

# WILDLIFE CROSSINGS IN WYOMING

---

NEEDS, BENEFITS, AND CONSTRUCTION



# PROBLEM: WILDLIFE VEHICLE COLLISIONS

---

- $\approx$  7600 carcasses are collected along the state highways per year.
  - The current 5 year average from 2016-2020
- It is estimated around 50% of carcasses are found
  - The true number may be more than twice the recorded number
- Each collision costs an estimated:
  - \$8264/deer
  - \$21,723/elk
  - \$38,615/moose
  - \$6000/pronghorn (estimated)

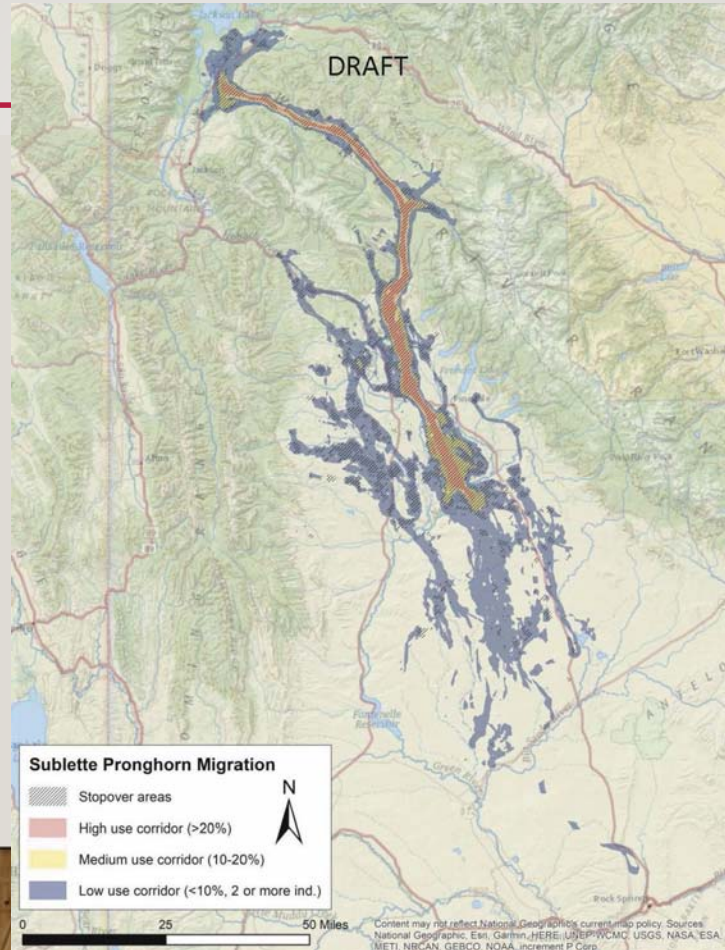
# PROBLEM: BARRIERS

---

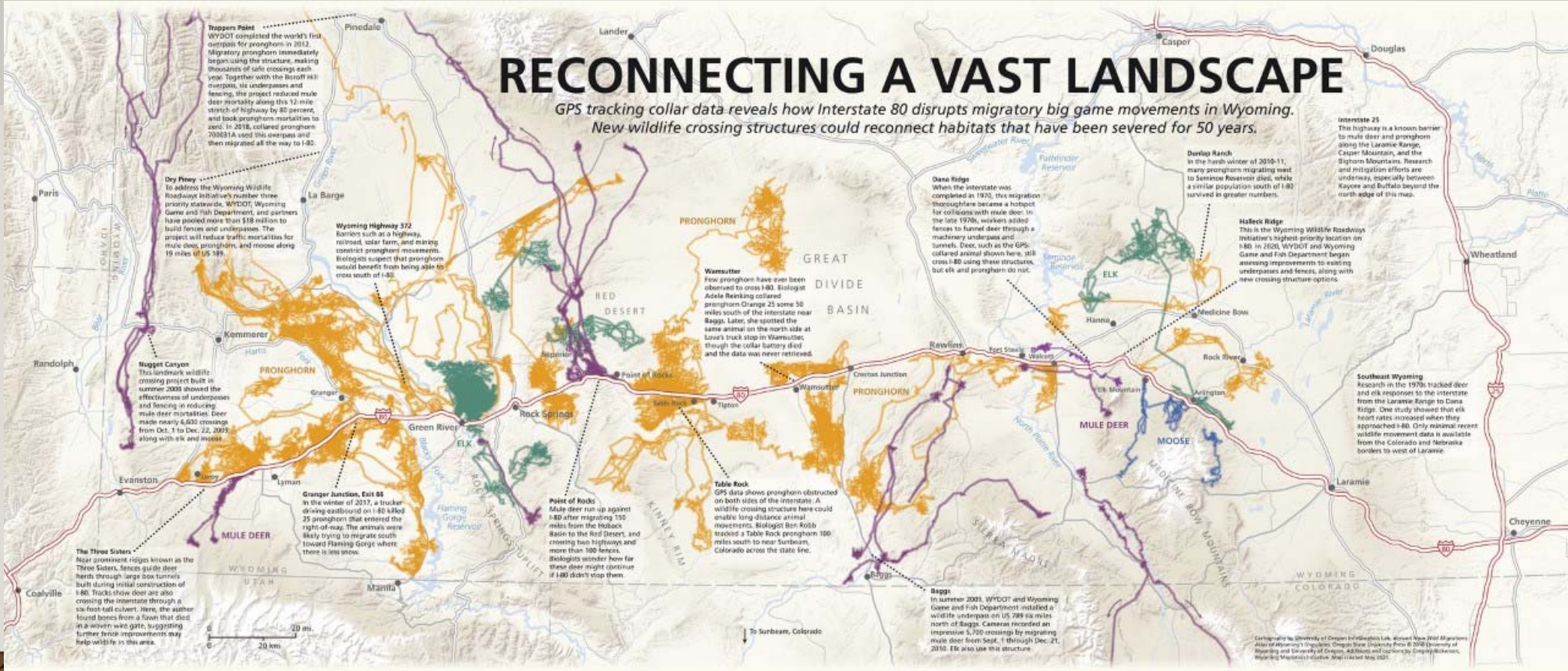
- Busy Highways
  - Mule Deer need a min of 30 sec, ideally at least 60 sec to safely cross highways
  - Reduces connectivity
- Fences- many are impenetrable
  - Will stack up wildlife so that many cross the same place at the same time
  - Others prevent wildlife from crossing the roadways at all- reducing connectivity



# MIGRATION ROUTES OVER HIGHWAYS



# HIGHWAY AND FENCE BARRIER



# WHAT IS THE WGFD DOING

---

- In January 2022, individuals from each division were nominated for a group to address this.
  - Issues to address include wildlife crossings, fish passage, and migration corridors.
  - This includes work outside of roadways, but all corridors eventually cross roadways.
  - Recommendations are being made to the Director's Office
    - Research needs
    - Strategic planning throughout agencies
    - Implement wildlife friendly fencing concepts throughout WGFD lands
    - Implementation of the top 3 wildlife crossings
    - Education and outreach to the public about benefits and ways to help

# BENEFITS OF WILDLIFE CROSSING PROJECTS

---

- Reduces wildlife vehicle collisions (WVCs) by up to 90%
- Re-establishes wildlife connectivity

## PROJECTS CURRENTLY IN IMPLEMENTATION

---

- Dry Piney: US 189, RM 86-105
- Kaycee to Buffalo: I-25, RM 253-269
- Dubois: US 26-287, RM 40-73
- Halleck Ridge: I-80, RM 247-256
- Kemmerer South: US 189, RM



