Planning Commission - Staff Report

Subject: AMD2021-0003: Wildlife Friendly Fencing LDR Text Amendment
Agent/Applicant: Teton County
Property Owner: n/a; County-wide
Presenter: Ryan Hostetter, Principal Long-Range Planner

REQUESTED ACTION

Proposal to amend the Teton County Land Development Regulations (LDRs), pursuant to Section 8.7.1, to amend section 5.1.2 related to Wildlife Friendly Fencing. This amendment is made by the Teton County Planning Division at the direction of the Teton County Board of County Commissioners to update the Natural Resource Land Development Regulations in phases. The proposed amendments to this chapter would update and clarify certain standards for when wildlife friendly fencing is required, how it shall be constructed, and certain exemptions for specific uses.

BACKGROUND/DESCRIPTION

PROJECT DESCRIPTION

This proposed project includes an update to the Wildlife Friendly Fencing regulations outlined in section 5.1.2 of the LDRs. The update includes clarification and predictability to existing fence repair and replacement, additional exemptions for agricultural operations, and an update to the design requirements for wildlife friendly fencing. The updates were a cooperative effort between the Teton Conservation District, Wyoming Game and Fish, Teton Wildlife Foundation, Teton County, and concerned members of the public. The updates also follow the guidance outlined in the State of Wyoming Guide to Wildlife Friendly Fencing which is published by the Wyoming Wildlife Foundation in cooperation with agricultural operators throughout the state.

BACKGROUND

On July 12, 2021, the Planning Commission began their review and discussion including holding a public hearing for this item. Questions and comments revolved around how the regulations apply to smaller agricultural properties, containment of livestock, the difference in the proposed fence heights, repairs to existing fencing, and questions regarding specific impacts to wildlife. Specifics include:

- Timeframe for 10% repair allowance, and if 10% is a good metric choice
- Question regarding 40 vs 42 inches in height
- Need flexibility for those with livestock including horses
- Separate landscape fencing from agricultural fencing
- Permits for all fences

These items are outlined in the “Key Issues” noted below with Staff explanation.

LOCATION

N/A; applies County-wide.

STAFF ANALYSIS

An updated draft of the proposed text amendment is included as an attachment to this report and was released July 30, 2021, while the original draft was released for review on June 14, 2021, pursuant to the LDRs and Wyoming Statue §16-3-103.

SUMMARY OF KEY CHANGES

Summary of key changes since the July 12, 2021, Planning Commission Hearing include:

- Section for livestock fencing added, however with a requirement for Special Purpose Fence Permit
- Removal of 10' gap every 120' of buck and rail or worm fencing for containment of livestock (Special Purpose Fence Permit continued to be required)

KEY ISSUES

KEY ISSUE 1: Repair Exemption

The current Wildlife Friendly Fencing standards outlined in Div. 5.1.2 of the LDRs allow for repair and replacement of existing non-conforming fences "up to 50% of the linear feet" which has proven to be an issue with enforcement and interpretation. For example, is this 50% per side, is it 50% within a year, how many times can this be used before it is considered a new fence? Currently this allows for any repair and replacement of up to 50% of the linear feet of the existing non-conforming fence and this fence may never come into compliance with wildlife friendly fence design standards.

One of the main reasons for this update is to clarify and tighten up these standards which will increase predictability for property owners and staff implementing the measures as well as ensuring more of the existing fences in the County become wildlife friendlier over time. The updated language allows for any legally existing non-conforming fence to be repaired up to "10% of the total linear fence perimeter of each enclosure being repaired." This change clarifies the language and allows for some small repair and replacement, however the goal is that most fencing become wildlife friendly over time (unless a Special Purpose Fence Permit is approved).

Additional language has been included since the July 12, 2021 meeting which states that a "one time" 10% repair can be completed as a resolution to the comments and suggestions about how often one could use this exemption.

KEY ISSUE 2: Height of Top Rail

Discussion regarding the height of the top rail of fencing included questions regarding what type of impact this will have on wildlife specifically, and whether the difference between 40" and 42" helps wildlife. Some public commenters discussed seeing wildlife jump much higher, and some have discussed seeing wildlife struggle to cross. While this is situational, staff has consulted with the Wyoming Game and Fish Department regarding this topic for advice. Staff conducted a site visit along with the Planning Commission on July 29, 2021 to review fencing that the Wyoming Game and Fish Department has installed for the containment of horses. There were two fences viewed, one fence which was between approximately 30-40 inches and another which was higher at 48 to 49 inches. It was explained that the lower fence has fewer issues with damage as wildlife can more safely navigate and there have been no issues containing the horses, and that the taller fences are consistently knocked down and need repairs frequently because of wildlife trying to cross. It was also explained that the taller fencing is proposed to be re-built at a lower height to a wildlife friendlier design (this fence is also used to contain horses).

The draft language is not necessarily written for the most healthy/mature/strong wildlife to cross, but that a fence at 40" is more suited for a wider range of wildlife which may be experiencing stress and health issues due to many factors (including crossing multiple fences on their journey).

Based on this review, staff recommends continuing with the draft language of 40" based on the guidance published in the "Wyoming Landowner's Handbook to Fences and wildlife" and the research conducted therein (Attachment 2.).

KEY ISSUE 3: Livestock Containment

Another comment received discussed whether the proposed design for wildlife friendly fencing will contain livestock (includes horses and cattle in the discussions). It is important to note that livestock related to agriculture, and which meets the definition of agriculture (which include an assessment as such), are exempt from the requirements.

Based on field visits with Wyoming Game and Fish Department, staff reviewed fencing which contains horses and is wildlife friendly. During this site visit, discussion included whether or not the horses had challenged (i.e. attempted to jump) the fencing, and that ended up not being the case. Additionally, the horses are well managed within the fenced area, and therefore have not been encouraged to challenge any of the fencing in this instance.

Staff recognizes there are situations where taller fencing, or a more robust design, may be necessary and the proposed LDRs include language which allow for this. Livestock containment with a non-wildlife friendly design is allowed through a Special Purpose Fence Permit ($50 permit fee). This practice has not been revised (and currently exists in the LDRs), however clarifying language has been added in the draft for review. Staff has added section 5.1.2.b.2.d. within the exemptions which states "Fences constructed for the containment of livestock which have been approved through a Special Purpose Fence Permit."

KEY ISSUE 4: Landscape Fencing

During the Planning Commission hearing on July 12th the Commission asked about a separation between the requirements for landscape fencing versus fencing for the containment of livestock. Discussion included whether additional language should be created to ensure landscape fencing is wildlife friendly, while separating out and potentially allowing a different fence design which is not wildlife friendly for livestock. After further review and research of fence designs, including a deeper dive into the existing LDRs, staff does not recommend creating a new section for landscaping. Staff believes this will create additional confusion and that the purpose of this section is to make all fencing wildlife friendly, regardless of type, unless specifically exempted. Staff's recommendation is to keep this practice in place, and continue to allow for special purpose fencing in situations where livestock fencing is necessary. This is also helpful to staff, because it is more straightforward existing process rather than creating additional regulations just for landscaping, and continues to allow for the flexibility livestock owners are asking for which is currently allowed through agricultural exemptions and special purpose fencing in the LDRs.

KEY ISSUE 5: Permits for Fencing, Enforcement issues & Public Education

Requests have been made regarding requiring a permit for all fences. This would necessitate the creation of a permit process (or form/application), fee, and staff time to review all fence applications. While staff agrees that this method creates a good way of tracking and keeping a record of fences in the County, ensuring compliance, and educating the public, currently we are concerned with the amount of staff resources to properly carry this out.

Staff understands there are issues regarding enforcement, and that the current process is "complaint driven" where the County is essentially unaware of the fence issues (or any other item involving LDR compliance) until a call is made and complaint filed. In addition, the County suffers from staffing shortages and resource constraints to effectively carry out all code enforcement requests in a timely manner with the volume of items coming in. We understand this to be a major hurdle, and while it involves enforcement of the LDRs, it is a larger discussion the Planning and Building Services Department will need to have regarding budget and resource constraints with the Board of County Commissioners and allocation of additional resources.

The County is currently partnering with the Wildlife Foundation regarding outreach. With the update of the fencing LDRs, staff will be replacing much of the old information on the website, issuing press releases, and providing information for the Wildlife Foundation's outreach efforts. There are several outreach efforts being conducted with the public including those related to feeding of wildlife. Wildlife Friendly Fencing will require its own outreach effort with the public and the County looks forward to partnering with the Wildlife Foundation and any other organizations that wish to contribute to the effort.

STAKEHOLDER ANALYSIS

PUBLIC COMMENT

All written public comments received as of the publishing of this report are attached, as well as additional comment provided for the July 12, 2021, Planning Commission hearing.

DEPARTMENTAL REVIEW

A draft of the proposed amendment was sent to multiple departments for review prior to the July 12, 2021, Planning Commission Hearing. Those Include:

- US Department of Agriculture
- WYDOT
- County Engineering
- Wyoming Fish and Game Department
- Teton Conservation District
- Department of Planning and Building – Current Planning Staff

All reviews received from other departments and advisory agencies are attached to the July 12, 2021, Staff Report.

LEGAL REVIEW

Gingery

RECOMMENDATIONS

PLANNING DIRECTOR RECOMMENDATION

The Planning Director recommends **APPROVAL** of **AMD2021-0003**, as presented in the draft attached dated July 30, 2021, with no conditions based on the findings recommended below.

PLANNING DIRECTOR RECOMMENDED FINDINGS

Pursuant to Section 8.7.1.C. of the Land Development Regulations, the advisability of amending the text of the LDRs is a matter committed to the legislative discretion of the Board of County Commissioners and is not controlled by any one factor. In deciding to adopt or deny a proposed LDR text amendment the Board of County Commissioners shall consider factors including, but not limited to, the extent to which the proposed amendment:

1. *Is consistent with the purposes and organization of the LDRs;*

Division 1.3: Purpose and Intent: Based on the legislative discretion of the Board of County Commissioners, these LDRs are in accordance with the Jackson/Teton County Comprehensive Plan. Their purpose is to implement the Jackson/Teton County Comprehensive Plan and promote the health, safety, and general welfare of the present and future inhabitants of the community with the intent listed below.

1.3.1. Implement the Community Vision: Preserve and protect the area's ecosystem in order to ensure a healthy environment, community, and economy for current and future generations.

1.3.2. Implement the Common Values of Community Character

A. Ecosystem Stewardship

1. Maintain healthy populations of all native species and preserve the ability of future generations to enjoy the quality natural, scenic, and agricultural resources that largely define our community character.

2. Consume less nonrenewable energy as a community in the future than we do today.

B. Growth Management

1. Direct future growth into a series of connected, Complete Neighborhoods in order to preserve critical habitat, scenery and open space in our Rural Areas.

2. The Town of Jackson will continue to be the primary location for jobs, housing, shopping, educational, and cultural activities.

C. Quality of Life

1. Ensure a variety of workforce housing opportunities exist so that at least 65% of those employed locally also live locally.

2. Develop a sustainable, vibrant, stable and diversified local economy.

3. Residents and visitors will safely, efficiently, and economically move within our community and throughout the region using alternative modes of transportation.

4. Timely, efficiently, and safely deliver quality services and facilities in a fiscally responsible and coordinated manner.

1.3.3. Implement the Illustration of Our Vision

A. Achieve the desired future character identified for each Character District.

B. Implement the policy objectives for each Character District.

C. Achieve the character-defining features identified for each Subarea.

1.3.4. Predictable Regulations, Incentives, and Allowances

A. Ensure standards are consistently applied to similar applications and circumstances.

B. Ensure landowners, the public, and decision-makers know the amount, location, and type of growth to expect.

C. Use data analysis and best practices to inform standards and implement the adaptive management philosophy of the Growth Management Program.

1.3.5. Coordination Between Jurisdictions

A. Implement the joint Town/County Vision through coordinated, supportive actions.

B. Maintain a common structure, format, and definitions in Town and County LDRs.

Div. 1.4. Organization of the LDRs: These LDRs constitute the County's zoning and subdivision regulations. They have two organizing principles. Primarily, they are organized by zone in order to implement and emphasize the community's character-based planning approach. Secondarily, to provide ease of use, they are organized to answer three questions:

- *What can be built or physically developed?*
- *What uses are allowed?*
- *How can the land be developed or subdivided?*

Can Be Made. The purpose of this update to the LDRs is to further bring the wildlife friendly fencing requirements into compliance with the goals of the Comprehensive Plan through enhanced ecosystem stewardship. The current language includes loopholes and confusing language open for interpretation thus reducing predictability and effectiveness at supporting wildlife movement. The update of the current 50% repair language is a major improvement for wildlife friendly fencing while still allowing some repair to remain in place when necessary (proposed up to 10%).

2. Improves the consistency of the LDRs with other provisions of the LDRs;

Can be Made. The updated wildlife friendly fencing requirements are consistent with all other provisions of the LDRs. The proposed updates include added language which also tie to other portions of the LDRs such as the grading requirements for any earthwork, as well as the wildlife feeding section regarding small exclusionary fencing areas which are encouraged to protect wildlife to increase consistency.

3. Provides flexibility for landowners within standards that clearly define desired character;

Can Be Made. The proposed updates do strengthen the repair and replacement requirements, however, there remains an option for a landowner to repair existing fencing as well as apply for a Special Purpose Fence Permit in the event special circumstances arise which necessitate a non-wildlife friendly fence design.

4. *Is necessary to address changing conditions or a public necessity and/or state or federal legislation;*

Not applicable.

5. *Improves implementation of the Comprehensive Plan; and*

Can Be Made. This proposed amendment of the LDRs is intended to implement the ecosystem stewardship Common Value One outlined in the Comprehensive Plan. Maintaining healthy populations of all native species is outlined in Principle 1.1 and this wildlife friendly fencing division in the LDRs exists to implement this principal by ensuring fencing is not negatively impacting natural wildlife movement.

6. *Is consistent with the other adopted County Resolutions.*

Can Be Made. No apparent conflict or relationship to other County Resolutions was identified by staff in this review.

ATTACHMENTS

1. Draft Amendment Dated July 30, 2021
2. A Wyoming Landowner's Handbook to Fences and Wildlife
3. July 12, 2021 Staff Report
4. Public Comment received after publication of July 12, 2021 Staff Report

SUGGESTED MOTION

I move to recommend **APPROVAL** of **AMD2021-0003**, as presented in the draft dated July 30, 2021, to amend division 5.1.2 for Wildlife Friendly Fencing, being able to make the findings of Section 8.7.1 . as recommended by the Planning Director.

Wildlife Friendly Fencing Amendment AMD2021-0003

DATED: July 30, 2021

~~Strikeouts~~= **delete**
Underline = add

5.1.2. Wildlife Friendly Fencing

A. Findings

Fencing is a structural element that can create an impediment for wildlife movement, resulting in both injuries and death to wildlife and damage to the fencing. The purpose of wildlife friendly fencing is to ease wildlife passage to the habitats that sustain them and reduce incidents of injury and mortality. Wildlife friendly fencing allows wildlife to jump over and pass under more easily, reduces the chance of entanglement, and may incorporate openings or wildlife passes. It also includes consideration of topography and placement, such as to allow free and safe passage around special purpose or barrier fencing.

B. Applicability

~~New fences erected after September 12, 2006 shall comply with the standards of this Section.~~

~~If over 50% of the linear feet of an existing fence is replaced, the fence shall be considered "new" and shall abide by the standards of this Section.~~ ~~Except that the following shall be exempt from the provision of this Section:~~

~~1. Repair, or relocation of prior or existing fences associated with agricultural use meeting the standards for exemption in Section 6.1.3.B.; and~~

~~2. Fences built for new riding arenas, as defined in these LDRs.~~

1. Repair or replacement of legally established nonconforming fencing ~~(including fencing erected prior to September 12, 2006)~~ that does not meet the standards of Sec. 5.1.2. is permissible under the following standards:

    a. One time ~~R~~repair of less than 10% of the total linear fence perimeter of each enclosure being repaired;
    b. Approval of a Special Purpose Fence Permit as outlined in Sec. 5.1.2. D.
    ~~c. Any repair of existing buck and rail or worm fencing shall receive approval of a Special Purpose Fence Permit and comply with the design requirements of 5.1.2 C.~~

2. Exemptions for Wildlife Friendly Fencing outlined in Sec. 5.1.2 :

    a. Fences associated with agricultural use on ~~properties~~ sites meeting all of the following:

i. ~~Properties~~ Sites of 70 acres or more and meeting the standards in Section 6.1.3.B.;.and;

ii. ~~Properties~~ Sites containing agriculture as assessed by the Teton County Assessor; and

iii. Exempt fencing per this section is used only for agricultural purposes on the ~~property~~ site as defined herein.

b. ~~2.~~ Fences built for ~~new~~ riding arenas. Riding arenas shall have 12 foot wide gates at 2 ends that must remain open to allow wildlife movement when arena is not in use~~,~~; ~~as defined in these LDRs~~;

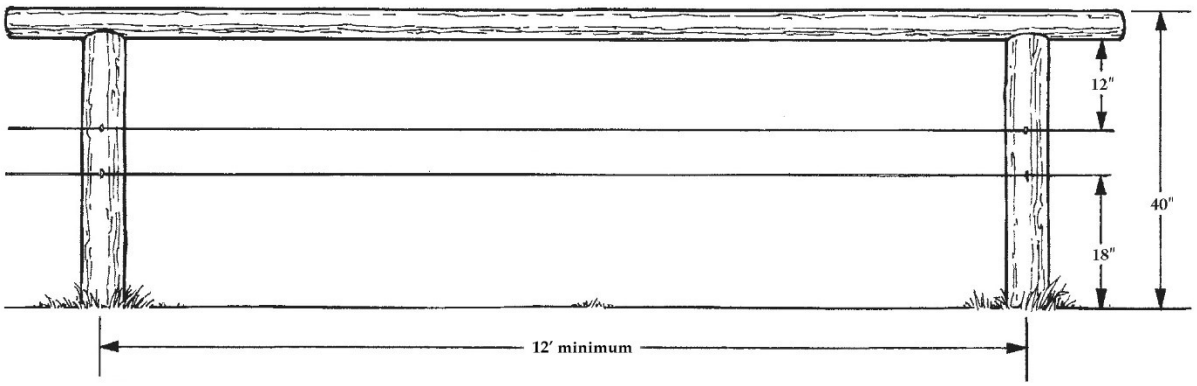
c. Fences erected for exclusionary purposes of small areas ~~to protect~~ such as hotwire around automatic trout feeders, apiaries, vegetable gardens, composting areas, haystacks, livestock feed storage, chicken yards, and ornamental landscaping areas directly adjacent to structures.

~~c.~~d. Fences constructed for the containment of livestock which have been approved through a special purpose fence permit.

C. Fencing ~~Height~~Design

Fencing materials and design shall comply with the following standards:

1. Measurements: The top rail ~~Fencing,~~ for purposes other than livestock control, shall be no higher than 38 inches above the ground. ~~Fencing~~ The top rail for livestock control shall be no higher than ~~42~~ *40* inches above the ground. There shall be no more than three horizontal strands/rails permitted. These heights allow wild ungulates (deer, elk, moose, antelope) to jump over more easily. ~~For both of the above fence types~~ Spacing between the top ~~two wires or top~~ pole/rail and adjacent wire shall be at least 12 inches. The distance between the bottom wire/rail and the ground shall be no less than 18". The spacing of fence posts shall be a minimum of 12-foot centers unless topography prohibits this spacing. The posts may have extra height to allow for any necessary lower or raising of the top rail.



~~D. Materials and Design~~

2. Materials: Wood (or similar highly visible solid material) top poles, and either wood rails or wire strands are permitted as horizontal elements in fencing, however wire shall not be used as the top most horizontal strand. When using wire, the middle or bottom wire strands shall be smooth or twisted wire. Barbed wire may be used in the middle strand when necessary to control livestock. Barbed wire is prohibited in the top and bottom strands of the fence.

~~2. The required fencing design includes a top level of a wood (or similar material) pole rather than wire. The bottom rail or wire strand shall be at least 16 18 inches above the ground. This bottom height allows easier passage for pronghorn, young deer, elk and moose, and other medium-sized mammals, and smooth wire reduces injury.~~

~~3. The spacing of fence posts shall be on 12-foot centers unless topography prohibits this spacing. The posts shall have extra height to allow for any necessary lower or raising of the top rail. Spacing of the second and third wire shall be evenly spaced. Spacing distances may vary from 7-8 inches depending on the height of the fence.~~

3. Double Fences: The spacing between parallel fencing (regardless of ownership) shall be at least 30 feet as to not create a trap for wildlife.
4. ~~The top level of a newly constructed fence shall be flagged immediately after construction. The flagging shall be white and maintained for at least 1 year.~~
5. ~~All exclusionary fencing shall demonstrate ability for wildlife to safely circumnavigate~~
6. New buck and rail ~~or~~, buck and wire, and worm fencing is prohibited unless approved by the Planning Director through a Special Purpose Fencing Exemption. ~~When buck and rail fencing is necessary due to rocky or wet soil, a portion of the fence shall be laid down or constructed to a lower height, not to exceed 38 inches, to allow wildlife movement.~~
7. Land disturbance and vegetation clearing for fence installation and repair shall be the minimum necessary to install fence posts and allow installation of fence materials. Any land disturbance shall comply with the requirements of Div. 5.7. of the Land Development Regulations.
8. Fencing adjacent to a swale, gully, or other topographic feature shall be designed to allow wildlife to safely cross. In these instances, the fence shall require a minimum 8 foot clear area between the fence and the animal landing/takeoff area.
9. Fences shall not be placed in such a manner as to block the natural funneling of wildlife through canyons and areas such as swales, gullies, ridges, canals, streams or other topographic features.

