

**From:** [Hogan, Matt](#)  
**To:** [Gilles, Benjamin M](#); [Fox, Trevor T](#)  
**Cc:** [Armitage, Stacy A](#)  
**Subject:** FW: [EXTERNAL] Re: Fence Drawing  
**Date:** Friday, December 9, 2022 5:18:42 AM  
**Attachments:** [Wildlife Crossing Suggestions for Grizzly Ridge Bison Fence.pdf](#)  
[ATT00001.htm](#)

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Is this consistent with that you talked about in October?

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**From:** Christine Paige <[wanderofftrail@gmail.com](mailto:wanderofftrail@gmail.com)>  
**Sent:** Thursday, December 8, 2022 3:33 PM  
**To:** Laura Stillwagon <[laurastillwagon@gmail.com](mailto:laurastillwagon@gmail.com)>  
**Cc:** Hogan, Matt <[Matt\\_Hogan@fws.gov](mailto:Matt_Hogan@fws.gov)>; [morganfischer@gmail.com](mailto:morganfischer@gmail.com)  
**Subject:** [EXTERNAL] Re: Fence Drawing

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Hello Laura and Morgan,

I've written up and attached the recommended crossing design with specifications, including a "back of the envelope" sketch of the floating rail idea from Andrew Pettibone (USFWS).

I hope it's clear enough to allow the ranch staff to get rolling.

Please don't hesitate to contact me with questions.

All best wishes,  
Chris

## Wildlife Crossing Suggestions for Grizzly Ridge Bison Fence

I was invited to visit the Grizzly Ridge Ranch in October, 2022 to tour the ranch bison fences and consult with the owner's agent, ranch manager, and tribal representatives on fence solutions to enhance wildlife movement. The visit resulted in a plan by Grizzly Ridge to modify fences with multiple wildlife crossings.

The current perimeter fences are 5- to 7-foot field fence supported by metal posts. Given this fence design, the most efficient crossing design would be to use 2 or 3 metal pipes as rails, welded or otherwise fastened securely to the metal posts (see photo).

Install crossings in fence sections at:

- 1) sites known by residents/locals to be wildlife movement areas;
- 2) sites with wildlife trails, tracks, or evidence of fence conflict;
- 3) riparian corridors and ridgelines;
- 4) fence corners, and
- 5) at regular intervals (e.g., 1/8 to 1/4 mile) along long stretches of fence.

Final placement of crossings will depend on topography and the needs of ranch operations.

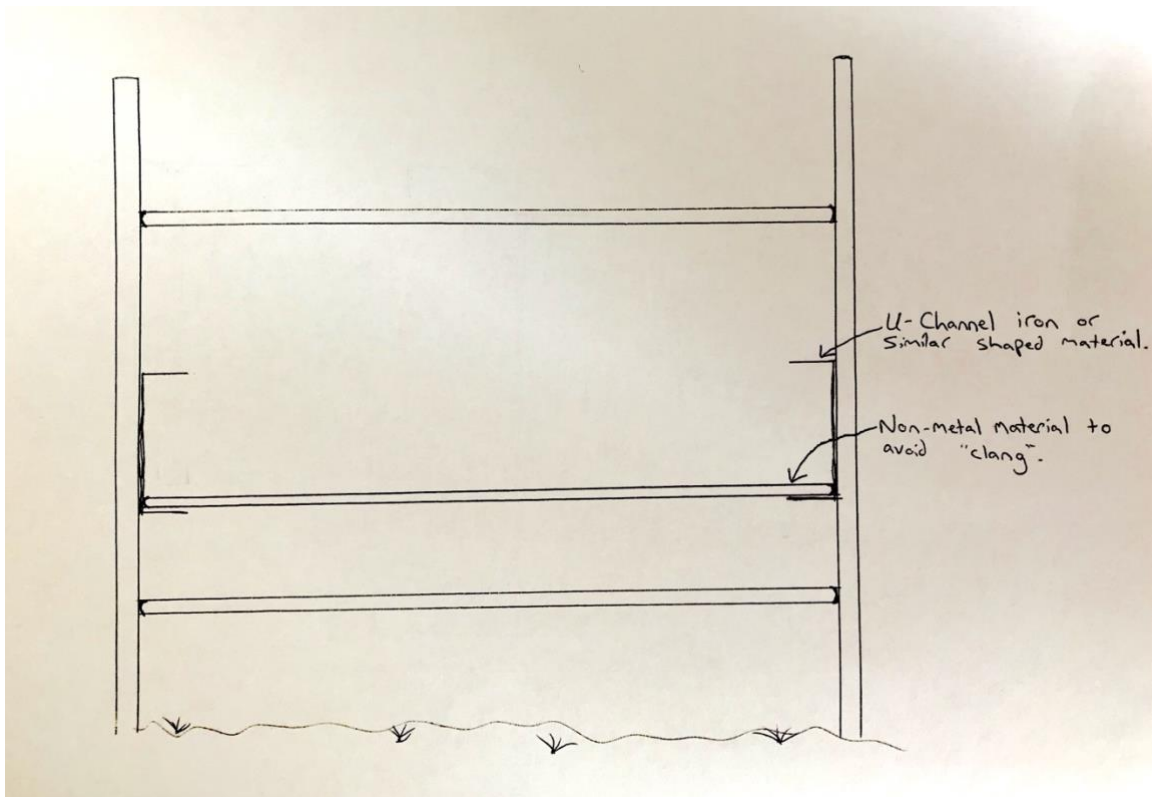


Spacing for 3 rails:

- 1) Place bottom rail at least 18" above ground level to allow wildlife to pass under (especially young ungulates and mule deer).
- 2) Normally, the recommended top rail height for deer and elk is 40" to 42", with middle rail at 30" to allow 12" between middle and top to prevent leg entanglements. However, this top height may not be suitable in all locations for bison fence.
- 3) If a higher top rail is necessary for bison, I suggest spacing rails at 18" bottom, 36" middle, and 48" to 54" top. This allows an 18" gap between the bottom and middle rail for animals to crawl through, and 12" to 18" between middle and top rail.
- 4) *I especially recommend at least 18" between the bottom and middle rail for moose calf crossing.*

In addition, Andrew Pettibone (USFWS, Choteau, MT, [Andrew\\_pettibone@fws.gov](mailto:Andrew_pettibone@fws.gov)), who was part of the tour, suggested a trial for a moose calf crossing with a moveable middle rail that will float as an animal pushes between the bottom and middle rail. This could be easier for moose calves to negotiate – see illustration.

The floating rail should be of durable non-metal material to avoid clanging. It should be held in place by U-channel or similar box shape to allow the rail to slide up and down but prevent it from popping out.



*Illustration by Andrew Pettibone*

Note that these recommended crossing designs are experimental for bison fence, in determining rail spacing that will work for local wildlife species and bison behavior, and in trialing a floating rail. Ranch managers will need to adapt if designs do not meet expectations. I would very much appreciate hearing feedback on any lessons learned.

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On Dec 8, 2022, at 10:40 AM, Laura Stillwagon <[laurastillwagon@gmail.com](mailto:laurastillwagon@gmail.com)> wrote:

Hi Christine

Hope all is well! I heard you, Morgan and the rest of the team had a nice visit to the Grizzly Ridge.

The ranch is gearing up to install the various wildlife crossings over the course of this year. Would it be possible for you to send us a "shop drawing", or even a hand sketch delineating the standard 3 pipe crossing detail as well as a second one with the floating middle pipe for the moose crossings.

This can be totally informal, just enough detail for Morgan to give the guys so they may start working.

Let us know if you have any questions

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Best,

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