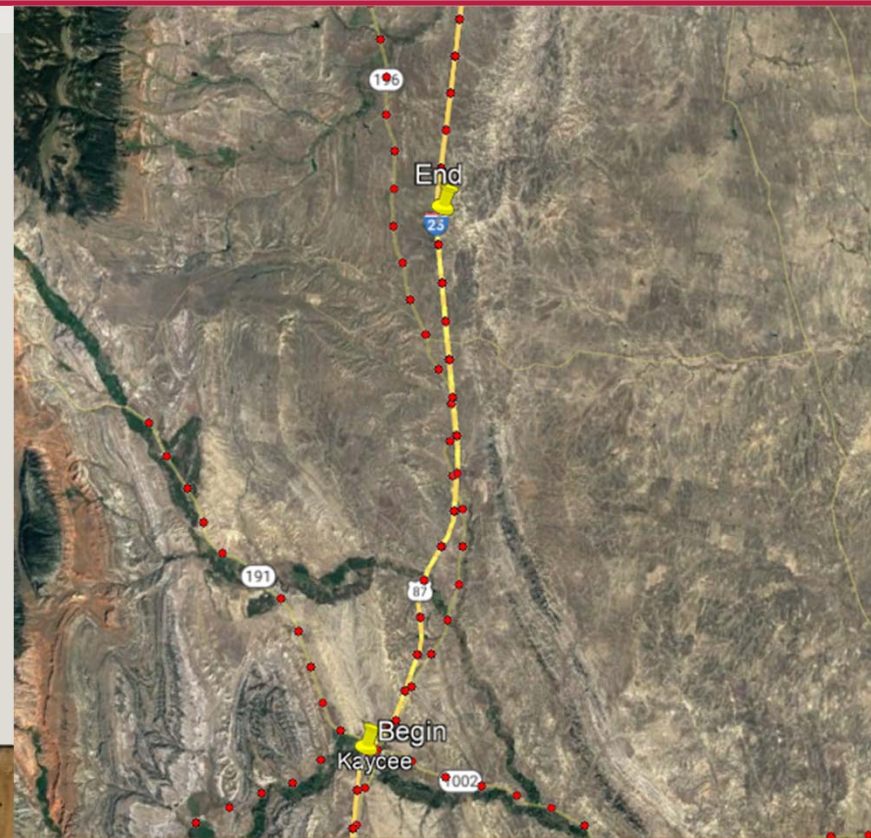
# DRY PINEY

- Currently under construction
  - Completion date of October 31, 2023
- 9 Underpasses
  - 8 Box Culverts: 20 ft x 12 ft
  - 1 arch culvert underpass
- 33 miles of Deer Fence
- Construction budget of \$15,128,182.00
  - WGFD contributed \$1.25 million



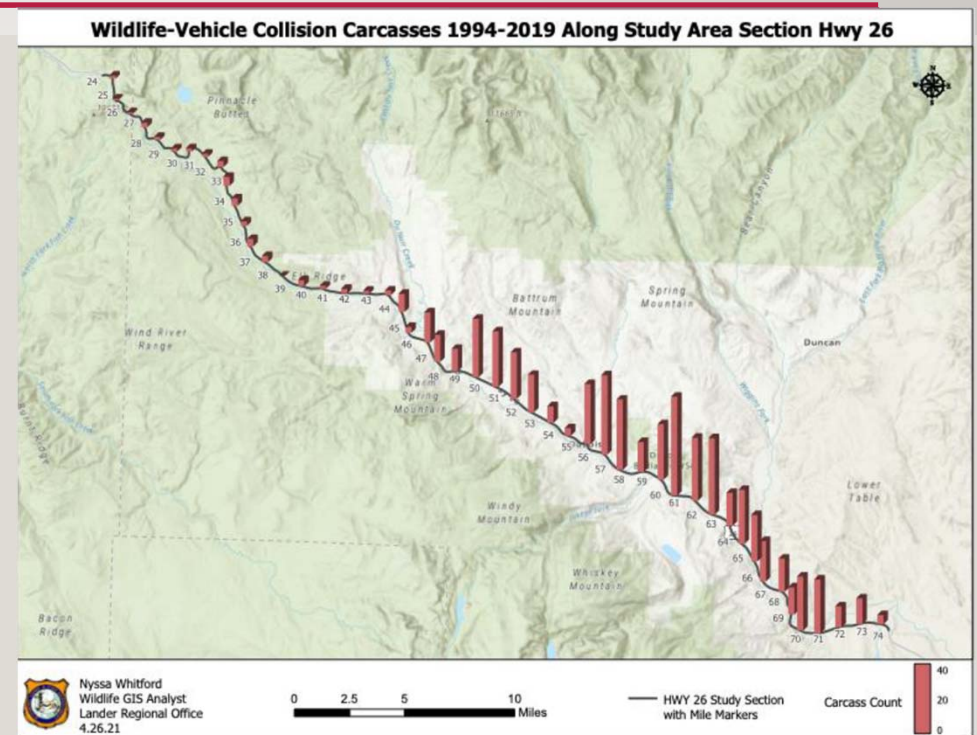
# BUFFALO TO KAYCEE

- Project was let in August 2022
- Completion date of November 30, 2024
- 36 miles of fence
- Fencing channelizes to existing underpasses and culverts