D~~E~~. Special Purpose Fencing

Notwithstanding the provisions of this Section, the Planning Director may exempt individual special purpose fencing from this Section, provided the fencing meets the below standards. The applicant shall provide a written explanation for how the proposal qualifies for a special purpose fencing request based on the information in this section.

EXAMPLE: Examples of special purpose fencing within a non-qualifying agricultural property include fencing for a dog kennel, certain types of agricultural fencing (such as bull enclosure, pig pens, sheep enclosure, fencing to secure stored livestock feed, fencing for winter livestock feeding sites, and fencing for 4-H projects), fencing for mitigation sites, fencing for restoration areas, securing a construction site,

swimming pool enclosure, screening of refuse facilities, recycling containers, dumpsters, and small yard enclosure. See Sec. 5.1.3 Wildlife Feeding.

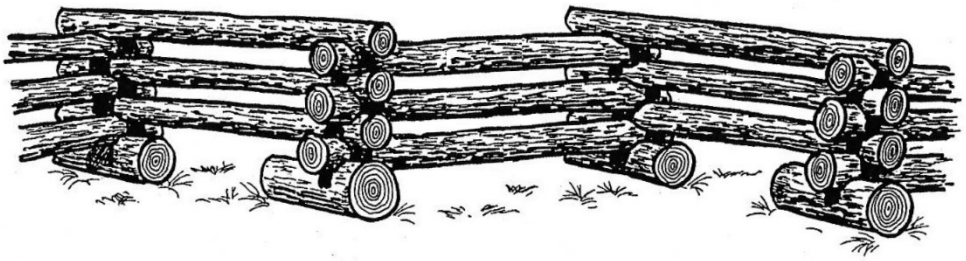
1. Smallest area. The special purpose fencing shall encompass the smallest area necessary to achieve the purpose.

2. Specific design. The applicant shall demonstrate that the Special purpose fencing is constructed for a particular use and requires a specific design to accomplish the purpose of the fence.

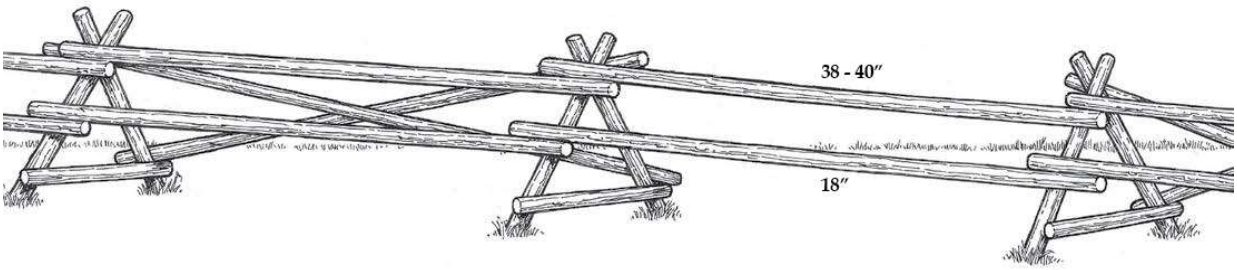
3. Height in yards. Special purpose fencing located in a street yard shall not exceed 4 feet in height. Special purpose fencing located in a side or rear yard shall not exceed 6 feet in height.

4. Setback. Special purpose fencing is not subject to a setback from property lines.

5. Rocky or wet soil. Buck and rail or worm fencing may be approved when the applicant demonstrates necessity due to rocky or wet soil. ~~A 10 foot gap in the fence shall be provided every 120 feet or constructed to a lower height,~~Buck and rail or worm fencing shall not to exceed 38 inches, to allow wildlife movement. All buck and rail or worm fencing permitted under this section shall comply with the design requirements of Section 5.1.2 C above.



Worm Fencing – Special Purpose Only



Buck and Rail Fencing – Special Purpose Only

6. The Planning Director may consider other mitigation practices demonstrating improved wildlife passage such as drop down horizontal elements, open gates and other practices recommended by Wyoming Game and Fish Department or as included in the "Wyoming Landowner's Handbook to Fences and Wildlife: Practical Tips for Fencing with Wildlife in Mind" by Christine Paige, 2015 Wyoming Community Foundation, Laramie.

7. All standards for natural resource protection as recommended by the Planning Director shall be recorded in the permit.

A WYOMING LANDOWNER'S HANDBOOK TO

Fences and Wildlife

Practical Tips for Fencing with Wildlife in Mind

Second Edition
Revised and Updated 2015

WYOMING WILDLIFE FOUNDATION


Mark Gocke

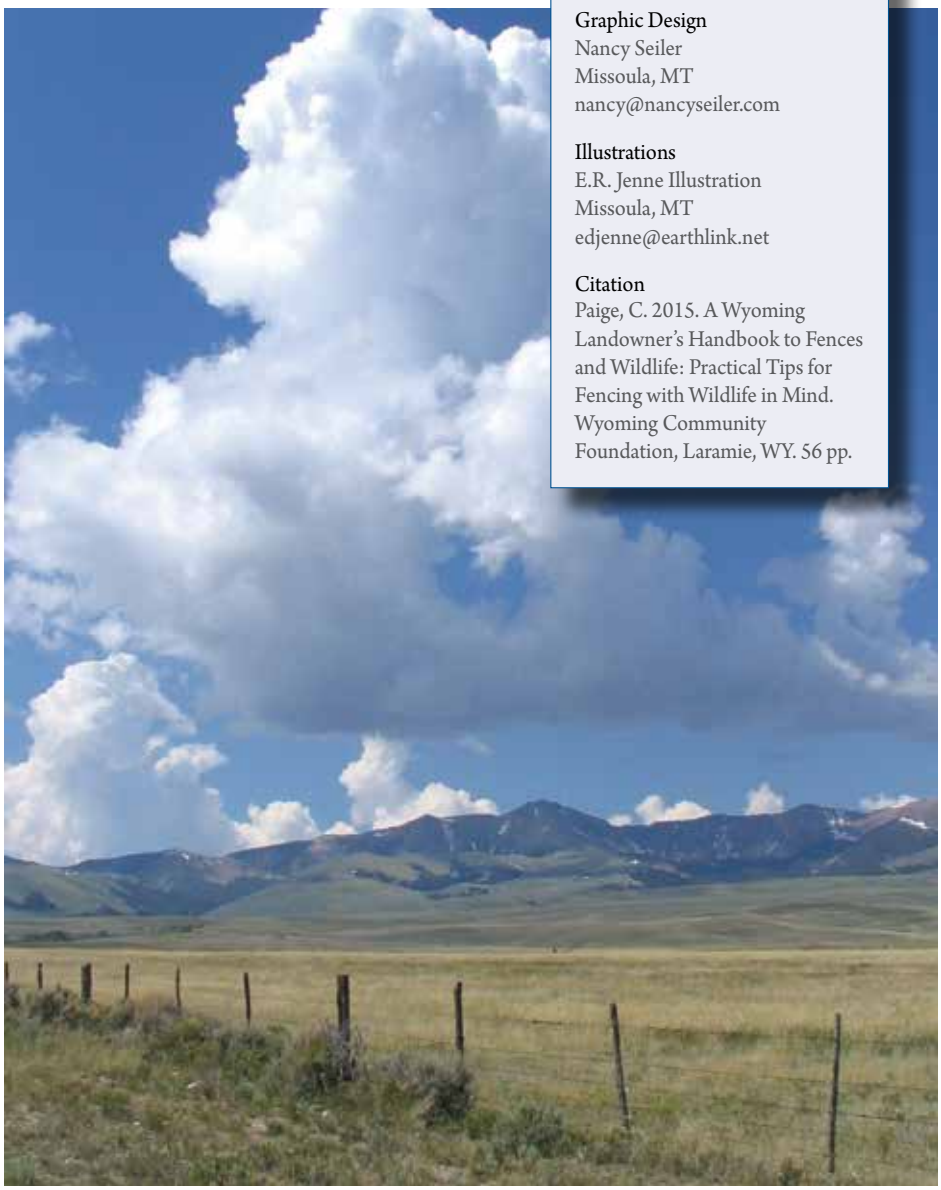
Acknowledgements

Many resource and wildlife specialists, ranchers and landowners generously offered their insights and experience for this guide. The *Green River Valley Land Trust* (formerly *Wyoming Land Trust*) published the first 2012 edition of this handbook, *A Landowner's Guide to Fences and Wildlife,* under the guidance of Jordan Vana and Summer Schulz. The guide builds on my publication, *A Landowner's Guide to Wildlife Friendly Fences,* written for and published by Montana Fish, Wildlife and Parks, and used with permission. This new Wyoming edition is revised and updated, benefitting from the creative ideas and practical experience of landowners and resource managers who have adopted a wildlife friendly approach in their operations.

The *Wyoming Wildlife Foundation,* a priority area of the *Wyoming Community Foundation,* provided funding for the first edition and spearheaded this update, with the oversight of Nic Rogers. Many others helped make this new edition possible, including *Jackson Hole Wildlife Foundation, Janet Marschner, The Meg and Bert Raynes Wildlife Fund, National Parks Conservation Association, Sublette County Conservation District, Teton Conservation District, Tronox Alkali,* and *Western Landowners Alliance.*

A special thanks to everyone who contributed insights, research, photographs and manuscript reviews. Joel Bousman, John Nunn, Steve Pokorny, Don Spellman, Lindsay Wood, *Wyoming Wildlife Foundation* and *Tronox Alkali* shared their experiences for the first-hand stories found throughout the document. My thanks to Ed Jenne for his illustrations and to Nancy Seiler for her creative talent in layout and design. Any errors in this booklet are mine alone.


Mark Gocke


Christine Paige

Author
Christine Paige
Ravenworks Ecology, Driggs, ID
chrispaige@gmail.com

Graphic Design
Nancy Seiler
Missoula, MT
nancy@nancyseiler.com

Illustrations
E.R. Jenne Illustration
Missoula, MT
edjenne@earthlink.net

Citation
Paige, C. 2015. A Wyoming Landowner's Handbook to Fences and Wildlife: Practical Tips for Fencing with Wildlife in Mind. Wyoming Community Foundation, Laramie, WY. 56 pp.

Cover Photo: Jeremy Roberts/Conservation Media; inset photo: Shawn Bryant

Table of Contents

©Henry H. Holdsworth/wildbynaturegallery.com

Christine Paige

Why build wildlife friendly fences?

Countless miles of fence crisscross the West like strands of a spider's web. Fences are important for controlling livestock and trespass. They define and separate ranches and farms, outline property boundaries, enclose pastures and rangelands, and prevent livestock from straying onto highways.

Yet those miles of fence can also create hazards and barriers for wildlife, from big game animals to birds. Fences can block or hinder daily wildlife movements, seasonal migrations, and access to forage and water. Wildlife may avoid areas with too many fences to negotiate – for example, pronghorn choose seasonal ranges with lower fence densities (Sheldon 2005.) When animals collide or tangle in fences they can be injured or killed, and wildlife damage to fences can be costly and frustrating for landowners.

MANY WILDLIFE FRIENDLY FENCE DESIGNS ARE EASY AND LOW-COST, OR SAVE MONEY BY REDUCING FUTURE FENCE REPAIR.

Yet not all fences create problems for wild animals. By tailoring fence design and placement, you can prevent wildlife injuries and decrease damage to your fence. Many of these methods are low-cost or can save money in the long-run by reducing the need for future fence repair.

This guide will help you construct and modify fences and crossings that are friendlier to wildlife while still meeting fencing needs. It will also help you with sources for technical assistance and possible cost-share opportunities.

Mark Gocke

Fence Law in Wyoming

A "Fence Out" State:

By law, Wyoming is a "fence out" state, which means that landowners are responsible for protecting their own property from ranging livestock. A stock-owner is not liable for trespass or damage if a property is not adequately protected by a "lawful fence."

The fence out rule applies to cattle and domestic bison, but Wyoming is a "fence in" state for sheep. This custom has deep roots in Wyoming's history due to ranching traditions and the large areas of open range in the state.

Generally, a lawful fence is a fence constructed well enough to keep out livestock. Wyoming Statute §11-28-102 stipulates that 3-strand barbed wire, board, pole or rail fence are all acceptable, and the statute provides some examples and specifications.

In addition, however, Wyoming Statute §11-28-102(b) states: "All other fences made and constructed of boards, rails, poles, stones, hedge plants or other material which upon evidence is declared to be as strong and well calculated to protect enclosures, and is as effective for resisting breaching stock as those described in subsection (a) of this section, shall be considered a lawful fence."

Posting Against Trespass:

Wyoming Statute §6-3-303 provides that notice of trespass is given by "posting of signs reasonably likely to come to the attention of intruders."

While many states stipulate the use of orange paint on fence posts or tree trunks to designate no hunting or trespass, there are no specific regulations in Wyoming regarding marking against trespass in this manner.

Other Regulations

Check with your county and city offices for any local ordinances or regulations specific to fencing. If your property adjoins a state highway, check with Wyoming Department of Transportation (WYDOT) regarding highway right-of-way fence and options for removing or modifying fence for wildlife.

Problem Fences

Although deer, elk, moose, mountain sheep, and pronghorn are all capable of jumping fences, in a variety of situations they can become injured or entangled. Wire strands can readily snag animals and tangle legs, especially if wires are loose or spaced too closely together.

Animals can be hindered by deep snow or steep slopes, and young, pregnant or winter-stressed animals may have a particularly difficult time clearing fences. Deer, elk and other wildlife often bear scars from wire barbs. A torn ligament, strained leg or infection can weaken an animal's chance of survival, and if animals can't pull free at all, they slowly die of trauma and dehydration.

Cory Loecker

Some fences, especially woven wire fence, can be a complete barrier to fawns and calves even if adults can still jump over. Separated from their mothers and stranded from the herd, the youngsters curl up and die of exposure and dehydration. Woven wire can snare and strangle medium-sized animals and livestock if they push their heads through the wire mesh, and may block animals such as bears and bobcats that are too large to slip through.

If woven wire is topped with one or more strands of barbed wire, the fence becomes a complete barrier, especially for fawns, calves, pronghorn and other animals that are incapable or unwilling to jump over such a fence. Animals trying to leap a woven wire/barbed wire fence are even more likely to tangle a leg between the top barbed wire and the stiff woven wire. In urban areas, fences topped with barbs or pointed spikes, such as decorative iron fences, can trap or impale leaping deer and other animals.

Colorado Parks and Wildlife file photo

WINTER-STRESSED, PREGNANT AND YOUNG ANIMALS MAY ESPECIALLY HAVE TROUBLE CLEARING FENCES. AN INJURY OR INFECTION FROM TANGLING WITH FENCES CAN WEAKEN AN ANIMAL'S CHANCE OF SURVIVAL. IF ANIMALS CAN'T PULL FREE AT ALL, THEY DIE OF TRAUMA AND DEHYDRATION.

Large, low-flying birds, too, may collide with fences and break wings, impale themselves on barbs, or tangle in wires. Ducks, geese, cranes, swans, grouse, hawks and owls are especially vulnerable. Waterfowl fly into fences that run near or across waterways, and hawks and owls may careen into fences when swooping in on prey.

Mark Gocke

Sheila Lamb

Problem Fences

Jack Jones

Jeremy Roberts, Conservation Media

Tom Campbell

What kinds of fence cause problems for wildlife?

Fences that:

- are too high to jump;
- are too low to crawl under;
- have loose or broken wires;
- have wires spaced too closely together;
- can impale or snag a leaping animal;
- are difficult for running animals or birds to see;
- create a complete barrier.

Doug Wood

Above: This peregrine falcon died when it collided with a fence while diving on killdeer. Many birds are vulnerable to fence collisions.

Chris Mayne

Above: After crossing a highway, a black bear desperately searches for a way through a woven wire fence, finally climbing a power pole to leap over.

Tom Kroenig, Colorado Parks and Wildlife

The Bottom Line: Hard Numbers

Recently, researchers at Utah State University completed a study of wildlife mortality along more than 600 miles of fences in the rangelands of northeastern Utah and northwestern Colorado (Harrington 2005, Harrington and Conover 2006). By repeatedly driving and walking fencelines over two seasons, they tallied the number of mule deer, pronghorn and elk carcasses they found caught in fences and lying next to fences. They also studied which fence types caused the most problems.

The Jackson Hole Guide

Here are their key findings:

Snared and Entangled

- On average, one ungulate per year was found tangled for every 2.5 miles of fence.
- Most animals (69% of juveniles and 77% of adults) died by getting caught in the top two wires while trying to jump a fence.
- Juveniles are 8 times more likely to die in fences than adults.
- Mortalities peaked during August, when fawns were weaned.
- Woven wire fence topped with a single strand of barbed wire was the most lethal fence type, as it easily snared and tangled legs between the barbed wire and rigid woven wire.
- 70% of all mortalities were on fences higher than 40".

Steve Primm

Above: This badly tangled pronghorn was fortunately freed by the photographer, who was able to clip the wires.

TIP:

IF TRYING TO RESCUE A TANGLED AND STRUGGLING ANIMAL, COVERING ITS HEAD WITH A CLOTH OR COAT WILL HELP CALM THE ANIMAL.

Bryce Andrews

Elk, deer and other ungulates often die if their legs tangle in wire fences. Woven wire topped with barbed wire was found to be the most lethal type of fence, especially for young wild ungulates.

Blocked and Stranded

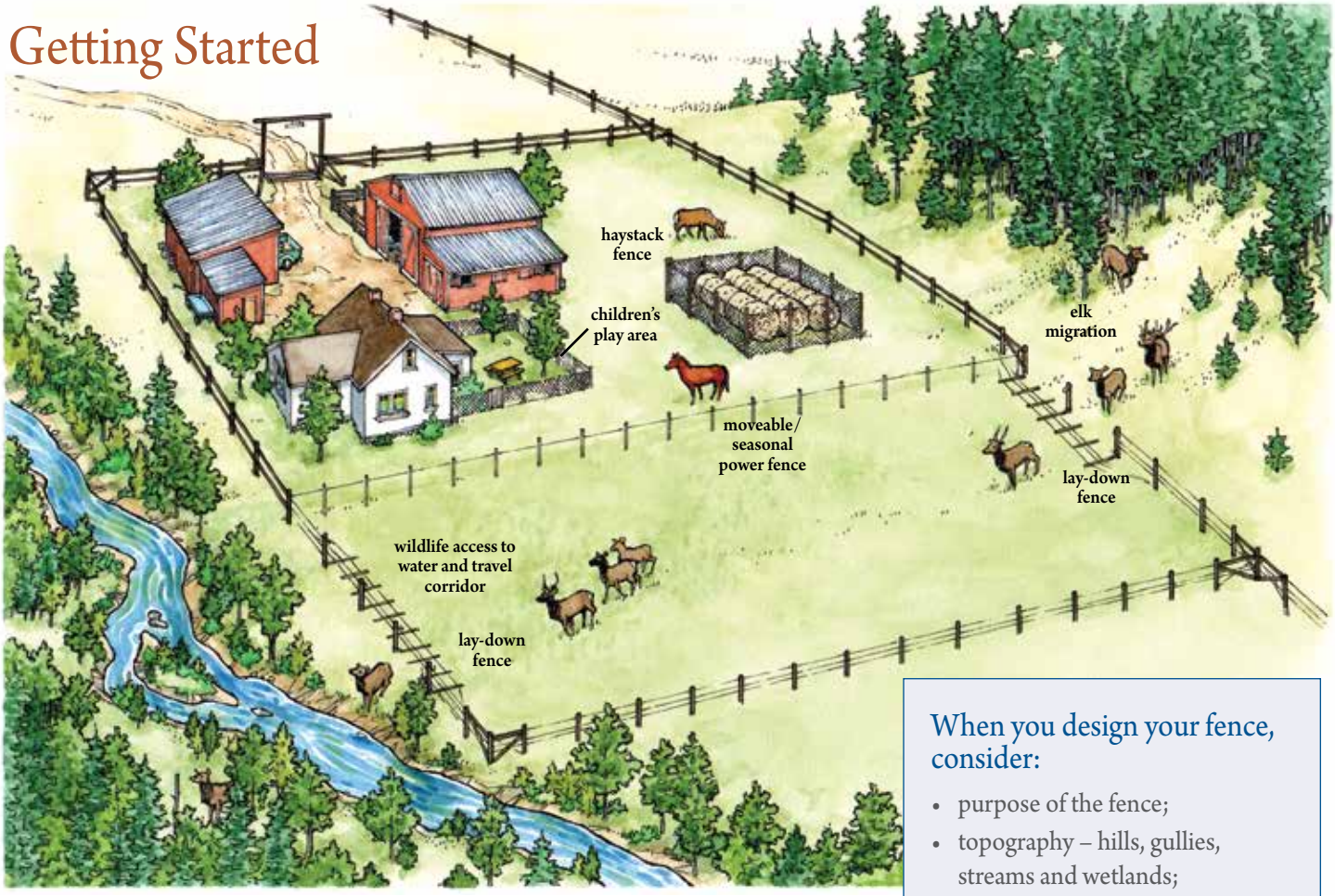
- Where ungulates were found dead next to, but not in fences, on average one ungulate per year died for every 1.2 miles of fence.
- 90% of these carcasses found near fences were fawns lying in a curled position – probably separated from their mothers when they could not cross.
- Most of these indirect mortalities were found next to woven wire fences.

