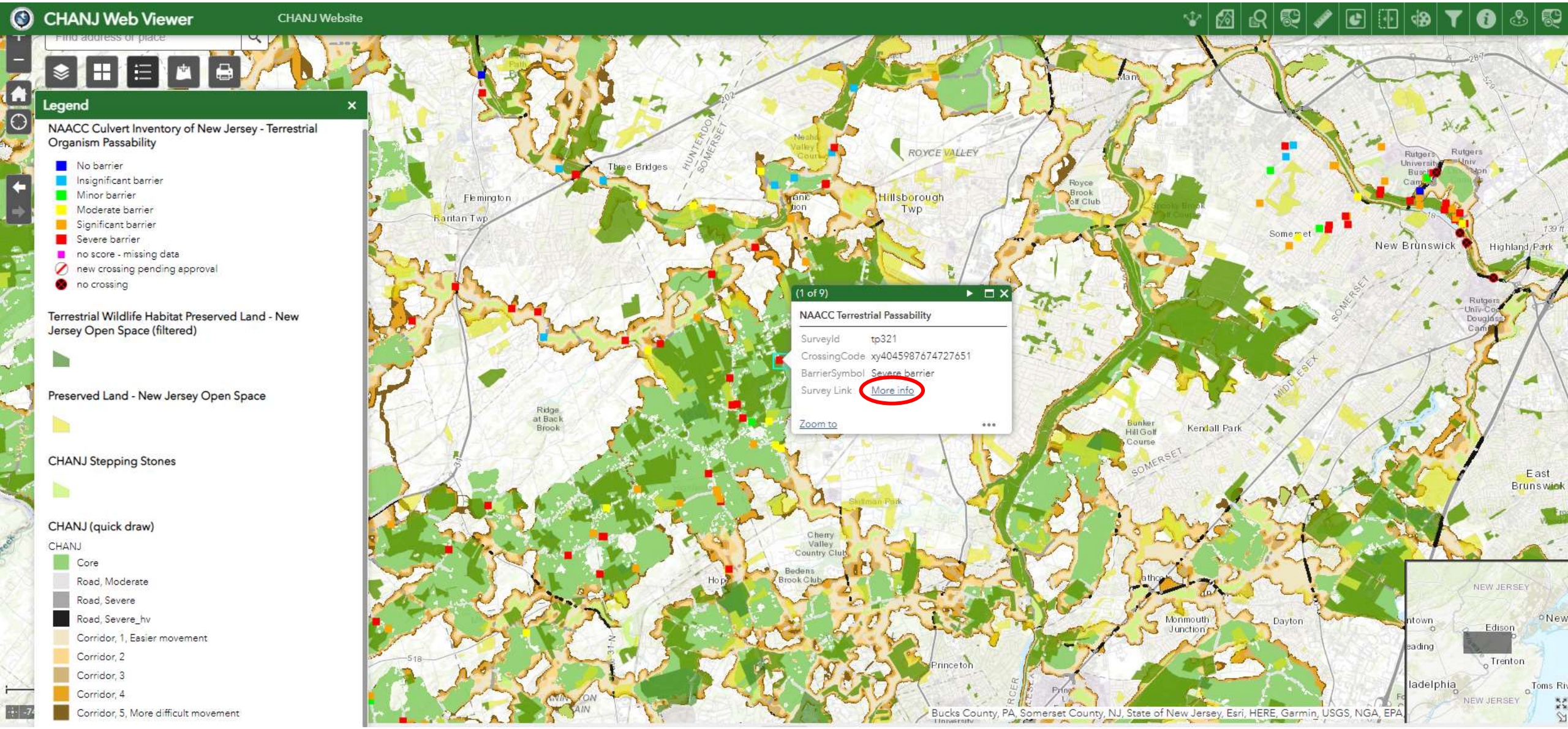
Preserved Land & NAACC Culvert Inventory



NAACC Culvert Inventory



NAACC Culvert Inventory

NAACC Data Center

Search Crossings LogIn

Data Set: Terrestrial Passage Assessments - NAACC (after 2018)