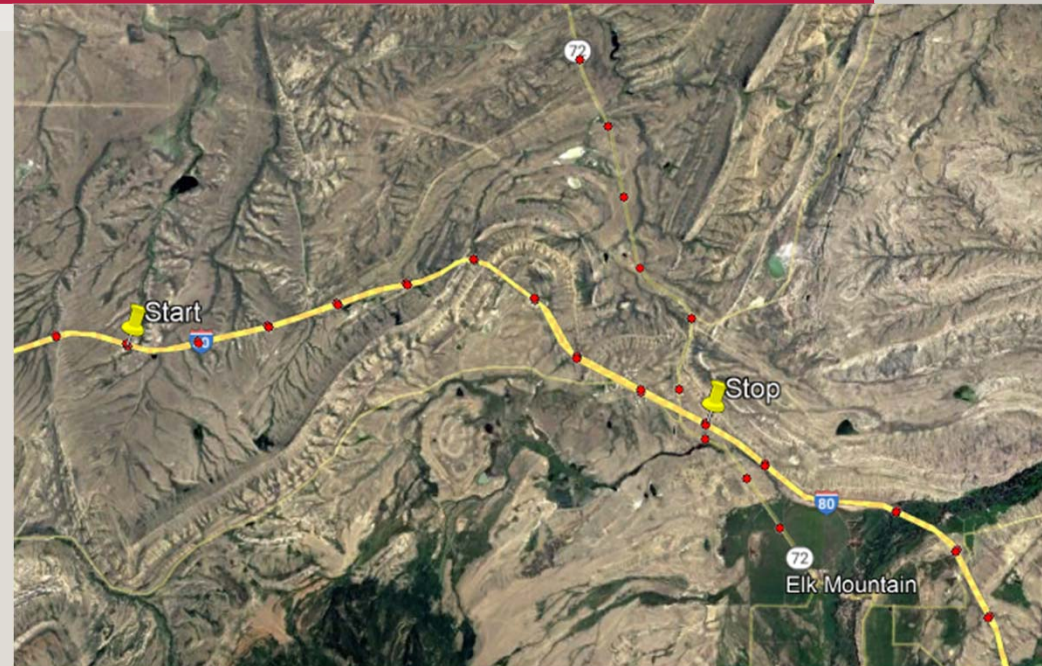
# DUBOIS CROSSINGS

- Project has been implemented in phases
  - Currently in phase III
- US 26/287 RM 58-64.5
- Will consist of three underpasses and one overpass
- 17 miles of fencing
- Will benefit deer, elk, moose, and bighorn sheep



# HALLECK RIDGE

- I-80 RM 247-256
- Will re-establish connectivity across habitats currently fractured due to the roadway.
- Important to the mule deer herd
- One of four planned projects
  - Currently a top 3 project for Wyoming



# KEMMERER SOUTH

---

- US 189 RM 0-24
- New nuclear facility means expected increase in truck traffic
- Moved the project up on the top 3 list
- Expected to have positive impact on the Wyoming Range and Uinta Mule Deer herds, along with pronghorn
- Anticipating 5 underpasses currently



# DESIGN CONSIDERATIONS UNDERPASSES

---

- Simple Span Bridges
  - Better openness ratio-  $OR = (\text{height})(\text{width})/\text{length}$
  - Requires more fill in grade change locations
  - Best suited for at grade structures

# SIMPLE SPAN BRIDGES

---



# DESIGN CONSIDERATIONS UNDERPASSES

---

- **Box Culverts**
  - Easier installation, ready to go
  - Less fill required
  - Lowers cost in locations requiring grade changes
  - Smaller openness ratio