Randy Gazda

Tim Stevens

Antlered animals can become fatally tangled in poly rope fence and loose barbed wire. Maintaining fence tension and using high-tensile wire for electric fences prevents such losses.

Getting Started



The best situation for wildlife is open habitat with no fences at all. Wherever possible, remove obsolete fences that are no longer needed.

Where you need to fence, less fence is better. Established fences can be modified to allow easier passage, and new fence can be designed with wildlife in mind.

To get started, consider your needs and create a plan. You can tailor any of the designs in this guide to your specific needs.

First consider these questions:

1. **What is the purpose of the fence?**
   Do you need to mark a boundary? Deter trespass? Enclose or exclude livestock? If your fence is for livestock, what kind, in what seasons, and for how long?
   Your purpose should determine your fence design and placement.
2. **What is the topography?**
   Are you fencing on hills, in rocky country where posts cannot be driven, or near or across streams or wetlands?
   Design your fence to avoid creating traps for wildlife.
3. **Which wildlife species are in your area?**
   Build fence or crossings that both young and adult animals can negotiate.

When you design your fence, consider:

- purpose of the fence;
- topography – hills, gullies, streams and wetlands;
- species of wildlife present;
- daily or seasonal wildlife movements in the area;
- presence of water, food and cover for wildlife;
- presence of young animals.

4. **What are the daily or seasonal wildlife movements in the area?**
   Do animals calve or nest nearby? Does wildlife migrate through to winter or breeding areas?
   Allow movement and access through natural corridors and habitats.

MOST FENCES CAN BE DESIGNED OR MODIFIED TO ALLOW EASIER PASSAGE FOR WILDLIFE.

Fence and Crossing Placement

Placement of fences is just as important as the type of fence used.

Fencing need not restrict wildlife movement everywhere on your property. Wherever possible, design your fence to provide wildlife free travel to important habitats and corridors, as well as access to water. Wetlands and riparian habitats are especially important for all wildlife.

Watch for daily and seasonal wildlife movement patterns and look for trails. Use impenetrable, special purpose fence only in specific areas where it is critical, such as calving or lambing pastures, haystacks, gardens, orchards, play areas or kennels.

Design property boundary fence so wildlife can easily cross, or with gaps or lay-down sections for wildlife passage whenever and wherever livestock are not present.

Work with your land's topography. Swales, gullies, ridges and stream corridors can funnel wildlife through an area – keep these open to allow wildlife passage and avoid topography traps.

A fence of any height is more difficult to cross when placed across a steep slope or next to a deep ditch. As ground slope increases, the height an animal must jump to clear the fence increases considerably. For instance, a 42" fence may be passable on level ground, but a slope of only 10% increases the effective fence height to 48.6"; a slope of 30% increases effective height to 62", and on a 50% slope animals encounter an obstacle 75" high. **Fences on steep slopes become nearly impossible for animals to jump without injury.**

Christine Paige

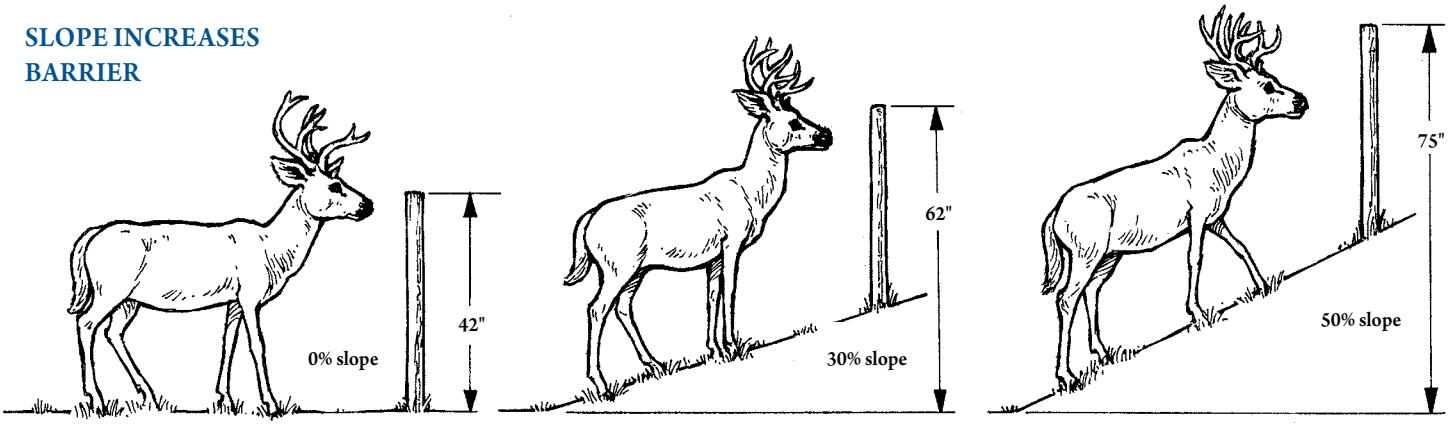
Tailor your fences to specific needs and allow wildlife access to water, important habitats, and travel corridors.

Christine Paige

Good Fence Placement Tips

- Look for wildlife trails and watch for seasonal patterns.
- Provide wildlife access to riparian habitats, water holes and other high quality habitats.
- Provide passage along swales, gullies, ridges and stream corridors.
- Use the appropriate fence design for each activity.
- On slopes and in natural travel corridors, plan for wildlife crossings.

SLOPE INCREASES BARRIER



A Friendlier Fence

A fence that is friendly to wildlife should:

- Allow animals to jump over and crawl under easily without injury;
- Be highly visible for both ungulates and birds.

You can combine or tailor many of the ideas presented in this guide for your specific situation.

The top wire or rail should be low enough for adult animals to jump over, preferably 40" or less, and no more than 42" high. The distance between the top two wires should be no less than 12" apart. Deer and elk easily tangle their back legs if the top wires are closer together.

The bottom wire or rail should be high enough for pronghorn and young wild ungulates to crawl under. The bottom wire should be a minimum of 16" from the ground and preferably at least 18." Take advantage of small dips, swales and gullies to provide a slightly larger gap below the fence and allow animals to pass under easily. Many cattle ranchers have found that although a small calf may slip under the higher bottom wire, they can also easily slip back again to mom and not be stranded on the wrong side of the fence.

ALTHOUGH CALVES MAY SLIP UNDER A HIGHER BOTTOM WIRE, THEY CAN ALSO SLIP BACK AGAIN TO MOM, AND NOT BE STRANDED.

Increasing visibility using a top rail, high-visibility poly-wire, flagging or other markers can help ungulates and birds better avoid or navigate fences. Using smooth wire – such as barbless twisted wire – for the top and bottom strands will prevent snagging and injuries.

Use electric tape or braid only for temporary applications. It should be removed or lowered to the ground when livestock are not present.

In some situations, fence stays can help maintain distance between strands, prevent sagging, and reduce the chance of entanglement. However, wire stays are easily bent over, collapsing the fence and creating a three-dimensional hazard, and need to be regularly maintained. An alternative is a stiff plastic or composite stay or fiberglass post that flexes but maintains its shape.

In wildlife migration areas, drop-down fence, lay-down fence or other crossings can be incorporated into fence sections for seasonal wildlife passage. **Good husbandry practices go hand in hand with wildlife friendlier fences. Livestock that have good forage and the security and companionship they want are much less likely to test or challenge fences.**

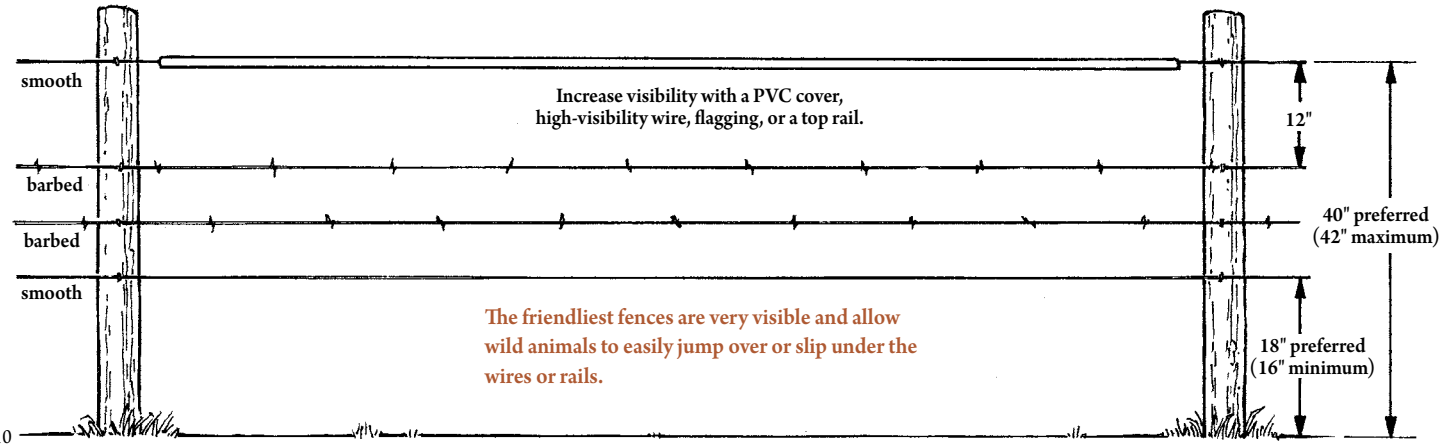
The Wildlife Friendly Fence: A Livestock/Wildlife Compromise

These standards will control cattle in most situations and allow for easier wildlife passage.

Fences should be low enough for adult animals to jump, high enough for wildlife to crawl under, and minimize the chance of tangling. We recommend:

- A top wire or rail preferably no more than 40" and a maximum of 42" above the ground;
- At least 12" between the top two wires;
- A bottom wire or rail at least 16" and preferably 18" above the ground;
- Smooth wire or rail for the top, smooth wire on bottom;
- Preferably, no vertical stays. If used, consider stiff plastic or composite stays, or regularly maintain wire stays that are easily bent;
- Posts at 16.5-foot intervals;
- Gates, drop-downs, or other passages where wildlife concentrate and cross.

A FRIENDLIER FENCE FOR WILDLIFE



FENCE SOLUTIONS PUT TO THE TEST

Going Wildlife Friendly at Eastfork Livestock

Located thirteen miles south of Boulder, Wyoming, on the western flank of the Wind River Range, Eastfork Livestock is owned and managed by Joel Bousman and his family. The family's deep roots in the area run back to Bousman's grandfather, who homesteaded on the East Fork River, and forward to his grandchildren, the sixth generation to live here.

The family runs a 500-head cow/calf operation on a diverse mix of private ranch land, leased state land, and BLM and Forest Service grazing allotments. The operation stretches from valley sagebrush shrub-steppe and flood-irrigated native grass hay meadows up to montane and alpine meadows.

Bousman has long been committed to balanced use and science-based stewardship, basing his resource decisions on careful monitoring of conditions. He initiated a cooperative monitoring program among the several permittees on the Silver Creek grazing allotment, and organizes annual monitoring rides with Forest Service, BLM, Game and Fish and NRCS personnel to identify issues and management objectives.

When Bousman learned of the Green River Valley Land Trust's (formerly Wyoming Land Trust) initiatives to install wildlife friendly fences in pronghorn and mule deer migration corridors of Sublette County, he was intrigued. "I always thought that wildlife friendly meant 3-wire smooth wire fence and that wouldn't work for cattle," he explains. "Then I was on a land tour and saw this style of fence and thought, well, that would work for us."

Christine Paige

Tracks reveal where mule deer now easily cross Eastfork Livestock's new wildlife friendly fence. Twelve inches between the top two wires, a smooth bottom wire placed at least 16" high, and a top wire no more than 42" high make a friendly fence.

Christine Paige

Joel Bousman points out where mule deer readily cross his cattle fence that was modified for wildlife.

With the aid of the GRVLT, Bousman replaced twelve miles of fence with a wildlife friendly design, using a standard of 42" top wire, a smooth wire on the bottom at 16" and a 12" spacing between the top and second wire to reduce the chance of animals tangling their legs as they jump over. Fence posts and wires were replaced wherever needed, and otherwise the fence was modified using existing materials as long as they were in good shape.

Pointing out tracks in the early winter snow, Bousman observes, "You can see where the mule deer easily jump over and go under the fence." Asked about the dimensions of the fence, Bousman says it works well for his cattle, and with the bottom smooth wire at 16" height, he isn't worried about his calves. "The only thing that might get through are the really little ones, and not for long – they want to stick close to mom."

Two mule deer found no trouble in crossing an Eastfork Livestock wildlife friendly fence.

Photo: Christine Paige

Christine Paige

Jay Kolbe

High visibility helps animals avoid and negotiate fences. It is especially important in grasslands and near creeks and wetlands to protect low-flying birds, such as grouse, owls and swans. Rails, PVC pipe, flagging, or black and white wire or tape can all make fences more visible.

Visibility

Running animals and low-flying birds may not see a wire fence clearly against the landscape. Making a fence highly visible prevents collisions, and can help animals judge the height of a fence for jumping.

One solution is a top rail. A rounded rail will shed snow more easily: heavy snow buildup can sometimes deter elk and deer from crossing. For wire fences, an inexpensive modification is to slip small diameter PVC pipe over the top strand. Note, there is some evidence that white PVC may instead deter pronghorn and deer, and it would be worthwhile to test animals' reaction to a PVC cover in known crossing spots.

Smooth wire fences, especially high-tensile wire, may be essentially invisible to animals. These can be made more visible by adding fence markers or highly visible polywire or polytape on the top strand. Twisted barbless cable is more visible than a single wire strand, and high-visibility wire is available in many forms – tape, braid and polymer-coated wire – which can be electrified if needed. White wire is the most visible in summer, but black and white wire or tape makes the fence more visible against both summer vegetation and snow.

Montana Fish, Wildlife & Parks

Fence Flags for Grouse and Other Birds

Fence flags or markers dramatically increase visibility of wire fences for wildlife, especially birds, and help animals avoid and negotiate fences.

Research on sage-grouse in Wyoming, Idaho and Montana has shown that fence markers can reduce fence collisions by 70% to more than 80%.

Research on sage-grouse and other prairie grouse has shown that fence collisions are common and widespread, especially near breeding areas.

Grouse fly fast and low into their mating areas (called "leks") just before dawn and, in the dim light, are vulnerable to colliding with nearby fences.

However marking fence for visibility can dramatically reduce collisions by 70% to 83% (Christiansen 2009; Stevens et al. 2012b.) *(continued)*

Mark Gocke

Jeremy Roberts, Conservation Media

Markers for Wire Fence

For barbed or woven wire fence:

- Cut several 12′ strips of "undersill" or trim strips of white vinyl siding, available at home hardware centers.
- Cut strips to 3" pieces. Use tin snips for small projects, or use a 10" miter saw with a 200-tooth blade to cut up to 16 pieces at a time for larger projects.
- One 12′ siding strip yields 48 pieces.
- For extra visibility, add reflective tape to both sides of the markers, which increases detection in low light. Or use both black and white markers for visibility against snow and vegetation.
- Snap pieces onto fence wires – they are held in place between barbs. **Wyoming Game and Fish has found that, for each rod of fence, a minimum of two pieces with reflective tape on the top wire is effective.** Or, alternate four pieces of black and white markers on the top wire. Marking a lower or bottom wire will increase visibility for pronghorn and other wildlife.

For smooth wire fence:

- To keep the vinyl siding markers from sliding, crimp a ferrule, twist a small spring, or tighten a UV-resistant zip-tie (tie-wrap) onto the wire on each side of the marker. Although this adds time to installation, it keeps the markers in place. Crimping the marker itself causes the marker to wear and break.
- An alternative is to make flags from reflective tape that can adhere to the wire (note, however, that reflective tape will conduct power on a hot wire.)
- Some commercially-made markers available online or in ranch supply outlets may work better on smooth wire.
- Place a minimum of two flags per rod of fence on the top wire; or up to four on the top wire and three on the middle or bottom wire.

Visibility (continued)

Not every mile of fence needs to be marked for grouse. Marking is most important where there are high densities of birds: within 1.2 miles of a lek and in wintering areas. Also, sage-grouse are most vulnerable to collisions in open, flat or rolling country, and in areas with more fences (>1.5 miles of fence per square mile; Stevens et al. 2012a, 2012b.)

A relatively inexpensive and durable marking technique uses 3" flags cut from vinyl "undersill" or trim siding strips. The undersill siding has a lip that can be snapped onto barbed wire fence, with the barbs keeping the markers from sliding.

As an alternative, commercially produced fence markers can be purchased through a number of retail and mail order outlets.

For example, the Firefly Diverter at **www.fireflytechproducts.com** has UV-visible reflective tape. Fly Safe at **www.flysafellc.com** works on barbed wire. The See-A-Fence marker at **www.knifesedgellc.com/seeafence.html** works on smooth wire fence.

While marking the top wire only is effective for grouse, adding markers to lower wires may also help pronghorn and other wildlife that slip under fences.

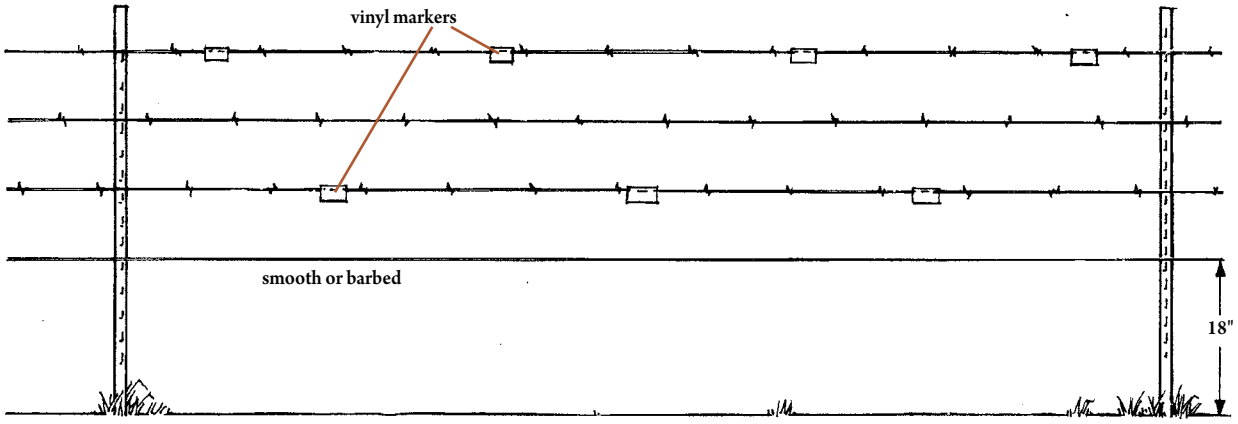
Tom Christiansen

Durable and lightweight fence markers can be cut from strips of vinyl siding trim. The trim strip has a lip that easily snaps onto fence wires.

Bruce Waage

Christine Paige

DURABLE MARKERS ON WIRE FENCE



FENCE SOLUTIONS PUT TO THE TEST

Joining Forces for Migrating Wildlife

Snap… snap… snap: young hands clip vinyl fence markers onto fence wires. On an early June day, algebra students from Pinedale High School are out placing markers on barbed wire fences, the better for sage-grouse to avoid colliding with fences on their pre-dawn flights to their mating grounds. The class spent the semester learning how algebra applies to real-world problems, calculating how many markers and volunteers were needed to mark fences for grouse on the nearby highland simply called The Mesa. Then they made it real, marking five miles of fence to help protect birds, while double-checking their numbers.

The sagebrush flats of the Mesa, just south of Pinedale, are not only a year-round home for sage-grouse, but the winter destination of thousands of mule deer and pronghorn that migrate from summer ranges in the Gros Ventre and Wind River mountains—some of the longest migrations recorded in Wyoming. Yet what was historically ranch country has seen intense development for oil, natural gas, and homes over the past decade, resulting in worrisome declines of wildlife numbers.

Wyoming Wildlife Foundation

Near Pinedale, Wyoming, community members, conservation groups, industry and resource agencies collaborated to improve miles of fence for wildlife.

Barbed-wire fences can be a hazard for mule deer, pronghorn, and grouse. So local agencies, community groups and landowners came together to modify miles of fence that crisscross the Mesa and reduce the risk to wildlife. Partners and funders included the Wyoming Wildlife Foundation (WWF), Green River Valley Land Trust (GRVLT), BLM, Wyoming Game & Fish Department, Wyoming Department of Agriculture, the Wyoming Wildlife and Natural Resources Trust, Mule Deer Foundation, the Muley Fanatics Foundation and other corporate and private funders.

In 2012, GRVLT inventoried 91 miles of fence, and then brought together WWF and other cooperators to help modify 77 miles of fence over three years to wildlife friendly standards. Dilapidated wire was replaced with new wire, and posts replaced where needed. Wire heights were set at 42" for the top; a 12" spacing between the top and second wire to help prevent legs from tangling, and a 16" bottom smooth wire so pronghorn can slip under more easily.

In addition, WWF and their partners marked a total of 14 miles of fence that posed a hazard for sage-grouse in core habitat on the Mesa. They involved not only the Pinedale High School math class, but also other student groups. Medicine Bow Future Farmers of America, a 4-H Club and a local Boy Scout troop received funds from Natural Resources Conservation Service (NRCS) to make the thousands of markers needed by cutting up strips of vinyl undersill siding. Now the white flags allow grouse to sail smoothly over fences as they gather on their dancing grounds each spring to ensure a new generation.