Survey Id: tp321 Crossing Code: xy4045987674727651

NAACC Terrestrial Passability Scores for Crossing

Average: 0.11

Small Mammals Snakes Lizards: 0.00

Medium Mammals Turtles: 0.63

Bobcat Lynx: 0.00

Bear Wolf Coyote Cougar: 0.02

Deer: 0.00

Moose: 0.00

Data checked and accurate by David Hsu on 11-21-2019

xy4045987674727651(inletTpApproach)8-26-2019.jpg

xy4045987674727651(inletTpContext)8-26-2019.jpg

xy4045987674727651(outletTpApproach)8-26-2019.jpg

xy4045987674727651(outletTpContext)8-26-2019.jpg

Terrestrial Connectivity Crossing Data

Database Entry By: Kenneth Hamel

Entry Date: 11-20-2019

Coordinator: David Hsu

Last Updated: 11-20-2019

GPS to Crossing Distance (meters): 4.9

NHD-HUC8 Watershed: Raritan

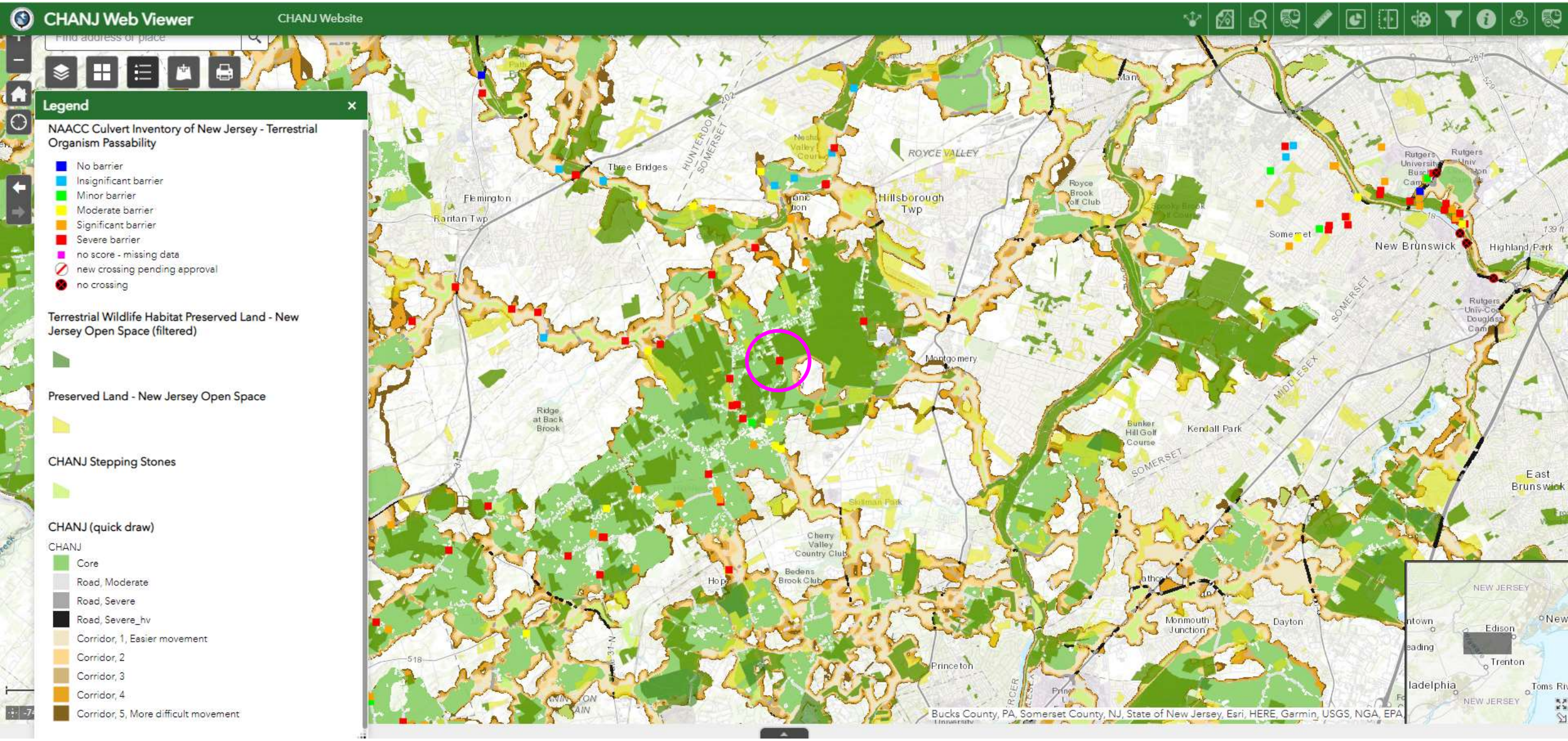
Crossing Code: xy4045987674727651

Local ID: No data

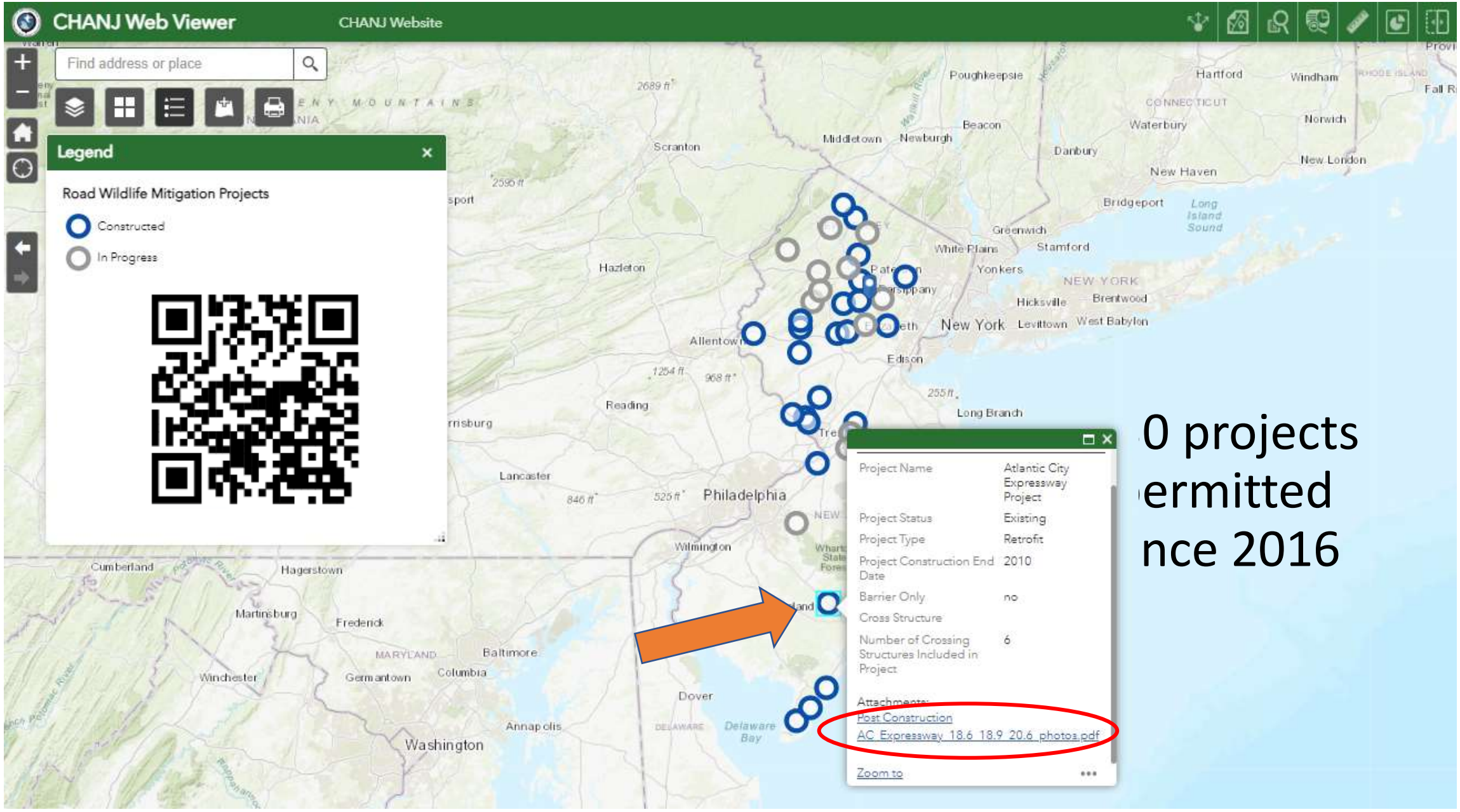