# BOX CULVERTS

2008-12-19 7:48:32 AM M 2/3 16°F



37.44RC55

RECONYX

# DESIGN CONSIDERATIONS OVERPASSES

---

- Mainly used for pronghorn crossings, but works for other critters too
- Should be located where public lands exist both sides of the highway
  - Due to the high amount of fill and grading required to make approachable slopes
- Also works in cut locations
- Terrain can dictate whether overpass or underpass is ideal

# TRAPPER'S POINT CONSTRUCTION

---

- Project consisted of 6 underpasses and 2 overpasses
- Approximately 30 miles of deer fence
- Overall cost approx. \$11 million

# SIMPLE SPAN BRIDGES

---

- 6 Simple Span bridges were installed throughout the length of the project.
- Abutments sat on driven piles
- 75 ft top width, abutment to abutment
- 20 ft minimum bottom width
- Minimum height of 10.0 ft

# SIMPLE SPAN BRIDGES



# SIMPLE SPAN BRIDGES

---



# ARCH CULVERT OVERPASSES

---

- Placed on this project mainly for pronghorn migrations.
  - The “Path of the Pronghorn” was discovered shortly before this project.
- First wildlife overpasses in the United States.

# ARCH CULVERT OVERPASSES BOROFF HILL

---

- Overpass was located within a cut.
  - Worked well for situating the overpass
- Footings sat on bedrock
- First completed structure of the 2
- Fill consisted of select backfill to provide drainage and detour removal



# ARCH CULVERT OVERPASSES BOROFF HILL

---



# ARCH CULVERT OVERPASSES BOROFF HILL

---



# ARCH CULVERT OVERPASSES TRAPPER'S POINT

---

- Footings sat on driven piles
- South side was on cut slope, north was all fill
  - This extended the grade out to the edge of the BLM land
- Final structure being built on the project
- Location has significant cultural sensitivity
  - Care had to be taken to not disturb these locations

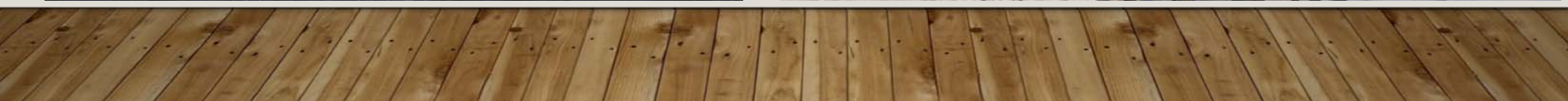
# ARCH CULVERT OVERPASSES TRAPPER'S POINT

---



# ARCH CULVERT OVERPASSES TRAPPER'S POINT

---



# ARCH CULVERT OVERPASSES TRAPPER'S POINT

---



# TRAPPER'S POINT PROJECT RESULTS

Table 1. Summary of mule deer (MD) and pronghorn (Prong) counts at each crossing structure along US 191, October 1, 2012 through May 14, 2015.

	MD East	MD West	MD North	MD South	MD All	Prong East	Prong West	Prong North	Prong South	Prong All	Totals
Boroff	2,210	2,600	0	0	4,810	1,414	1,060	0	0	2,474	<b>7,284</b>
Bridge 1	1,679	1,213	0	0	2,892	58	67	0	0	125	<b>3,017</b>
Bridge 2	1,388	1,410	0	0	2,798	53	83	0	0	136	<b>2,934</b>
Bridge 3	5,733	3,862	0	0	9,595	432	395	0	0	827	<b>10,422</b>
Bridge 4	0	0	924	817	1,741	0	0	1	1	2	<b>1,743</b>
Bridge 5	0	0	11,310	12,389	23,699	0	0	597	52	649	<b>24,348</b>
Bridge 6	0	0	3,547	2,822	6,369	0	0	451	349	800	<b>7,169</b>
Trappers	0	0	1,955	6,124	8,079	0	0	7,534	12,690	20,224	<b>28,303</b>
<b>Totals</b>	<b>11,010</b>	<b>9,085</b>	<b>17,736</b>	<b>22,152</b>	<b>59,983</b>	<b>1,957</b>	<b>1,605</b>	<b>8,583</b>	<b>13,092</b>	<b>25,237</b>	<b>85,220</b>

# QUESTIONS?