Photo: Christine Paige

Sites with Low or Seasonal Livestock Use

Not all situations require a 5-strand barbed wire or a woven wire fence. Many situations with low or seasonal livestock use can be fenced with a 3-strand smooth wire fence, various types of post and rail fences, or moveable electric fence. Seasonal pastures, cross fences, and horse pastures lend themselves to designs that are much more permeable for wildlife.

3-Strand Smooth Wire Fence

Use 3 strands of smooth (barbless) wire. To increase visibility, use coated wire or barbless twisted cable – the latter can also be more durable than single strand smooth wire. (Note that high-tensile wire should only be used for electrified applications. High-tensile can also be difficult for animals to see, and horses can sometimes be cut by high-tensile wire.)

Christine Paige

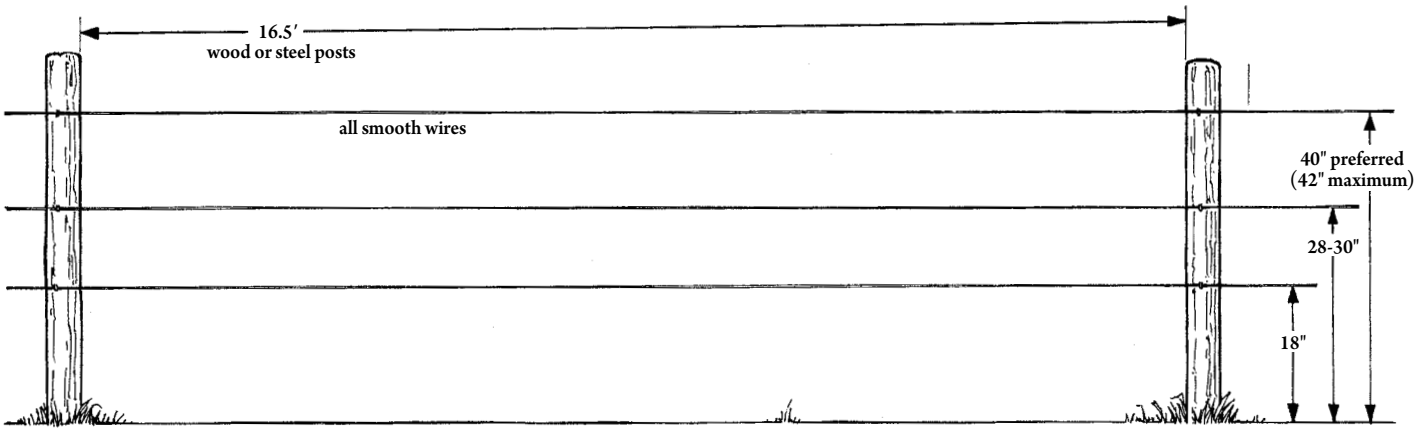
Christine Paige

Adjacent to bighorn sheep winter range, this smooth wire fence replaced old 4- and 5-strand barbed wire fence. The fence is 3-strand smooth wire with a 39" top wire and 16" bottom wire. Bighorn sheep now readily hop over and duck under the fences.

3-Strand Smooth Wire Fence

- Top wire 40" to 42" high.
- Center wire 28" to 30" above the ground; maintain 12" spacing with the top wire.
- Bottom wire 18" above the ground.
- Preferably, no vertical stays.
- Wood or steel posts at 16.5-foot intervals.
- To increase visibility, use coated wire or double twisted smooth wire.

3-STRAND SMOOTH WIRE FENCE



Seasonal Electric Wire Fence

A flexible electric fence that allows passage for elk and other ungulates can still be effective for livestock, particularly horses trained to electric fence. It can be laid down seasonally to allow free wildlife passage. This fence is useful for keeping livestock out of sensitive habitats or for short-duration grazing where permanent fencing isn't desired.

To work properly, this fence needs to flex as elk and other animals pass over it. Install as few rigid post supports as possible, and use the minimum recommended wire tension. Placing the energizer toward the middle of the fence will afford the greatest electrical efficiency.

Seasonal Electric Wire Fence

- Pre-drill 72" x 1" heavy fiberglass posts.
- Drive posts 24" into the ground at a 32-foot spacing (a t-post pounder can be used if ground is soft).
- Use treated wooden posts for bracing at ends and center.
- Place a top wire of conductive high-visibility tape, braided wire or polymer-covered wire no higher than 42" height, electrically charged (medium-tensile 12-gauge plastic-coated wire is satisfactory).
- Place a second grounded strand of high-tensile wire at 30".
- Attach strands to fiberglass posts with wire clips that can be removed when fence is laid down.
- Use insulators for attaching hot top wire to wooden posts; grounded wire can be stapled or clipped directly to wooden posts.
- Use a solar electric energizer (size and placement depends on the run length of fence).
- Hard-wiring is an option when a power source is readily available.

Jay Kolbe

This 2-strand seasonal power fence can be used where livestock are trained to electric fence. Wooden posts brace the ends. The fiberglass posts can be laid down when the fence is not in use.

Jay Kolbe

Moveable Electric Wire Fence

Moveable electric fence can be used for short-duration grazing, to keep livestock out of sensitive areas such as wetlands, or for other situations where livestock need to be temporarily controlled. This fence works well for livestock that have been previously trained to electric fence.

The design can be tailored to your situation, but a simple fence can be constructed using high visibility tape or "turbo wire" and fiberglass posts or plastic-insulated steel posts. A moveable fence can use either a single hot wire (when there is sufficient moisture for an adequate ground) or two wires, the top one hot, the lower wire grounded. Moveable posts on the market include designs with hooked or pigtail tops for quickly stringing wire, and a tread-in base. These can be rapidly set up and moved as needed.

Moveable Electric Wire Fence

- Use 40" to 42" fiberglass or plastic-insulated steel posts, designed with hooks or loops for wire and tread-in spikes at the base.
- Place one to two strands of high-visibility tape or polymer-covered turbo wire. If two wires, the top should be hot, the lower wire grounded. Top wire should be no higher than 42"; lower wire no lower than 18".
- Use a solar electric energizer (size and placement depends on the run length of fence).

Tips on Electric Fences

Most electric fence problems are caused by poor grounding. Follow the manufacturer's specifications for grounding the energizer and fence for your fence type and conditions. The number of ground rods needed may vary; a maximum reading of 0.2kv on a volt meter in dry conditions indicates an adequate ground. Wooden and steel fence posts require insulators for attaching hot wires; ground wires can be stapled or clipped on directly. Fiberglass and plastic line posts do not need insulators, but do require special clips for attaching wires. Check the fence regularly to be sure it is charged.

Seth Wilson

Christine Paige

A temporary electric fence can be used to keep livestock out of sensitive areas and is easily negotiated by most wildlife.

FENCE SOLUTIONS PUT TO THE TEST

Electric Fence Helps Rancher Work Smarter

Near Spotted Horse, Wyoming, 40 miles north of Gillette, Lindsay Wood helps ranch owner Don Spellman run a cow/calf operation with about 300 cows. The range is sagebrush shrub-steppe – pronghorn and mule deer country – with about 400 acres cultivated for hay that is also grazed.

Wood and Spellman favor a system of intensive rotational grazing and use temporary electric fence and electric cross fences to make their operation easily manageable. The meadows are dryland alfalfa and grass. Wood uses both single strand (one hot wire) and double strand (hot and ground) fences, and learned they don't need any more than that to control their cows. The double strand fences are the standard used for NRCS EQIP electric fence projects, however Wood finds that a single strand fence is often adequate for their operation.

"The cattle are trained to the fences," she says. "Once trained to it, and if you keep feed in front of them, they don't test our fences. Sometimes calves get out but they go right back in."

Many of their fences are marked for sage-grouse, but Wood and Spellman encountered problems finding an effective marker to use on smooth wire. Vinyl markers slide down the smooth wire, and if clamped tight the markers break. Reflective tape attached to the wire will conduct power, and if pronghorn go through the 2-strand fence, the vinyl markers can catch and tangle the fence wires. (For marking solutions, see page 14.)

The oldest perimeter fences on the ranch, once a sheep operation, are 5- and 6-strand barbed wire, which they keep maintained. However Wood says they rebuild about a mile of perimeter fence each year, replacing it with 4-strand barbed wire.

As for the electric fences, wildlife readily cross them and Wood never sees pronghorn blocked by a fence or tangled in wires. "They're incredibly cost-effective," Wood says. "They're easier to install, the posts are easier to drive, and I'm not muscling and pulling on barbed wire." If she encounters a problem, such as a drop or loss of power, it's just a matter of getting out the fence tester. "You have to use your brain to figure out where your problems are," she says. "You can work smarter, not harder."

Once cattle are trained to the fence, a single-strand electric fence is highly effective for the intensive rotational grazing system on the Spellman Ranch.

Photos: Lindsay Wood

Post and Rail Fence

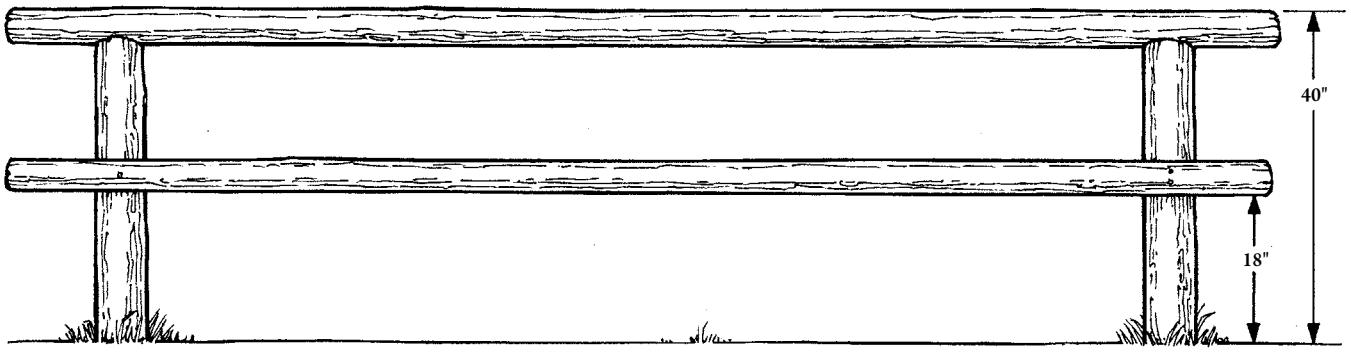
A post and rail fence is highly visible to wildlife and can be constructed for situations with or without livestock. Rail fences can either use a top rail with wires below, or two to three rails total. A 2-rail fence is preferable to a 3-rail fence for wildlife.

Unless the fence is quite low, use rounded poles for the top rail, rather than a square or split-rail, to prevent too much snow build-up in winter, which can deter elk and deer. Also, unless the fence is easily jumped and there is ample clearance underneath, boards or planks are not recommended as these can create a visual barrier.

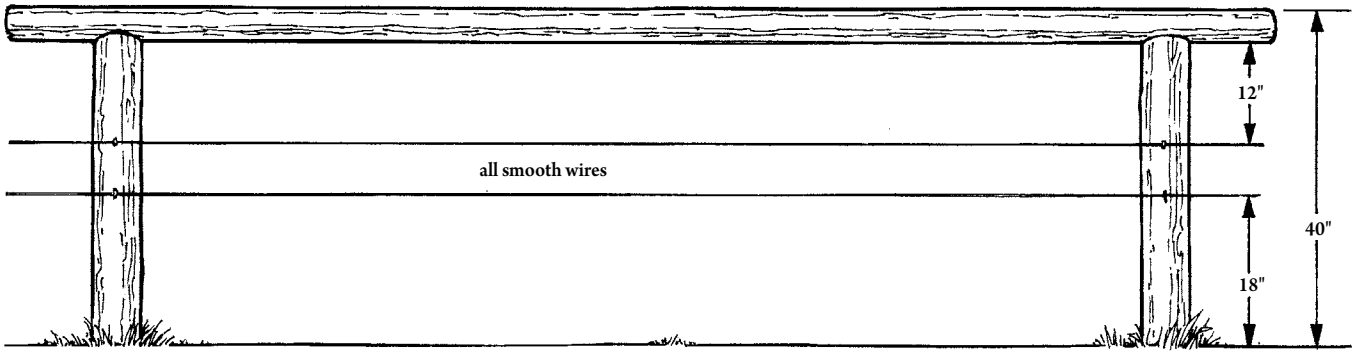
Post and Rail Fence

- Use pressure-treated 6′ to 8′ posts, spaced 10′ to 14′ apart.
- Use pressure-treated poles for top rail, placed 40" (42" maximum) above the ground. A half-round rail will attach more snugly and require shorter bolts.
- Place smooth lower wires at 18" and 28" above the ground. Second wire should be at least 12" below top rail.
- OR place pressure-treated poles for lower rails, the bottom rail placed with at least 18" clearance from the ground.

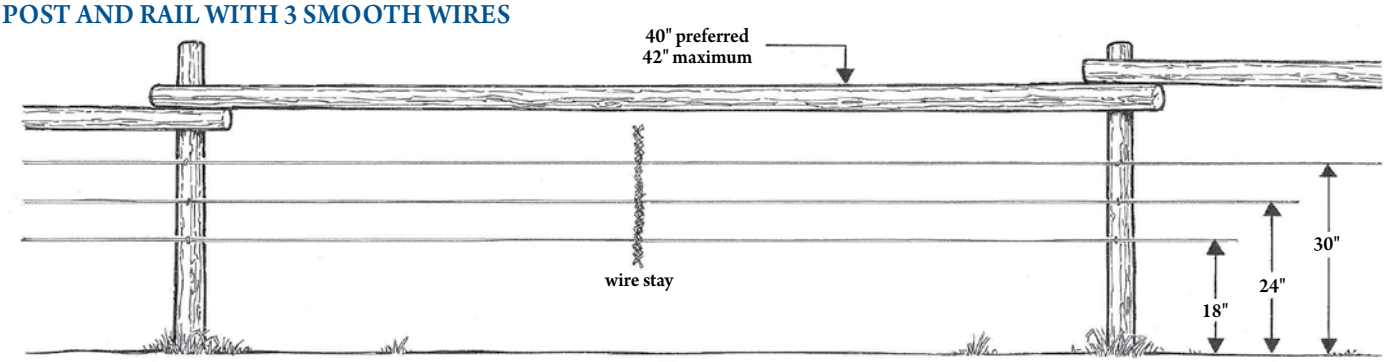
POST AND RAIL FENCE



POST AND WIRE FENCE



POST AND RAIL WITH 3 SMOOTH WIRES



Christine Paige

Horse Pastures

A wide variety of fences can be used to contain horses, including post and rail, pipe, smooth wire, vinyl or electric poly-rope fence. Consider safety when choosing a fence. Horses have difficulty seeing wire fences, and if spooked can tangle in wires or suffer injuries on barbs and smooth high-tensile wire. Post and rail, pipe, vinyl and electric poly-rope fences are much more visible to both horses and wildlife, and reduce the risk of injury. Wood fences should be constructed with bolts, and treated rails and posts, as horses can break worn boards and weak rails, and nails can be a hazard as a fence wears.

If electric fence is an option, a 2-strand electric braided poly-rope fence is highly visible and allows animals to bounce off of the fence without injury to themselves or the fence. Nearly any standard fence can also be electrified with a single wire to prevent horses from touching or leaning over the fence—use electric braid or tape for visibility. Temporary pastures can be enclosed with a single strand of electric tape or braid.

Christine Paige

Rail fences are safer for both horses and wildlife—a top rail combined with smooth wire will contain most horses. Adding a wire stay will keep wires in place.

The usual wildlife friendly standards apply: keep the top of the fence no higher than 42", which is adequate to contain nearly all horse breeds in most pasture situations (jumpers may be the exception). Allow 12" between the top rail or wire and second rail or wire, and allow a clearance of at least 16" from the ground to the bottom rail, wire, or pipe for wildlife to scoot underneath.

Christine Paige

Most traditional buck and rail fences are too high, too wide, and have too many rails for wildlife to negotiate.

A Better Buck and Rail Fence

Traditional buck and rail fence creates a formidable hazard to wildlife. It is usually built too high, too wide, and with rails placed too closely together for animals to cross easily. The 3-D design is especially hard to leap over or crawl through, and animals can tumble and break legs. When combined with woven or barbed wire, or placed on steep terrain, it creates a complete barrier.

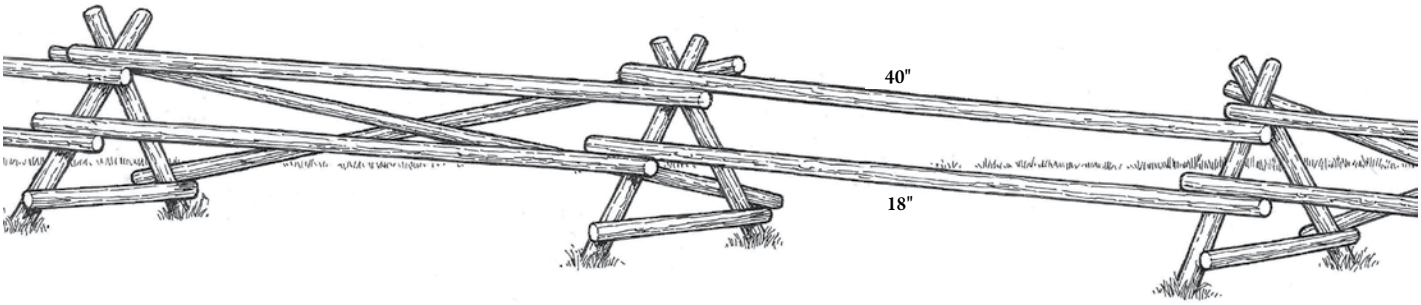
Buck and rail is also expensive and requires high maintenance as the rails rot and collapse under snow loads.

However, for some this fence style evokes tradition and history, and it is practical in rocky or wet ground where posts can't be driven. With some modifications, buck and rail can be built for much easier wildlife passage.

Buck and Rail Modified for Wildlife

- Do not place a rail in the "cradle" of the bucks.
- Install two rails on the outside, top rail at 40" and bottom rail with 18" clearance from the ground.
- Do not install an interior rub rail. Instead, in alternate sections, install crossed rails on the interior to stabilize the fence.
- The alternating 2-rail sections allow animals to cross more easily.
- Add a brace at the bottom of the buck to "close the triangle" and stabilize the bucks.
- Never add woven wire or barbed wire to the fence.

BUCK AND RAIL MODIFIED FOR WILDLIFE



Worm Fence

Worm fence, also called zigzag fence, was used by early settlers because it's easy to construct and can be used on rocky, uneven ground and where posts can't be driven. The zigzag gives the fence its stability. Worm fence is still popular in some places for its rustic style, but is not used to contain livestock.

Although larger animals can jump low worm fence more easily than 3-dimensional buck and rail or conventional barbed wire, it is still a barrier to young and mid-sized animals. Other drawbacks include rotting, the large number of rails needed, the space it takes up on the ground, and maintenance.

To make worm fence friendlier for wildlife, stack 3 to 4 rails per section no higher than 36", interlaced at the ends at a 30-degree angle. Stack the ends of the bottom rails on flat rocks or short logs to postpone decay. For extra stability, fasten rails with 6" nails or spikes, or drive 4′ lengths of rebar into the ground on either side of the joint, flush with the top rail.

Christine Paige

A low worm fence can be hopped by most ungulates. Drop the top rail to the ground at intervals to allow young and small animals to cross.

Create openings for wildlife by dropping or eliminating the top rail at regular intervals, and at likely crossing points.

Sites with High or Continuous Livestock Use

Most livestock pastures do not require a 5- to 6-strand barbed wire fence. In many situations, a 3- or 4-strand barbed wire fence, a combination of smooth and barbed wire, or a high-tensile electric fence will work well for livestock control, particularly if the pasture quality inside the fence is as good or better as outside the fence.

Tips for Livestock Fences

Sheep, bison and cows with calves may require a more impermeable fence for control. If you must use fences with woven wire or more than four wires follow these tips:

- Consider the placement of the fence perimeter carefully, and limit the extent of impermeable fence wherever possible.
- Avoid excluding wildlife from streamsides and water sources, or cutting off migration and travel corridors.
- Keep the fence height to a maximum of 40" to 42" and create periodic crawl-openings for fawns and calves by raising the bottom 18" from the ground, placed where animals typically travel.
- Avoid topping woven wire fences with barbed wire. In any situation, allow 12" between the top wire and the next wire below – whether barbed or woven wire.
- Create seasonal openings using lay-down fence sections or gates to open the fence during months when livestock are not present.

Christine Paige

Christine Paige

Create seasonal openings by leaving a gate open, lowering rails or wires, or using sections of lay-down fence during months when livestock are not present.

4-Strand Barbed Wire for Cattle or Sheep

Woven wire fence, the most commonly-used type of fence on sheep range, is also the most problematic for wildlife. It can block wildlife passage, particularly for fawns, calves, pronghorn and medium-sized animals unable to jump fences. When combined with barbed wire, it has the highest rate of entanglements for wildlife.

An alternative for sheep and cattle range is a 4-strand barbed wire fence that controls livestock but still allows for passage of pronghorn, deer, moose and elk.