Date Observed: 08-26-2019

Lead Observer: Kenneth Hamel

NAACC Culvert Inventory - Opportunities



Road Wildlife Mitigation Projects

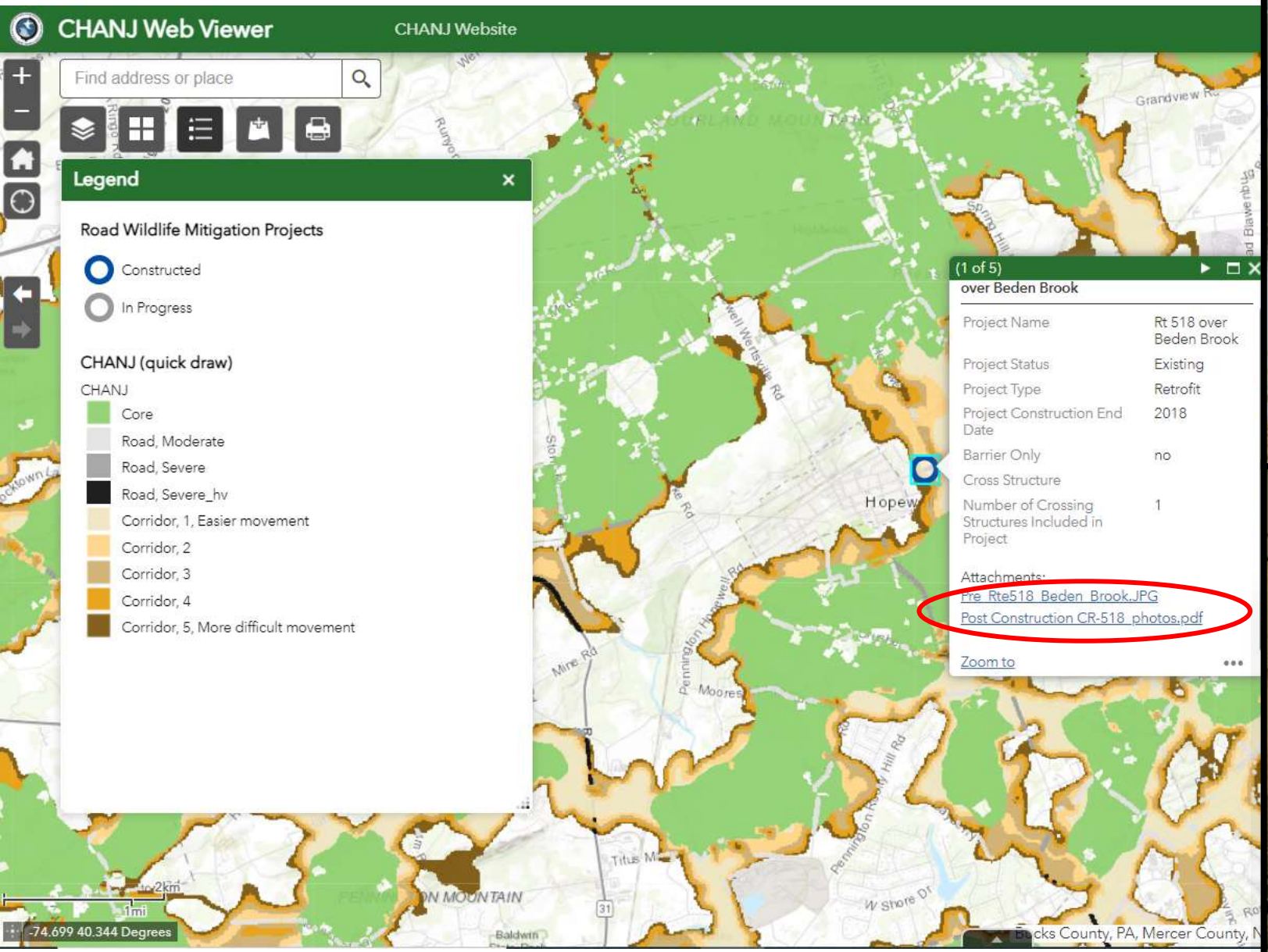


Culvert Retrofit – Dry Passage Shelf & Fencing

AC Expressway Crossings (mm 18.6, 18.9, 20.6)
POST CONSTRUCTION & fence/shelf fixes

Example: Flood Hazard Wildlife Passage Project

Example: Flood Hazard Wildlife Passage Project



Benefits of CHANJ

- Provides a common vision of NJ's connectivity puzzle
- Usable at local and statewide scales
- Enables more proactive and collaborative planning
- Accessible on mobile devices to evaluate connectivity\context in the field

CHANJ Listserv

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Tools of CHANJ
Explore our statewide CHANJ Mapping and Guidance Document, as well as other resources to guide your habitat connectivity efforts.

Projects & Partners
A growing reel of accomplishments and ongoing projects related to CHANJ.

What's New

- Road Wildlife Mitigation Projects layer: Updated with the latest information on Constructed and In Progress projects and photos.
- NJ Wildlife Tracker: New web app helps identify problem spots for wildlife along NJ roadways.
- Report: CHANJ connectivity assessment for mammals shows it's tougher for animals to get around these days.
- Habitat suitability and landscape connectivity for an expanding population of bobcats – Landscape Ecology 38(6) 1-19.


Introducing:
NJ Wildlife Tracker
Report Sightings of:
NJ Rare or Endangered Species
Wildlife on Roads / Roadkill
https://dep.nj.gov/njfw/conservation/reporting-rare-wildlife-sightings/

Thank You *for being part of the CHANJ!*

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