For cattle, use a wire spacing of 18–22–28–40/42". The top wire should be at 40" to 42" or less. Allow 12" between the top two wires and 18" between the bottom wire and the ground. Use a smooth bottom wire.

Sheep require a low fence that would block most wildlife from crawling beneath the fence, however a 4-strand fence for sheep can have a top wire no more than 32" high, which is low enough for most wildlife to jump. Allow at least 10" between the top two wires. (As a lower fence is easier for deer and elk to jump, the 10" spacing between top and second wires will usually be adequate.) The bottom wire should be smooth wire and at least 10" above the ground.

A bottom smooth wire aids passage for pronghorn and other wildlife.

Sheep and Cattle 4-Strand Barbed Wire Fence

(Adapted from Wyoming Game and Fish Dept., 2004)

Recommended Wire Heights Above the Ground

	Cattle	Sheep	Sheep & Cattle
Top wire	40" to 42" barbed	32" barbed	38" barbed
2nd wire	28" barbed	22" barbed	26" barbed
3rd wire	22" barbed	16" barbed	18" barbed
4th wire	16" to 18" smooth	10" min. smooth	10" min. smooth

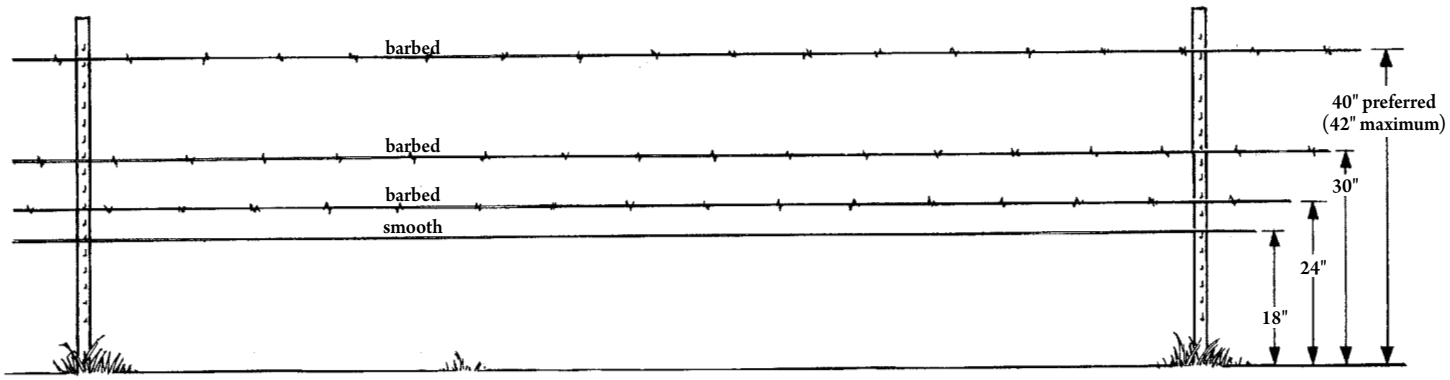
Combination Smooth and Barbed Wire Fence

In many situations, a combination of smooth wire and barbed wire can effectively contain livestock and allow for easier wildlife passage. Smooth wire can be used for the top and bottom wires and one to two barbed wire strands are used for the center strands. Barbless twisted cable wire or coated wire will increase visibility for wildlife. The top wire should be 40" to 42" high or lower, and the bottom wire at least 18" above the ground to provide wildlife clearance. Allow at least 12" between the top and second wires.

Combination Smooth and Barbed Wire

- Place top smooth wire at 40" to 42" maximum height – barbless twisted cable wire or coated wire is recommended.
- Allow at least 12" between top and second wires.
- Place bottom smooth wire at least 18" from the ground.
- Use barbed wire for center two wires.

4-STRAND BARBED WIRE WITH BOTTOM SMOOTH WIRE



FENCE SOLUTIONS PUT TO THE TEST

High-tensile Fence a Practical Solution on the Pokorny Ranch

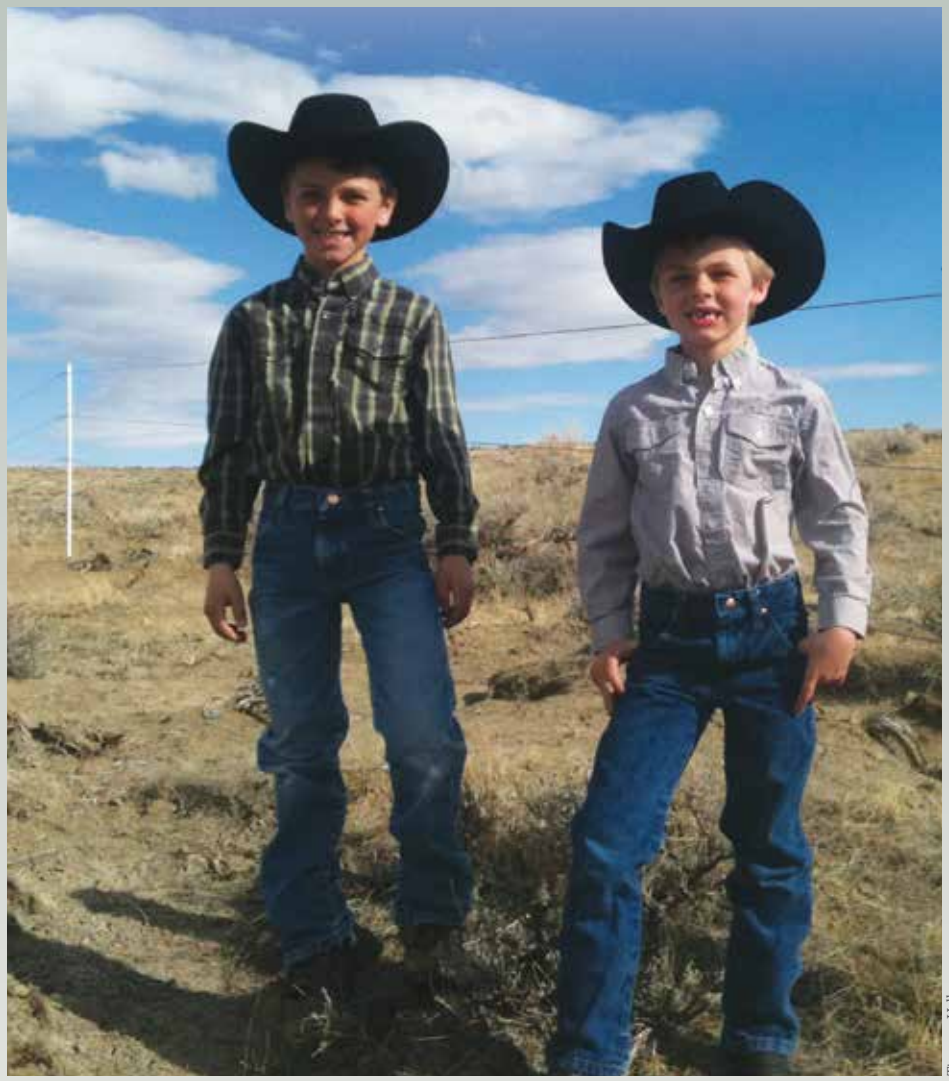
Steve Pokorny and his family were dealing with miles of old fence on their ranch in Fremont County, Wyoming, where they run a cow-calf operation. "The newest part of the fence was built in the 1950s, and it had been mended up for 60 years." explains Pokorny. Over the years, wires were patched and added, so the fence was a maintenance headache and a hazard for the abundant wildlife in the area.

"When you have irrigated ground you get a lot of deer and antelope, and they can raise havoc with a customary barb wire fence," says Pokorny. The ranch is also in the middle of a high density area for sage-grouse in Wyoming. Sage-grouse leks border the valley on surrounding uplands, and in summer grouse use the ranch's hay meadows.

In 2011, through a cost-share project with NRCS, Pokorny replaced 10 miles of old barbed wire boundary fences with 3-strand high-tensile wire fence (top wire hot, middle wire ground, and bottom wire hot).

The cattle took no time at all to train to the power fence. "All it takes is one time for one of them and then they all seem to know," Pokorny says. "The antelope, with their hollow hairs, go right under it and the deer jump right over it."

Pokorny went into the project with some confidence in high-tensile fence, having used it to divide an allotment several years ago, and he doesn't expect problems. Now deer and pronghorn can move freely through the ranch and adjacent lands without tangling in or breaking down the fences. The new fence reduces maintenance, which not only helps the family's operations today, but was a consideration for the next generation coming up on the ranch as well.



Timmery Hellyer

Maclean Hellyer and Joseph Hellyer, grandsons of Steve Pokorny, show off the new high-tensile fence on their family ranch. Thinking of the next generation coming up on the ranch, durability and ease of maintenance was a primary concern when Steve Pokorny replaced 10 miles of old boundary fence.

Rory Karhu

3-Wire High-tensile Electric Fence

Researchers in Wyoming found that a flexible 3-wire high-tensile fence (with a hot – ground – hot configuration) is not only effective for containing cattle and bison, but allows elk, mule deer and pronghorn to traverse the fence. They found that wild ungulates usually were not deterred by electric fences even with charges ranging from 0.5 and 4.5 joules, perhaps because of the insulating properties of their hair. Although wild ungulates were occasionally shocked when they nosed or bit a wire, or touched hot and grounded wires together, most animals readily negotiated the fences.

Further, the researchers determined that 3-wire fences effectively contained bulls separated from cows coming into estrus, and calves from cows in the fall. Also, they found that a 3-wire fence was just as effective for containing bison as a 4-wire fence. A 2-wire fence can be used for areas without weaning calves but, curiously, pronghorn showed a high aversion to 2-wire fences, perhaps because of the novel height and their general reluctance to jump fences rather than crawl under (Karhu and Anderson 2003, 2006).

High-tensile fences require proper construction techniques, including adequate braces, proper tensioning, care not to kink or break wire, and proper attachments and insulators for line posts and braces. The flexibility of the fence is key to allowing wildlife to pass over and through the fence. Fiberglass posts are used for all line posts, and wooden posts are used only for braces, direction changes and gates.

High-tensile fences need minimal maintenance, provide great strength, can be easily electrified and will outlast most other fences. For technical details, see the Natural Resources Conservation Service (NRCS) specifications for permanent power fence (NRCS 2006a).

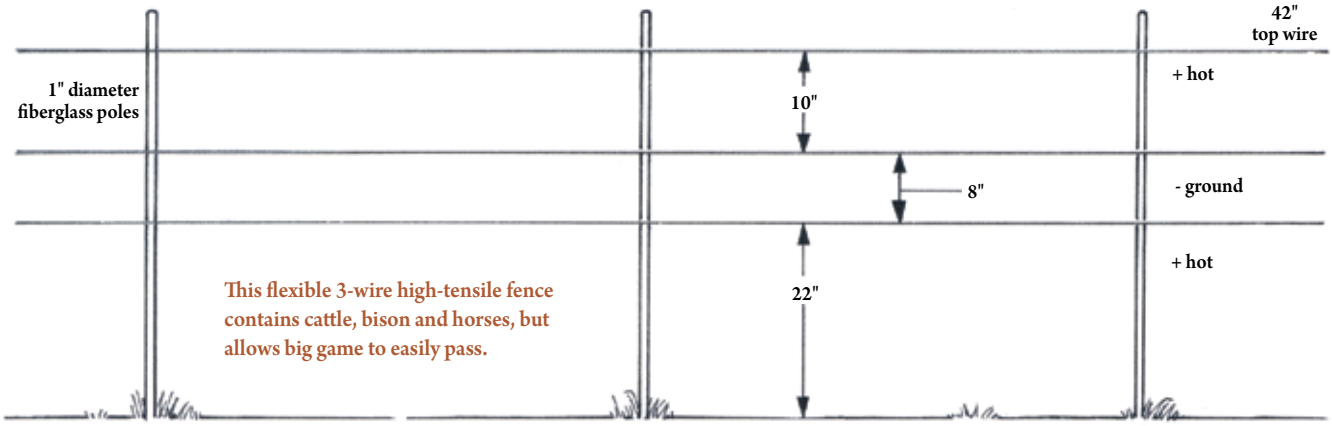
Rory Karhu

A 3-wire high-tensile electric fence is effective even for separating bulls from cows in estrus, and for containing bison. Using high tensile wire at the proper tension is key to prevent wildlife damage.

Note that smooth high-tensile wire can be difficult for animals to see. Adding markers or survey flagging to the top wire can help. One commercial example that works on smooth wire is the See-A-Fence flags, available at **www.knifesedgellc.com/seeafence.html.**

Keeping the fence powered prevents wildlife from leaning into it. If power is off, consider laying the fence flat to the ground if it will not create an entanglement hazard.

3-WIRE HIGH-TENSILE ELECTRIC FENCE



Rory Karhu

3-Wire High-tensile Electric Fence

Maintaining fence flexibility is key to allowing wildlife to traverse the fence.

- Use fiberglass line posts no greater than 1" in diameter.
- Brace fence with wood posts at least 5" in diameter; brace all corners, gates, and direction changes greater than 15 degrees. Appropriate insulators are needed with wooden posts.
- Space line posts 45' to 60' apart and do not use stays. Fence stays make it harder for wildlife to pass between the wires, and may cause the fence to flip.
- Smooth, 12.5 gauge, Class III galvanized wire with a tensile strength of 170,000 PSI and breaking strength of 1308 lbs. is adequate.
- Increase visibility by using flagging, fence markers or high tensile wire coated for visibility.
- Top wire is hot; second wire is grounded, bottom wire is hot.
- Space wires at 22–30–40/42" from the ground. The top wire should be no higher than 42" with 10" between the top two wires. The 10" spacing is necessary for cattle to contact both hot and ground wires, but poses little hazard for wildlife due to the fence's flexibility. A bottom wire at 22" allows both young and adult wild animals to pass under easily.
- Connect wires to posts with metal clips or fasteners designed for electric fences; use porcelain insulators on wooden braces.
- Tighten wires to 150 lbs. tension. If too tight, the wires are more likely to break. Although high-tensile wire has a high breaking point, it is also more brittle, and easily broken if tightly bent or kinked.
- Place solar energizer according to manufacturer recommendations.
- Ground fence properly according to the energizer instructions, and add extra rods as needed. Locate ground rods at fence ends and intermittently in between.
- Ground rods are relatively cheap and extra rods will ensure the fence will be effective.
- When livestock aren't present, either drop the wires flat to the ground or keep the fence electrified to prevent wildlife damage. (Keeping the fence powered can also prevent the battery from freezing and prolong battery life.)
- Securely attach electric fence warning signs intermittently along the fence and at crossing points.

FENCE SOLUTIONS PUT TO THE TEST

Experience Nets Advice on Wildlife Friendly Fence

Plenty of elk and pronghorn migrate across John Nunn's ranch in Albany County, Wyoming. His operation, Needmore Land & Cattle, runs mother cows, calves and yearlings, depending on the market, and covers a checkerboard of BLM and state lands in addition to private ranch land. Once a sheep operation, the ranch had extensive woven wire and traditional 5- and 6-strand barbed wire fences, which slowed game movement through the area.

Nunn partnered with NRCS on a cost-share project and installed more than 4 miles of wildlife friendly fence: a 4-strand fence with three barbed strands and the bottom wire smooth. The top strand is at 42" or less, with 12" spacing between the top and second wires, and the bottom smooth wire is at 16" to 18".

After two to three years' experience with the fence, Nunn's experience has been largely positive. "The fence works well, especially on open plains," he says. Although in 30 years Nunn only had one instance of an antelope tangled in his old fence, he still likes the new 4-strand fence as it allows for freer wildlife movement. "Wildlife can flow through a lot easier now."

In some situations, livestock will test a fence when motivated by something more attractive on the other side. A watering hole, tank or water gap can be strong motivation, as can heifers and bulls on either side of the fence. Nunn says his yearlings sometimes test the fence if there is something tempting outside it. "They're just teenagers. They're curious and just create more problems."

The 16" to 18" bottom wire allows antelope to pass under easily, and isn't usually an issue for calves that slip through as they will crawl right back to their moms. However, Nunn suggests it could pose a problem if the fence divides two groups of cattle, both with mothers and calves.

In short, when planning your fence Nunn advises thinking about your specific operation, as well as that of neighbors with adjoining pastures, and using a combination of wildlife friendly and traditional fence if needed.

As for wildlife, he says, "The fence works great."

Jeremy Roberts, Conservation Media

On the Needmore Land & Cattle operation in Albany County, a 4-wire wildlife friendly fence works well across open plains.

Photo: Ruben Vasquez, NRCS

Openings, Crossings and Passes

Fence passes reduce injuries, keep fawns and calves from being stranded, provide openings for animals unable to jump fences, and help wildlife cross in deep snow.

You can include wildlife crossings in any fence design. Short sections can be altered to wildlife friendly standards to help wildlife cross, or gates and jumps can be added. The simplest solution is to install gates that can be secured open when pasture isn't used by livestock.

Animals are creatures of habit—place jumps and openings where there are signs of habitual crossing by wildlife.

Christine Paige

Look for worn trails, tracks, and hair caught on fence wires. Also place crossings in fence corners and sites where animals are funneled by topography or the fence line.

Fence openings and passes are especially important when fawns and calves are small, from June 1 through the summer, and for seasonal wildlife movements and ranges. They can reduce fence damage and decrease maintenance costs.

An easy solution is to secure gates open in seasons when livestock aren't present.

Christine Paige

Christine Paige

Christine Paige

Fence alterations can include:

- Lowering the top wire or rail to 42" or less.
- Increasing the distance between top and second wires to 12".
- Raising the bottom wire or rail to 16" minimum, and preferably 18" or more.
- Replacing the bottom and top wires with smooth wire.
- Increasing visibility with a top rail, pvc pipe, high-visibility tape or braid.

Wildlife openings and passes can include:

- Gates secured open.
- Dropped rails and wildlife jumps.
- Sections with adjustable wires or rails.
- Sections of seasonal lay-down fence.
- PVC modifications for big game and pronghorn passage.

Use your local topography and patterns of wildlife travel to help you determine the best placement for crossings. Look for signs of wildlife use and travel such as game trails, tufts of hair caught on fence wires, trails to water, or gullies and swales that act as wildlife corridors.

Durable PVC Big Game Passage

Installing PVC pipe over bunched fence wires is an inexpensive way to allow elk, deer, and antelope to freely cross existing barbed wire fence with minimal risk. **This design is especially useful where elk, moose or other ungulates cross heavily traveled roadways and have difficulty crossing a fence, delaying their movement out of danger – particularly in spring and summer when calves are small.** Along roads, the PVC passage should be installed on both sides of the right-of-way.

Montana Fish, Wildlife & Parks

PVC pipe threaded over bunched fence wires creates an effective and durable big game passage, especially on road right-of-ways.

Montana Fish, Wildlife & Parks

PVC Game Passage for Wire Fence

These instructions are for a metal t-post, 5-strand barbed wire fence, with no livestock present, but can be adapted for other situations.

Materials:

To modify two 60' sections of barbed wire fence.

- Twenty 10′ sections of 1.5" OD PVC pipe
- One 100-count bag of large (7" or 11") UV-resistant plastic cable ties
- #16 or larger soft wire
- fencing pliers, wire cutter, leather gloves

Before Installation:

With a table saw, cut a ¼" slot the entire length of each PVC pipe. Note that a ¼" cut can be made by matching up two ⅛" wide blades and using a wood guide.

Installation:

Step 1: Remove all wire clips from about 60′ or three fence posts and allow wire to hang freely.

Step 2: Beginning near first post with clips removed, grip the top three strands of wire and pinch together. Locate a space between barbs that will allow you to thread on the PVC pipe. Push pipe onto wire (not wire into pipe) concentrating on fore-end of pipe. If the pipe gets hung up on a barb at the fore-end, work barb into end of pipe and continue. Once the pipe has been adequately started, grip pipe near the fore-end and begin pulling down the length of the wire. The wire will feed itself into the pipe. Pull pipe down the wire until about 8′ from where posts with clipped wires resume.

Step 3: Repeat with three more pipes. Space the joint between two pipes at a post where possible. This will allow you to clip the three wires together to a post.

Step 4: The last (fifth) pipe must be installed in the reverse direction. Starting near the end of the fourth pipe, find a space between barbs and install pipe as in Step 2, push into place 8′ from where posts with clips resume.

Step 5: Repeat steps 2 through 4 with the bottom two wires.

Step 6: Using #16 or larger soft wire, attach the top PVC pipe to posts no more than 40" above the ground. Attach the bottom pipe at 18" above the ground, or dropped closer the ground to create a larger middle gap for deer fawns/elk calves to go through rather than under. Where a joint between pipes is located at a post, enough space can be left to clip the wires to the post.

Step 7: Attach three cable ties per 10′ section of PVC pipe, one near each end and one in the middle. Squeeze PVC pipe while pulling cable tie tight. Gap from cut will not be completely closed but will be small enough to allow the pipe to roll and not work its way off the wire. Clip tag end of cable tie.

Step 8: Repeat on opposite side of right-of-way.

An elk herd races to cross a highway. Animals are especially vulnerable to tangling when alarmed or crowded by others.

Shawn Bryant

Adjustable Wire Fence

Adjusting the height of one or more wires is an easy and effective way to allow animals to cross during migration periods if livestock aren't present. Drop the top wire to the level of the second wire, either in sections or along an entire run of fence, to allow wildlife to jump over easily. Lowering the top wire to 25" or less allows elk and deer to hop over easily in almost all conditions. Raise the lowest wire in the same way to help wildlife crawl under. A simple staple lock allows wires to be rapidly adjusted from one level to another and the wires can be adjusted by only one person.

Fence clips or staple locks allow wire heights to be quickly adjusted to create seasonal crossings for wildlife. Fence clips are available commercially for steel or wood posts from Tin Cup Creek Fence, tincupcreekfence.com.

tincupcreekfence.com

steel post fence clip

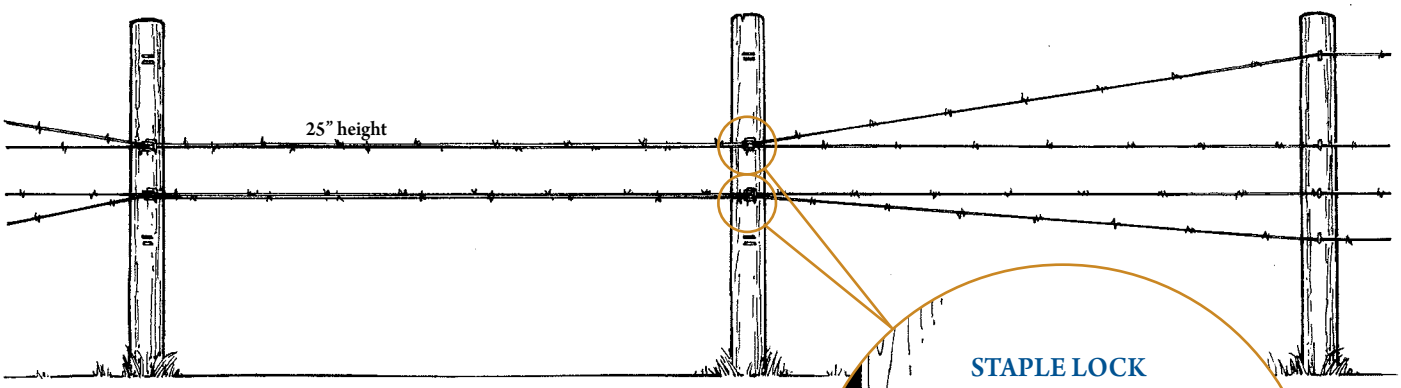
tincupcreekfence.com

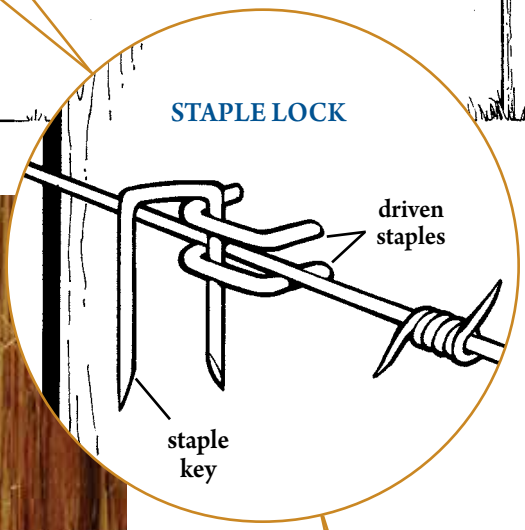
wood post fence clip

Ranch manager Marina Smith found that a seasonal drop-down top wire allows migrating elk to easily pass over the fence in fall and winter.

Christine Paige

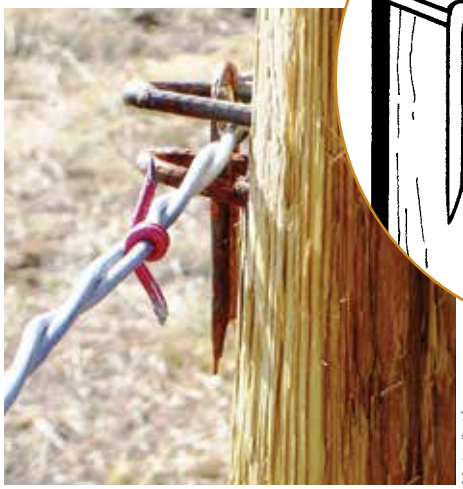
ADJUSTABLE FENCE FOR SEASONAL WILDLIFE PASSAGE





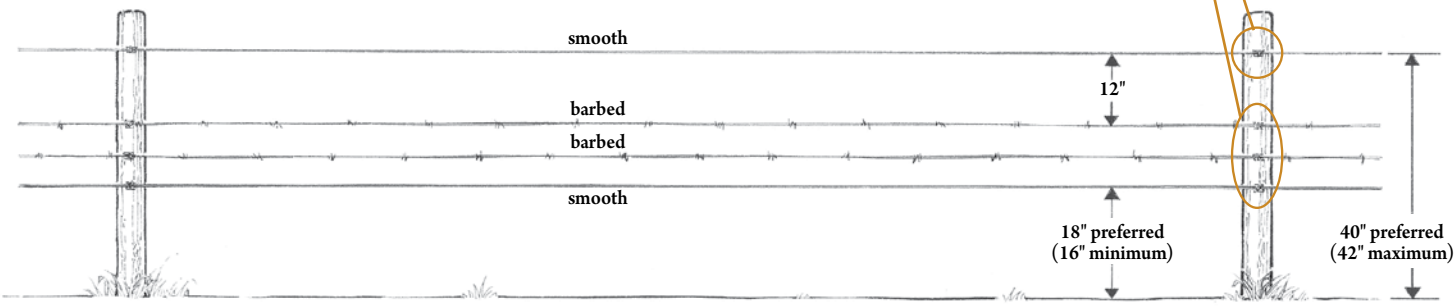
Staple lock for wooden posts

- Install two fence staples horizontally and less than an inch apart on each post at the level of both the top wire and the second wire.
- Slip the fence wire between the two staples.
- Secure it in place by hooking a third staple through the paired staples vertically, like a latch.



Marina Smith

4-WIRE FENCE (SMOOTH AND BARBED WITH STAPLE LOCKS)



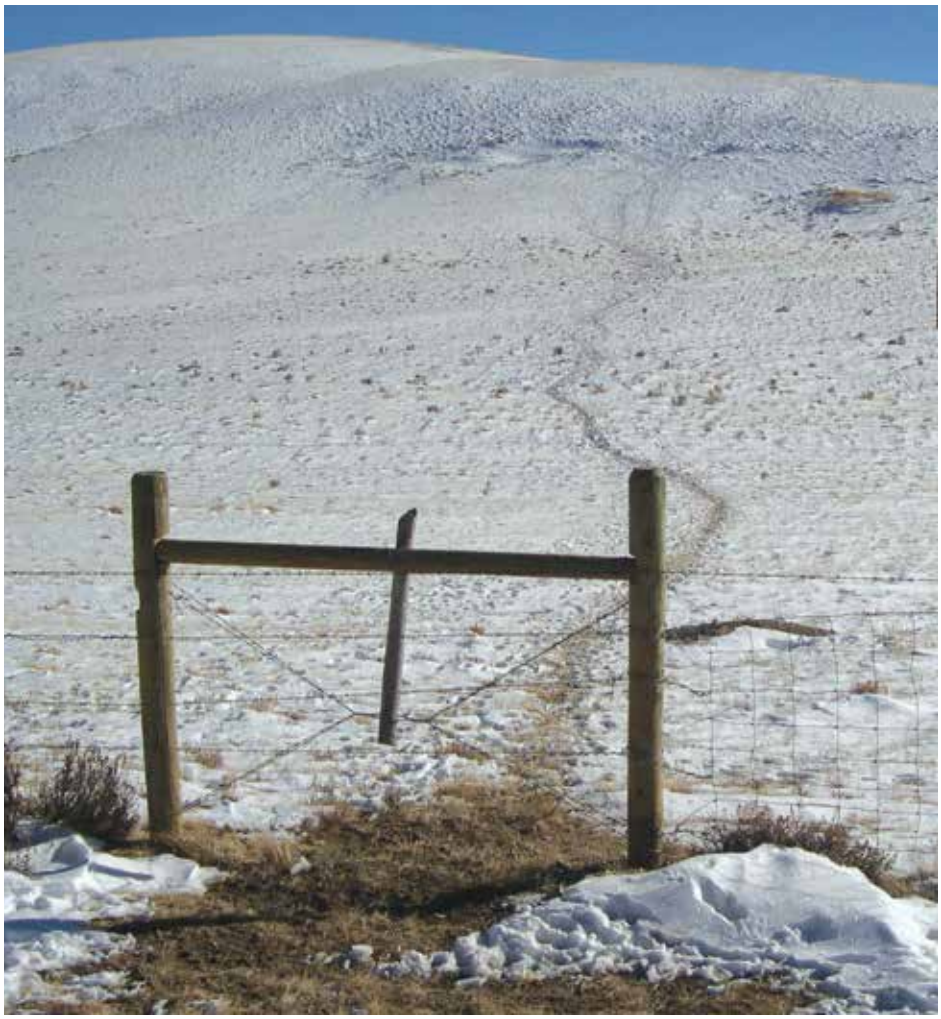
Pronghorn Underpass or "Goat Bar"

Although capable of jumping even high fences in extreme situations, pronghorn prefer to crawl under fences, and almost seem unaware of their ability to "high jump." They will often run for miles looking for fence openings or spots to crawl under a fence, and have been known to die of starvation when blocked by a fence they see as impassable.

In Sheep Range:

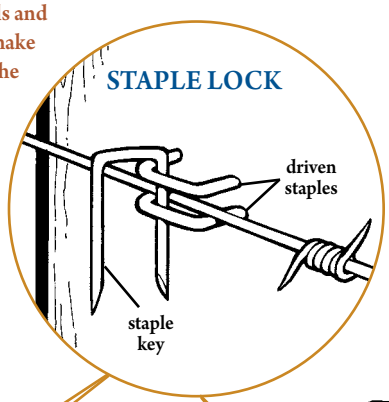
Pronghorn have the greatest difficulty negotiating sheep fence, which either uses lower barbed wire strands than cattle and horse fence, or is typically made of woven wire. However, a pronghorn "underpass" can be created by raising the bottom strand in selected fence sections.

- For sheep, space wire strands at 10–16–22–32" above the ground, the top three strands barbed wire, the bottom strand smooth wire.
- In selected sites, raise the bottom wire to the height of the third wire, securing in place with a staple lock on the posts, or with small carabiners or quick-clips on the wires. If needed, the bottom wire can be dropped again when sheep are present.

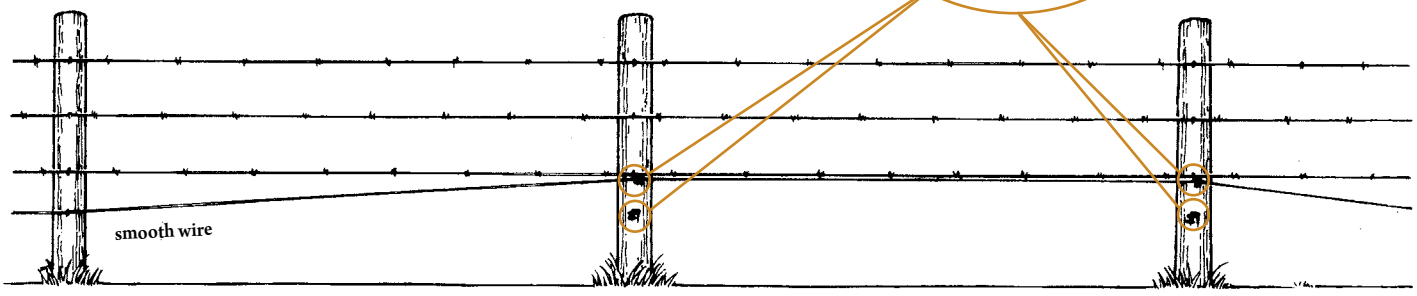


Randy Gazda

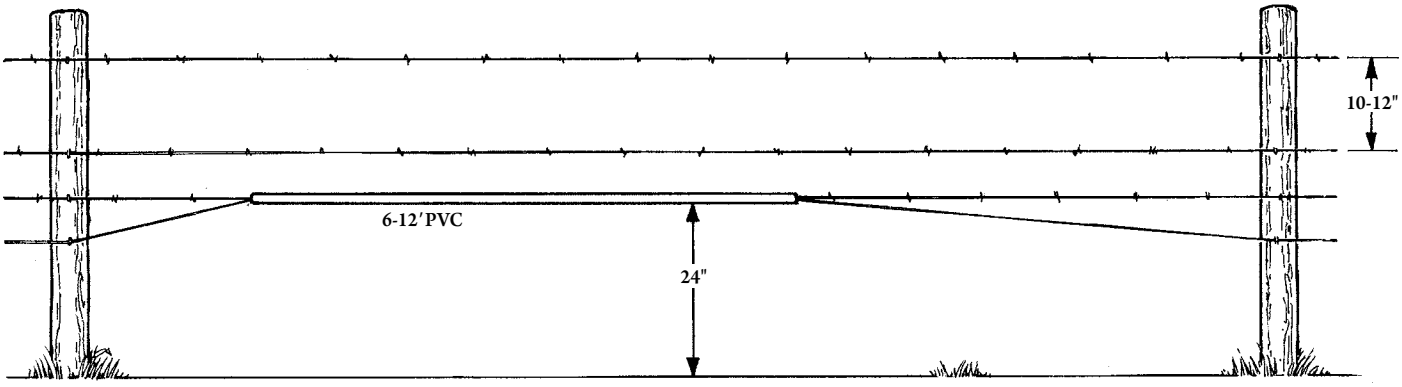
Pronghorn tend to use the same trails and fence crossings habitually. You can make negotiating fences easier by raising the bottom wire at known crossing sites.



PRONGHORN UNDERPASS FENCE WITH RAISED WIRE



PRONGHORN UNDERPASS FENCE WITH GOAT BAR



In Cattle and Horse Range:

A pronghorn underpass or "goat bar" can be created by simply gathering the bottom two wires in a PVC pipe to make a higher clearing for pronghorn of any age to crawl under. The PVC also protects animals from losing hair on barbed wire, and the fence remains effective for controlling horses and cattle. An alternative is to use quick-clips or small carabineers to clip the bottom wire to the next highest wire. **To be most effective, place the underpass where pronghorn habitually cross.**

- Space fence wires heights at 18–24–30–40"; use smooth wire on the bottom.
- Cut several 6′ to 12′ lengths of PVC pipe.
- With a table saw, cut a ¼" slot the length of each PVC pipe. Note that a ¼" cut can be made by matching up two ⅛" wide blades and using a wood guide.
- Grip the bottom two fence wires together, and feed the PVC pipe onto the wire from one end of the pipe. Once the pipe has been adequately started, grip the pipe near the fore-end and begin pulling down the length of the wire.
- Place the underpasses where pronghorn habitually cross (look for trails and hair on wires) and in fence corners where animals may be directed by the run of fence.
- Add a PVC pipe threaded onto the top wire or top two wires to allow easier passage for deer and elk and reduce the chance of snagging and entanglement.
- Use 2 or 3 cable zip-ties to close up the gap on the PVC.

Barbed wire can cause serious scarring and hair loss on animals' backs and bellies (above). While a PVC goat bar can protect from scarring, simply raising the bottom wire with quick-clips (at right) can also ease passage. Underpasses are most effective when placed where animals habitually cross.

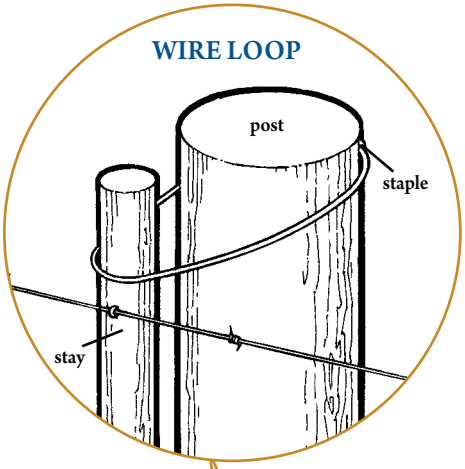
Photos: Alberta Conservation Association

Lay-down Fence

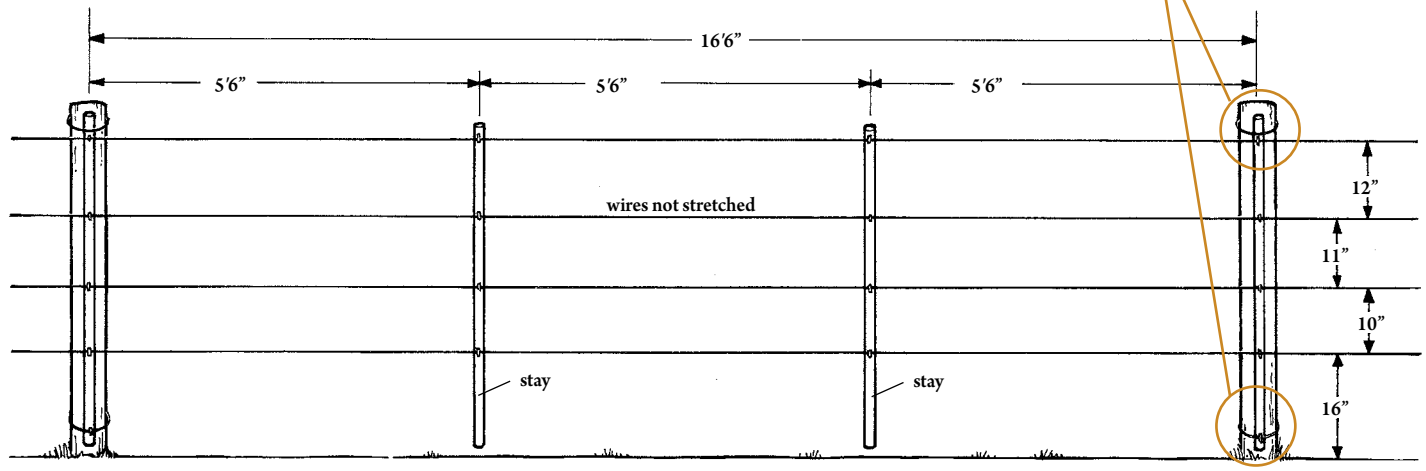
A lay-down fence is a standard 3-wire or 4-wire fence that can be laid on the ground as a unit to allow ungulates to pass through during migration or seasonal use. A lay-down fence can reduce wildlife damage and save maintenance costs. Most designs allow a single person working alone to easily let the fence down or put it back up in a short time.

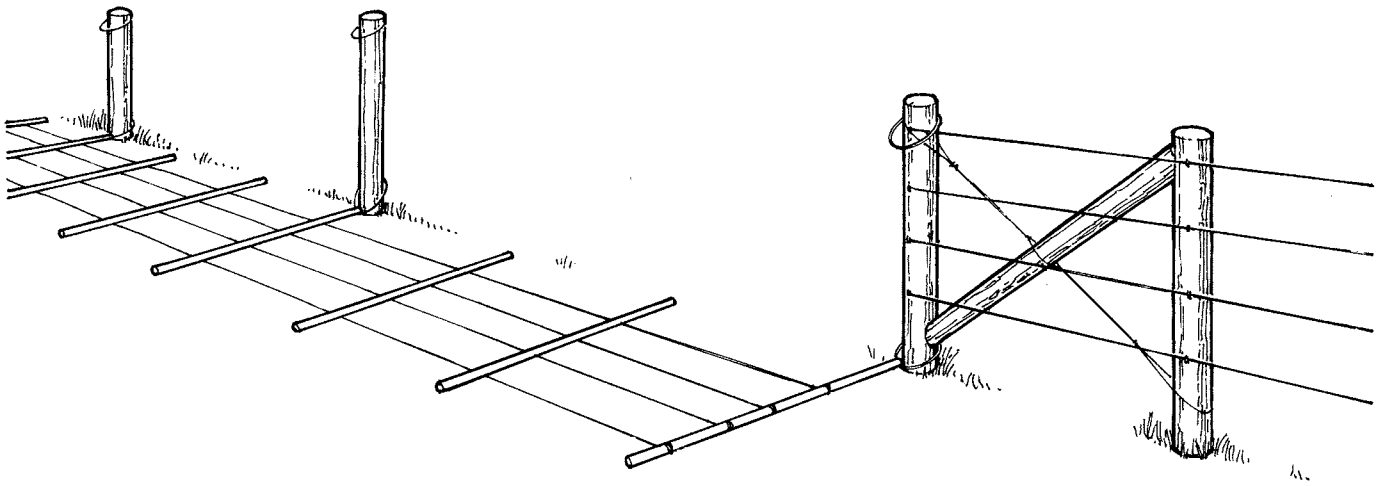
Lay-down fence can be constructed from smooth wire or barbed wire. Fence posts can be wood or steel, but treated wood is more durable in heavy snow areas. To be most effective for elk and reduce fence damage, install lay-down in at least 4 to 6 sections of fence. In areas with heavy elk migration or winter use, entire fence runs can be installed with lay-down fence to minimize wildlife fence damage.

Space posts at 16.5′ intervals. For barbed- or smooth-wire fence, one to two stays are needed between fence posts, plus a stay lined up with each fence post. Wire loops, secured at the top and bottom of the fence posts, support the fence stays. Be sure the fence stays do not touch the ground. The lay-down section can then be dropped by flipping up the top loop and lifting the stays out of the bottom loop.



LAY-DOWN FENCE





Montana Fish, Wildlife & Parks

Jay Kolbe

Christine Paige

This lay-down fence using 4-strand smooth wire was constructed along 1.5 miles of fenceline next to the Blackfoot-Clearwater Wildlife Management Area in Montana to allow winter passage for elk. The number of elk tracks attest to the design's success.

FENCE SOLUTIONS PUT TO THE TEST

Sublette County Aids Migrating Pronghorn

Where the Green River and its tributaries flow across the high sagebrush rangelands of Sublette County, a river of big game also streams through—elk, mule deer, pronghorn and moose migrate to winter range where the wind scours snow away from winter forage, and then return again to the high country as snows recede in spring. The Green River Basin is also ranch country, with 250 working ranches, more than 100 of which have been owned and operated by the same families for over a century.

In 2008, the local Green River Valley Land Trust (GRVLT, formerly Wyoming Land Trust) launched the Corridor Conservation Campaign, a multi-year effort to help ranchers modify existing fences to be friendly to wildlife and effective for livestock. The campaign targeted fences in the "Path of the Pronghorn," the longest large mammal migration in the lower 48 states. Each autumn, pronghorn that summer in the Jackson Hole area migrate out of the Gros Ventre River Basin across a high divide and into the Upper Green River Basin to winter. But pronghorn have difficulty negotiating fences: they would rather crawl under than jump over a fence, and may be blocked by fences they cannot easily cross.

GRVLT brought together ranchers and local land and wildlife management agencies to modify existing livestock fences to 3- or 4-strand fence, with the top wire at 42", and 12" between the top two strands to avoid tangling by mule deer, elk and other animals jumping over. The bottom strand is smooth wire set at 16" minimum height to allow pronghorn to slip under the fence. Woven wire fence was replaced with 3- or 4-strand fence, and in moose habitat a wooden top rail was installed. Wherever possible, existing wire and posts were used as long as they were in good shape, but old wire and posts were replaced, providing landowners with a durable fence.

By the end of 2012, GRVLT and their partners completed 82 miles of fence modifications in the Path of the Pronghorn, and a total 166 miles in the county. Since then, the Wyoming Wildlife Foundation and other organizations have continued the fence work to ease the journey for migrating deer and pronghorn in the region.

In Sublette County, the local land trust helped landowners modify fence to ease migration of pronghorn, mule deer and other wildlife.

Photos: Green River Valley Land Trust.

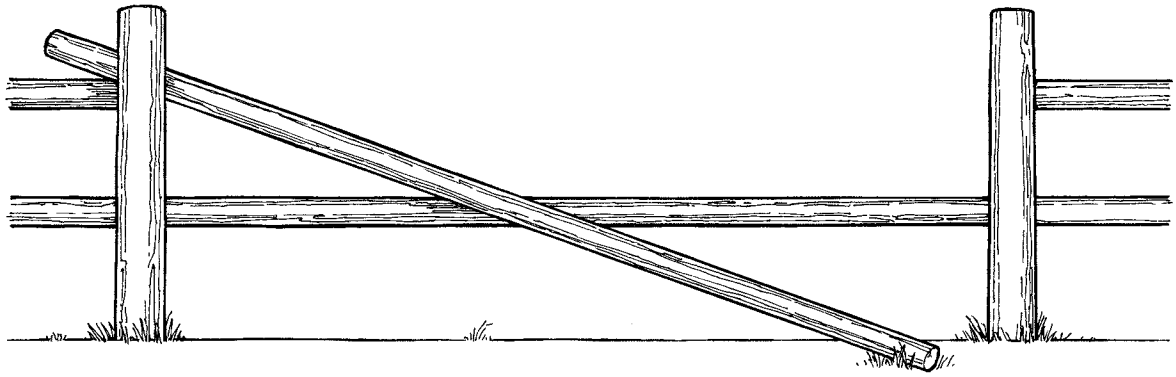
Dropped Rail Wildlife Passage

Buck and rail fence, high post-and-rail fences, and worm fences can be difficult for animals to negotiate. An occasional gap in the fence can provide a crossing. Rails should be dropped where there are signs of wildlife movement, such as game trails, and in pasture corners, stream corridors, gullies or other natural funnels.

Simply drop one end, or the entire rail, of the top rail to the ground intermittently, such as every 100', to allow animals to step across. Installing the top rail with anchor bolts and wingnuts makes it quick work to alter the rail seasonally where needed.

Christine Paige

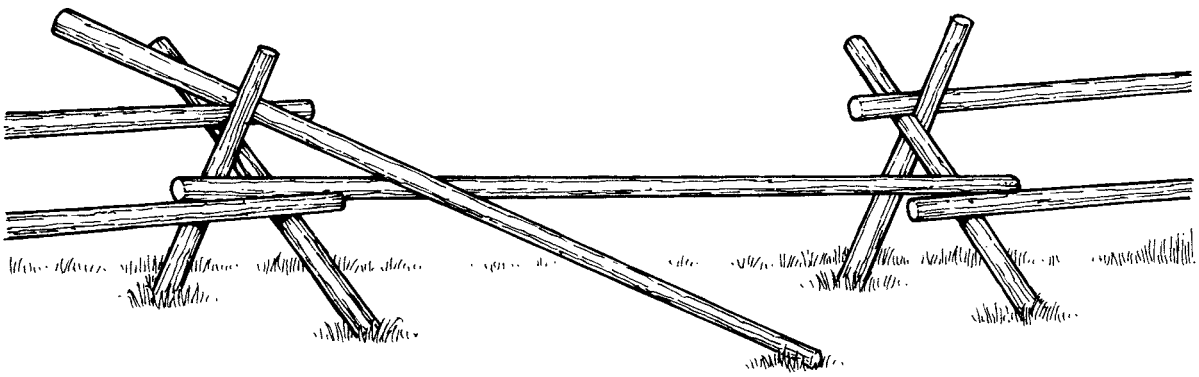
DROPPED RAIL FOR WILDLIFE JUMP



A top rail can be dropped on one end, or lowered to the ground entirely. Installing a top rail with anchor bolts and wingnuts makes it easy to alter the rail seasonally.

Christine Paige

DROPPED RAIL IN BUCK AND RAIL FENCE



One-way Gate

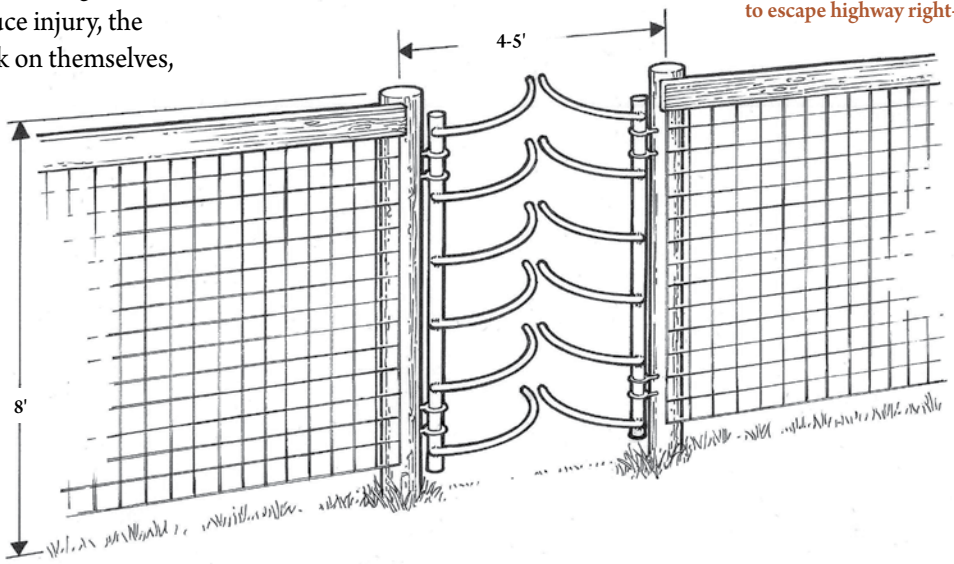
Some highway departments have successfully used one-way gates to allow animals to escape a fenced right-of-way, but prevent them from re-entering. This design is used with tall exclosure fence, and requires some manufacturing. The gate is constructed with formed poles or tines on spring-loaded hinges, which allow animals only one direction of travel. The gate should be placed in a funnel or corner to guide the animals out.

Some large animals can bend the tines when trying to push through from outside the gate. To reduce injury, the tines may be curved back on themselves, but animals sometimes tangle their legs in the curved tines. Instead, it is now recommended to install plastic disks or balls on the ends of tines to prevent injury (Huijser et al. 2015).

Edmund Fogels

One-way fence gates are used in some areas to allow moose, elk, deer and other animals to escape highway right-of-ways.

ONE-WAY FENCE GATE



Don't Forget the Humans

Consider installing fence crossings for people, especially if the fence is on or adjacent to public lands, or if you allow public hunting on your property. It will help preserve your fence and promote goodwill. Gates are one obvious choice, although gates are sometimes left open inadvertently. Two other styles keep the fence secure, and are easily installed: a wooden ladder over a fence or a v-gate that prevents livestock from squeezing through but allows humans and smaller animals to pass.

A V-gate or fence ladder will allow humans on foot to cross easily, without the risk a gate will be left open inadvertently.

Christine Paige

Christine Paige

FENCE SOLUTIONS PUT TO THE TEST

Collaboration Promotes Stewardship in a Checkerboard Landscape

The world's largest trona mine, operated by Tronox Alkali west of Green River, Wyoming, is completely surrounded by an expansive sagebrush rangeland and an extensive checkerboard of private and public ownership.

This rolling sagebrush country is core habitat for sage-grouse and key winter range for migrating pronghorn and mule deer. It is also sheep country, where horsemen herd their bands across the range and protect their sheep with Great Pyrenees guard dogs. In addition to trona (a mineral used to manufacture soda ash, which in turn is used to create glass, paper, detergents and other products), the region is rich with oil, natural gas, and coal. How can industry co-exist in this landscape with agriculture and wildlife?

Tronox Alkali decided that business and wildlife stewardship could be compatible goals. They partnered with a local and diverse group of agriculturists, landowners and agencies on a number of conservation projects to reduce the mine's footprint, enhance wildlife habitat, and contribute to wildlife research and monitoring.

Tronox Alkali

Near Green River, Wyoming, Ethen Garret marks fence for sage-grouse for his Eagle Scout project (above). Tronox Alkali brought local ranchers, service groups and agencies together to modify miles of fence for wildlife.

From 2013 to 2015, Tronox Alkali and their partners began to replace miles of woven sheep fence with a 4-strand wire fence friendlier to wildlife. Woven wire fence can completely block wildlife movement, especially for pronghorn and other species that can't or don't like to jump fences. The new fences were installed with three barbed wires at 40", 28" and 22" above ground level, and 12" between the top and second wire to prevent jumping animals from tangling legs. The bottom wire is smooth and set at 16", the minimum for pronghorn to be able to slip underneath. Although it's a 4-strand wire fence, the local herders find it's adequate to control sheep.

To enhance some of the fence for sage-grouse, Ethen Garrett, an Eagle Scout from Troop 85, partnered with the BLM to install fence markers as his service project. The markers make the fence more visible to grouse as they fly low over the sagebrush, and have been shown to dramatically reduce grouse mortality. Ethen manufactured the reflective markers, making hundreds of extras for future BLM use, and recruited a crew to help install the markers along two miles of fence.

"This is truly collaborative work," reports Julie Lutz, Environmental Engineer for Tronox Alkali. "It's a multi-year project, with a target of 20 miles of new fence." Project partners include the Rock Springs Grazing Association, Uinta Development, the Rock Springs and Kemmerer BLM field offices, Wyoming Conservation Corps, Wyoming Game and Fish, and Seedskadie National Wildlife Refuge.

Photo: Tronox Alkali

Remedies for Existing Fences

How can you make existing fences more wildlife friendly?

Fence maintenance, modifications and removal can all help wildlife.

You can modify nearly any existing fence to be friendlier for wildlife. If you do not plan to completely replace an existing fence, you can alter individual sections to wildlife friendly standards to create crossings and easier passage.

Scott Nicolarsen

Remedies for Existing Fence

Maintenance:

- Keep wires tight. Sagging wires and neglected fences create a hazard for both domestic animals and wildlife. Loose wires can snare animals as they attempt to cross – tight wires reduce the chance of entanglement.

Modifications:

- Replace barbed wire with smooth wire, particularly for top and bottom strands. Smooth wire reduces the chance of animals getting snared on barbs and fatally entangled.
- Adjust the height of top wire: preferably no more than 40" and a maximum of 42" above the ground.
- Increase the distance between the top two wires to 12" to reduce entanglements.
- Reduce the number of wires to three, or at most four.
- Add a top rail, high visibility top wire, a PVC cover on the top wire, or flagging to increase visibility and prevent collision or entanglement.
- Raise the bottom wire to at least 16" and preferably 18" above the ground to allow animals to slip under.
- In selected fence sections, raise the bottom wire to the level of the third wire and secure with a staple lock.
- For pronghorn, gather bottom wires in a PVC pipe to create a "goat bar" underpass.
- Add wildlife crossings where wildlife trails cross fences by using dropped wires, dropped rails, lay-down fence or underpasses, as described earlier.
- When livestock aren't present, secure gates open to allow free passage for wildlife.
- Provide wildlife access to rivers, streams, wetlands and water holes, and through seasonal migration areas.

Removal:

- Remove old fences that are in disrepair or no longer in use. Remove any unnecessary interior fences.
- Bale and carry away piles of wire. Some recycling centers will recycle old wire. Never leave wire on the ground.
- Many volunteer groups are interested in helping with fence removal projects to help wildlife, such as local chapters of sportsman's groups, scout troops, 4-H and others.

Wildlife "Death Pipes"

Open vertical pipes are silent and overlooked killers of birds and small animals. Hollow metal and plastic (PVC) pipes serve a wide variety of purposes, from ventilation pipes for buildings, outhouses or irrigation systems, to fence posts, corner posts, gate uprights and mining claim markers.

Birds, small mammals and reptiles will investigate hollow pipes, especially for potential nest sites. Once inside they become fatally trapped, unable to find purchase on the pipe's smooth walls. In 2009, for example, a biologist at the Audubon California Kern River Preserve found more than 200 dead birds in a fallen 50-year-old irrigation standpipe.

Most of the victims are cavity-nesting birds, such as bluebirds, woodpeckers, kestrels and small owls. Because open pipes are so prevalent across our landscapes, the overall toll on birds and small animals may be in the millions.

Easy Fixes for Death Pipes

- Remove unused obsolete pipes.
- Permanently cap or fill pipes used as fence posts, gate uprights, sign posts, claim markers or monuments. These can be capped with concrete, or entirely filled with sand, gravel or concrete. Chain link fence posts can be capped with commercial caps.
- Cover ventilation pipes on buildings, irrigation systems and outhouses with galvanized hardware cloth held in place by steel pipe clamps, or install commercial vent caps.

Sean Rowe

CAPPING OR SCREENING OPEN VERTICAL PIPES PREVENTS BIRDS AND OTHER SMALL ANIMALS FROM BECOMING FATALLY TRAPPED.

Sean Rowe

Sean Rowe

Sean Rowe

Residential Fences

Fences serve many functions around homes, both aesthetic and practical: they may define a boundary, create a play space, contain pets or discourage wildlife from yards and gardens.

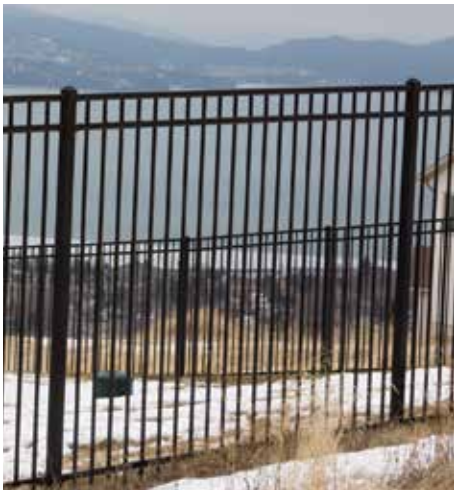
Avoid fences with spikes, pickets or barbs that protrude above the top bar. Many wrought iron fence designs have decorative spikes on top. Gauging a jump by the uppermost horizontal bar, animals can misjudge the fence height and be lethally caught or impaled on the fence.

Any tall residential fence, whether wrought iron, plank, picket or chain-link, should be used only for small areas around the home, and not for larger perimeter fences. If a fence provides a complete barrier, an open gate may allow animals to find a way in but not out. Be sure vertical planks or bars are spaced closely enough that animals will not try to push through and become trapped. Check city and county ordinances for fence regulations.

Many residential areas are in wildlife winter range. Using landscaping instead of fencing, or using only low, very permeable fences, allows wildlife to move freely through neighborhoods.

Christine Paige

Christine Paige



Christine Paige

Above: A solid top rail and narrow vertical bars on this iron fence reduce hazards to wildlife.

Courtesy of International Chimney Corp. and The Forest Lawn Group

Colorado Parks and Wildlife file photo

Deer can be impaled on spiked fences, as happened for this whitetail in Colorado (right). The Williamsville Cemetery in New York found a practical solution to shield the spikes on their historic fence (above).

Fence Alternatives

Hedgerows

If you do not need a fence to contain or exclude livestock, consider other creative ways to define boundaries and discourage trespass.

A line of shrubs of trees can mark a boundary line, beautify your landscape, and provide nest sites for birds and food and cover for wildlife. Depending on the site, a wide range of native and ornamental shrub species can be used to create an effective hedgerow – from lilacs and honeysuckle to willows, alder and big sagebrush. Your County Cooperative Extension Office can help you find local sources for plants and choose appropriate species for your site.

Many native shrubs are suitable for hedges and enhance wildlife habitat.

HEDGEROW

Beware using some non-native species that can become difficult or impossible to manage.

Mix it up: consider using several species, varying the width of the hedgerow, or using plants of different heights to create a natural and wildlife friendly hedge. Once established, hedgerows require minimal maintenance unless you want a highly manicured look.

Christine Paige

Boundary Markers

Where you do not need a fence, consider marking property boundaries with signs, flexible fiberglass or plastic boundary posts, or fence posts spaced at intervals but without cross wires.

Property boundaries can also be marked with steel t-posts or flexible fiberglass or plastic posts such as Carsonite or Flexstake posts, available through survey and forestry suppliers. Commercial fiberglass and plastic marker posts are highly visible and durable. However the cost per post can be greater than a heavy-duty steel fencing t-post.

Christine Paige

Photo courtesy of Carsonite Composits

Above: A low post and single cable or chain fence creates little hazard to wildlife if it can be easily seen.

Right: Posts can mark a boundary where a fence is not needed. Flexible plastic posts can be ordered with reflective tape or custom lettering.

Barrier Posts

Barrier posts or bollards are short stout posts spaced to prevent access by vehicles. They can be used to define a driveway or parking area, or edge an expanse of lawn. Posts can be spaced closely together, or placed farther apart and connected with a heavy chain, cable or rail, from two to three feet high. Bollards and posts with low chains or rails pose little deterrent or hazard for wildlife.

Bollards can be made of wood, concrete, brick, stone, cast iron, aluminum, or steel; a row of boulders serves the same function. Some can be installed as fixed or removable posts. A wide variety of bollard designs and ornamental covers are also available commercially.

Christine Paige

Christine Paige

A row of boulders or bollards (concrete or wooden posts) can prevent vehicle access but pose no barrier to wildlife.

If You Must Exclude

There are times when exclusion fence to keep wildlife out is necessary.

If you must put up an exclusion fence, avoid fencing a large area that includes wildlife habitat. Focus exclusion fences on small areas for specific purposes, such as fencing around play areas, vegetable gardens, beehives, calving and lambing areas, or haystacks. Keep exclusion fence close to the activity you need protected, and allow wildlife to use other parts of the property.

For any exclusion fence, place gates at corners: an animal that inadvertently finds itself trapped inside is more likely to find escape through an open corner gate than through a side gate.

Christine Paige

Use chainlink fences only for specific purposes, such as play areas and dog kennels.

Wooden Plank Fence and Chainlink Fence

Chainlink fences and wooden fences with closely-spaced vertical planks are especially unfriendly to wildlife and can create a complete barrier to animals of all sizes, from turtles to moose. If you must use chainlink or plank fences, limit their use to small enclosures.

Yard fences and play area fences often do not need to be more than 4′ high. If higher, be sure gates are kept secured to prevent animals from finding their way in.

For small chainlink dog kennels, attach a roof to prevent wild animals from becoming trapped inside. A roof also provides shade and shelter for your pets.

Christine Paige

Deer and Elk Exclusion Fence

A permanent non-electric exclusion fence for deer and elk should be 7′ to 8′ high. A 7′ to 8′ wooden fence that animals can't see through is typically used around housing areas. For gardens, vineyards and other agricultural plots, 8′ woven wire fence is more often used with posts set at 8′ to 20′ intervals, and the wire is brought tight to the ground. Make the top highly visible by using a top rail, high-visibility wire or flagging. Place gates at corners, where an accidentally trapped animal is more likely to find an escape.

A 7′ to 8′ fence is an effective barrier to elk, but should be used only for specific needs, such as gardens or haystack yards. Make the top highly visible with flagging, white tape or wire, or a rail.

Haystacks and Hay Yards

Several options exist for protecting haystacks from wildlife damage. These include electric, non-electric, temporary and permanent designs.

Montana Fish, Wildlife & Parks

Deer-D-Fence

A traditional 8′ woven wire fence can protect a stackyard from game damage. An alternative is a permanent 7-strand electric fence.

Temporary Solutions

A simple and cost-effective solution is to wrap haystacks with heavy-duty plastic mesh netting, such as Deer-D-Fence, a 2x2" durable plastic mesh that is strong, lightweight and easy to handle. Haystacks and large bales can be wrapped quickly, and the netting is readily lifted off when not needed. This netting is especially useful for temporary applications, rapid installation, and remote settings.

Plastic netting can also be used as fencing instead of woven wire, and installed on wood or steel posts using UV-resistant zip-ties. The plastic is UV-resistant and durable, and materials cost is comparable to woven wire. However labor costs for fence construction can be greater than with traditional materials.

Increase visibility by adding poly-coated wire, tape or flagging when using plastic mesh as fencing. Although the mesh would cause little harm to most large animals, it is nearly invisible when erected and should be flagged to be visible to birds.

Permanent Fences

Many landowners prefer to protect a large haystack yard with a permanent fence. The traditional stackyard fence is at least 8′ high and uses woven wire with wood posts or a combination of wood and steel posts. One-way gates should be placed in the corners to allow animals that might be inadvertently trapped inside to find a way out more easily.

A permanent electric fence, 6′ to 7′ high, is also effective for protecting stackyards from game damage. This fence is constructed with high-tensile smooth wire spaced at 10" intervals with alternating hot and grounded wires.

A 7-wire fence 72" high with strands at 10" intervals is adequate for elk. Deer, on the other hand, require a higher fence of 84", with 8 to 9 wires.

Christine Paige

Montana Fish, Wildlife & Parks

Haystack Fence

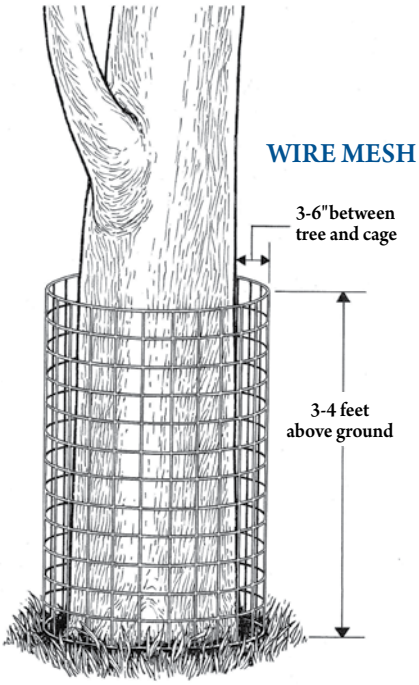
- Use 10′ pressure-treated wooden line posts, 3" to 4" in diameter, driven 2.5′ into the ground, and spaced at 30′ intervals.
- Use 10′ pressure-treated wooden brace posts, 4" to 5" in diameter, driven 3′ into the ground.
- Use 12.5 gauge, smooth Class III galvanized wire with a tensile strength of 170,000 PSI and breaking strength of 1308 lbs. To increase visibility, use white poly-coated wire with the same specifications.
- Space seven strands at 10" intervals; the top wire at 72" for elk or 84" for deer; wooden posts require using insulators.
- Alternate hot and ground wires: bottom wire is grounded and top two wires are hot.
- Place solar energizer according to manufacturer recommendations.
- Ground fence properly according to the energizer instructions.
- Install electric fence warning signs.

Joe Weigand, Montana Fish, Wildlife & Parks

A permanent electric fence is an effective alternative to woven wire fence. A 6' fence with 7 strands at 10" intervals is adequate for elk.

Wire Mesh Cages to Protect Trees from Beaver

The simplest method to prevent beaver from harvesting trees is to install a cylindrical mesh cage around tree trunks. Heavy-gauge rolled hardware cloth or mesh fencing is available from most ranch supply and hardware stores.



Debo Beddiford

Wire Mesh Cage

- Use heavy woven or welded wire mesh fencing (e.g., 6 gauge) to prevent beaver from chewing through. Chicken wire is **not** effective.
- Mesh size should be 4" x 4", 2" x 2" or smaller—small enough to prevent beavers from squeezing through or getting tangled.
- Leave a 3" to 6" gap between the tree and cage to allow for tree growth.
- The cage should extend 3 to 4 feet above the ground or **above the potential snow line.**

Photo: www.arniebrokling.photo

Deterring Predators

A variety of permanent and temporary electric fence designs can deter large predators. These fences are used primarily for small-scale operations, such as beehives, dumpsters, lambing or calving areas, corrals, bone piles and other small areas in need of protection from scavenging or predation.

A 7-wire permanent electric fence from 42" to 54" high is most commonly used to deter bears and wolves. In special situations, a higher 9-wire or 11-wire fence might be used. In the typically dry, rocky soils in our region, the fence should have alternating charged and grounded wires, with both top and bottom wires hot. In this setup, an animal must touch both a hot and a ground wire to receive a full shock. Use a grounded bottom wire if the wire is likely to touch vegetation. A fence with all hot wires can be used in areas with damp or moist soil that will provide sufficient grounding when the animal touches a hot wire.

The table at right shows specifications developed by the NRCS in cooperation with Montana Fish, Wildlife and Parks (NRCS 2006b). *(continued)*

Seth Wilson

Predator deterrent fencing should be used only around specific areas, such as corrals and beehives. Always hang warning signs on electric fences.

Seth Wilson

Bear and Wolf Deterrent Fencing

(Adapted from NRCS 2006B)

Charge and Recommended Wire Heights from Ground Level

	Bear[1] 7-wire	Bear & Wolf[2] 7-wire	Beehive or Chicken Coop[3] 7-wire	Wolf & Bear[4] 9-wire (corral or home areas)	Wolf & Bear[4] 11-wire (away from corral or home areas)
Top wire	(+) 42"	(+) 54"	(+) 54"	(+) 60"	(+) 72"
2nd wire	(-) 36"	(-) 42"	(-) 42"	(-) 50"	(-) 64"
3rd wire	(+) 30"	(+) 32"	(+) 32"	(+) 42"	(+) 56"
4th wire	(-) 24"	(-) 24"	(-) 24"	(-) 36"	(-) 48"
5th wire	(+) 18"	(+) 18 "	(+) 18 "	(+) 30"	(+) 40"
6th wire	(-) 12"	(-) 12"	(-) 12"	(-) 24"	(-) 32"
7th wire	(+) 6"	(+) 6"	(+) 6"	(+) 18"	(+) 26"
8th wire				(-) 12"	(-) 20"
9th wire				(+) 6"	(+) 15"
10th wire					(-) 10"
11th wire					(+) 6"

Bear[1] (42") 7-wire: Primary use is to deter grizzly and black bears; allows deer and elk passage.
Bear & Wolf[2] (54") 7-wire: Primary use is to deter grizzly, black bear and wolves from calving and lambing areas, but where wolf activity is low to moderate or there is potential for wolf activity.
Beehive or Chicken Coop[3] (54") 7-wire: Primary use is is deter grizzly and black bears from apiaries.
Wolf & Bear[4] (60-72") 9- or 11-wire: Primary use is to deter wolves and bears when predator activity or risk is high. Also useful for situations where ungulate damage to a lower fence (54") might be anticipated, or there is a predator issue.

© Henry H. Holdsworth/wildbynaturegallery.com

Deterring Predators (continued)

Key to the success of electric fences is to erect them before the attractant level is high, so that animals are "trained" to a fence early on. **Also, the amount of energy your setup can deliver over the full distance of the fence is crucial.** Because of predators' thick fur, the system must deliver enough shock to deter them. For grizzlies, the system should deliver 6,000 volts or more, and will require an energizer with a rating of at least 0.7 joules. Be sure your energizer can deliver adequate power over the distance you need. Vegetation touching the wires and other situations can cause energy leakage. Regularly check the voltage on every hot wire with a high-quality voltage tester, especially midway and at the farthest distance from the energizer. In addition, **always install warning signs on the fence.**

For more complete instructions and appropriate designs, see *Bears and Electric Fencing* published by Montana Fish, Wildlife and Parks, available online at **http://fwp.mt.gov/fishAndWildlife/livingWithWildlife/beBearAware/bearAwareTools.html** (Annis 2010). Also see *Practical Electric Fencing Resource Guide: Controlling Predators* published by the Living with Wildlife Foundation and available online at **http:/ /www.lwwf.org** (Thompson, et al. 2005).

Tim Manley

Chicken coops and beehives are irresistible to bears, but a high-energy electric fence is effective protection.

Fladry to Deter Wolves

Fladry is a line of wire strung with long flags or streamers and used to deter predators from livestock. Fladry's advantage is that it is portable, temporary, and requires comparatively little planning – it serves best as a short term deterrent until a more permanent fence can be planned and installed.

Steve Primm

Steve Primm

Steve Primm

Deployed around temporary pastures, fladry has been shown to deter wolves for up to 60 days, and much longer if electrified. Be aware that this technique can have considerable problems with deployment, tangling, voltage leaks, general availability, and high initial capital and labor costs. However, because it is portable and temporary, a number of western ranchers have found it to be an effective tool to protect livestock from wolves (Primm and Robinson 2011.)

Fladry

- Use a large spool or reel (6" minimum diameter and 11" minimum width) to coil and deploy fladry. Handling by hand is enormously time-consuming.
- Electrified fladry ("turbo fladry") has a longer period of effectiveness, and deters livestock from trampling the line.
- Use ⅜" x 4′ fiberglass rod posts. Carry these in an old golf bag to deploy in the field.
- Line height should be no higher than 28," and fladry flags should hang above the ground. In spring and summer it is difficult to keep flags from touching vegetation.
- To secure the line, use a "harp clip," which allows the fladry flags to slide through the clip. See **http://www.premier1supplies.com** for an effective harp clip.
- For anchor posts, use thicker composite posts with wire clips, steel t-posts with insulators, or insulators on permanent wooden posts of existing fence.
- Create gates using anchor posts and good quality electric fence handles connected to an eye-bolt on the post.
- Electrify with an energizer that will provide an output of at least one joule per mile of fladry.
- A "wide impedance" energizer will deliver more consistent voltage under adverse conditions, such as dry soils, dry snow, cold temperatures, and long insulating fur.

Getting Help

People and organizations like hands-on projects that enhance habitat for wildlife. Many local land trusts, sportsmen's clubs, community groups and conservation organizations may be able to provide cost-share support or volunteers for wildlife friendly fencing projects to enhance wildlife habitat on private or public lands. As an example, in Teton County, the Jackson Hole Wildlife Foundation (www.jhwildlife.org) has a dedicated volunteer group that works on fence removal and fence modification projects for wildlife. Scouts, 4H groups, school classes and Americorps members have also pitched in as volunteers on cooperative projects.

Check with your local County Cooperative Extension Office for technical assistance and information on landowner programs (for contact information, go to http://www.uwyo.edu/uwe/county/). Your local Conservation District may also have grants and resources available to help with fence projects that provide a public benefit by enhancing wildlife resources (http://www.conservewy.com/). Wyoming Game and Fish may be able to assist on some projects, especially those in wildlife migration areas (https://wgfd.wyo.gov/).

The Natural Resources Conservation Service (NRCS) works on a voluntary basis with private landowners across the U.S. and offers cooperative programs to enhance natural resources, including improvements to wildlife habitat. NRCS can provide technical and financial assistance for many types of projects, including new wildlife friendly fencing and retrofitting existing fence to become more wildlife friendly. Their primary focus is on addressing resource concerns on private land, however some of their programs can be used on federal or state lands as well. See http://www.wy.nrcs.usda.gov to learn more about the NRCS and contact information for your local NRCS Field Office.

The Bureau of Land Management and US Forest Service advocate using wildlife friendly fence. If you share a boundary with federal lands or lease a federal grazing allotment, contact the agency's local office to inquire about opportunities for cooperative projects to replace or modify fences to be wildlife friendly.

Mark Gocke

Scott Nicolarsen

Many land trusts, sportsmen's clubs, community groups and conservation organizations may be able to help with technical assistance, staff support and small grants on wildlife friendly projects.

Mark Gocke

Sources

Allen, G.T. and P. Ramirez. 1990. A review of bird deaths on barbed wire fences. Wilson Bulletin 102(3)553-558.

Annis, K. 2010. Bears and Electric Fencing: A starter's guide for using electric fencing to deter bears. Montana Fish, Wildlife and Parks. 12 pp. Available online at: http://fwp.mt.gov/fishAndWildlife/livingWithWildlife/beBearAware/bearAwareTools.html.

Christiansen, T. 2009. Fence marking to reduce greater sage-grouse *(Centrocercus urophasianus)* collisions and mortality near Farson, Wyoming – summary of interim results. Wyoming Game and Fish Department, Green River, WY. 3 pp.

Colorado Division of Wildlife. 2007. Fencing with wildlife in mind: understanding the impact on wildlife when fencing your property. Colorado Division of Wildlife, Living With Wildlife Program. Brochure, 9 pp. Available online at: http://wildlife.state.co.us/NR/rdonlyres/B0D65D61-6CB0-4746-94F1- 6EE194E1C230/0/fencing.pdf.

Ehmke, C. 2009. If You Fence It, They'll Stay out: Fencing Out Stock in Wyoming. Univ. Wyoming Cooperative Extension Service. 2pp. Available online at: uwadmnweb.uwyo.edu/CESFRM/IfYouFenceIt.pdf.

George Miksch Sutton Avian Research Center. 2006. Fence marking for lesser prairie-chickens: a cooperative conservation solution. Sutton Avian Research Center, Bartlesville, OK. 2 pp. Available online at: http://www.suttoncenter.org/fence_marking.html.

Gillihan, S.W. 2000. Barbed wire fence fatal to burrowing owl. J. Colorado Field Ornithologists. 34(4)220-221.

Harrington, J.L. 2005. Characteristics of ungulate behavior and mortality associated with wire fences. Master's thesis, Utah State University, Logan, UT. 48 pp.

Harrington, J.L., and M.R. Conover. 2006. Characteristics of ungulate behavior and mortality associated with wire fences. Wildlife Society Bulletin 34(5)1295-1305.

Huijser, M., A. Kociolek, T. Allen, P. McGowen, P. Cramer, M. Venner. 2015. Construction guidelines for wildlife fencing and associated escape and leteral access control measures. Western Transportation Institute, Montana State Univ., Bozeman, MT. 218 pp.

Jones, P.F., B. Seward, L. Seward and H.M. Dorchak. 2012. Opening up the prairies: evaluating the use of goat bars by pronghorn. Pp. 52-58 in Walker, R. N., and K. W. Rodden, eds. Proceedings of the Twenty-fifth Biennial Western States and Provinces Pronghorn Workshop. New Mexico Department of Game and Fish, Santa Fe, USA.

Karhu, R. and S. Anderson. 2003. Evaluation of high tensile electric fence designs on big game movements and livestock containment. Final Report April 2003. Wyoming Cooperative Fish and Wildlife Research Unit. Laramie, WY. 27 pp.

Karhu, R. and S. Anderson. 2006. The effect of high-tensile electric fence designs on big-game and livestock movements. Wildlife Society Bulletin 34(2)293-299.

Karsky, Dick. 1988. Fences. Publication #8824 2803. U.S. Department of Agriculture, Forest Service, Missoula Technology and Development Center, Missoula, MT. 210 pp. Second printing 1999. Available online at: http://www.fs.fed.us/eng/pubs/pdfpubs/pdf88242803/pdf88242803dpi300.pdf.

Montana Dept. of Fish, Wildlife and Parks. 2002. Fencing specifications for FWP properties. Internal document. 4 pp. MT Dept. of Fish, Wildlife and Parks, Helena, MT. October 25, 2002.

Nero, R.W. 1974. Great gray owl impaled on barbed wire. Blue Jay 32(3)178-179.

Nesbitt, S.A. and D.T. Gilbert. 1976. Powerlines and fences hazards to birds. The Florida Naturalist. April: 23.

North Dakota Game and Fish Dept. 2006. Pronghorn management guide-2006: Biological and management principles and practices designed to sustain pronghorn populations from Canada to Mexico. North Dakota Game and Fish Department. 158 pp. Available online at: http://gf.nd.gov/multimedia/pubs/prong-mgmt-guide-pdf-ndx.html

NRCS. 2006a. Natural Resources Conservation Service Conservation Practice Specification: Permanent Power Fence. Code 382(b)-1of 5. May 2006. Natural Resources Conservation Service, Wyoming. 7 pp.

NRCS. 2006b. Natural Resources Conservation Service General Specification Power Fence. Fence (Feet) Code 382. Specification MT-382 (Power Fence), April 2006. 3 pp. Natural Resources Conservation Service Montana. Available online at: http://efotg.nrcs.usda.gov/references/public/MT/382_spec_Power_ 2006.pdf.

NRCS. 2010. Animal Enhancement Activity – ANM27 – Wildlife friendly fencing. Natural Resources Conservation Service. 2 pp.

Patla, S. and D. Lockman. 2004. Considerations and prescriptions for the design, construction and management of shallow water wetlands for spring through fall use by trumpeter swans *(Cygnus buccinator)* in western Wyoming. Report, Nov. 2004. Wyoming Game and Fish Department, Jackson, WY and Wildlife Services of the Rockies, Cheyenne, WY. 9 pp.

Pollock, M.M., G. Lewallen, K. Woodruff, C.E. Jordan and J.M. Castro, editors. 2015. The Beaver Restoration Guidebook: Working with Beaver to Restore Streams, Wetlands, and Floodplains. Version 1.02. United States Fish and Wildlife Service, Portland, Oregon. 189 pp.

Primm, S. and A. Robinson. 2011. Electrified fladry for deterrence of gray wolves *(Canis lupus)*: an evolving manual of best practices. People & Carnivores Program, Northern Rockies Conservation Cooperative & Sun Ranch Institute. 15 pp. Available online at: http://peopleandcarnivores.org/.

Quitmeyer, C.J., J.A. Bopp, R.M. Stephens, R. Karhu and S. Anderson. 2004. High tensile electric fence: phase 2 – liability issues, maintenance costs, and containment of bison. Final Report December 2004. Wyoming Cooperative Fish and Wildlife Research Unit. Laramie, WY. 85 pp.

Schmidt, L. and J. Knight. 2000. Electric fencing to control deer and elk on Montana's farms and ranches. Montana State University Extension Service. 4 pp. Available online at: www.co.yellowstone.mt.gov/extension/ag/pubs/mt200010.pdf. html.

Sheldon, D.P. 2005. Movement and distribution patterns of pronghorn in relation to roads and fences in Southwestern Wyoming. Master's thesis, Department of Zoology and Physiology, University of Wyoming, Laramie, WY. 140 pp.

Stevens, B.S. 2011. Impacts of fence on greater sage-grouse in Idaho: collision, mitigation and spatial ecology. Master's thesis, College of Graduate Studies, University of Idaho, Moscow, ID. 210 pp.

Stevens, B.S., J.W. Connelly and K.P. Reese. 2012a. Multi-scale assessment of greater sage-grouse fence collision as a function of site and broad scale factors. J. Wildlife Management. doi: 10.1002/jwmg.397

Stevens, B.S., K.P. Reese, J.W. Connelly, and D.D. Musil. 2012b. Greater sage-grouse and fences: Does marking reduce collisions?. Wildlife Society Bulletin. doi: 10.1002/wsb.142.

Thompson, S., J. Jonkel and P. Sowka. 2005. 2005 Edition Living with Predators Guide. Practical Electric Fencing Resource Guide: Controlling Predators. Living With Wildlife Foundation, Swan Valley, MT. 38 pp. Available online at: http://www.lwwf.org.

Washington Dept. of Fish and Wildlife. 2004. Make your fence wildlife friendly. Crossing Paths Newsletter, Fall 2004.

Wolfe, D.H., M.A. Patten, and S.K. Sherrod. 2009. Reducing Grouse Collision Mortality by Marking fences (Oklahoma). Ecological Restoration 27(2)141-143.

Wyoming Statutes. 2007. Wyo. Stat. Ann. §§11-28-101–11-28-108 (2007).

Wyoming Statutes. 2007. Wyo. Stat. Ann. §6-3-303 (2007).

Wyoming Game and Fish Dept. 2004. Fencing guidelines for wildlife. Revised version. Habitat Extension Bulletin No. 53. Wyoming Game and Fish Dept. 12 pp.

Wyoming Livestock Board. 2011. Title 11 - Agriculture, livestock and other animals; Chapter 28 - Fences and cattle guards; Wyoming…"Fence In" or "Fence Out?" Available online at: http://wlsb.state.wy.us/LE/fencelaw.htm.

Yoakum, J. D., P. F. Jones, J. Cancino, R. J. Guenzel, R. Seidler, A. Munguia-Vega, I. Cassaigne, and M. Culver. 2014. Pronghorn management guides. Fifth edition. Western Association of Fish and Wildlife Agencies' Pronghorn Workshop and New Mexico Department of Game and Fish, Santa Ana Pueblo, New Mexico. 159 pp.

Kerry Singleton

www.grvlandtrust.org

www.wyomingwildlifefoundation.org

www.rayneswildlifefund.org

www.npca.org

www.tronox.com

www.westernlandownersalliance.org

www.sublettecd.com

wgfd.wyo.gov

www.jhwildlife.org

www.tetonconservation.org

www.wycf.org

This guide was made possible with the support of these partners, dedicated to conserving Wyoming's land, wildlife and agricultural heritage.

Printing by Advanced Litho Printing, Missoula, Montana on FSC certified recycled paper with 30% post-consumer waste.

Planning Commission - Staff Report

Subject: AMD2021-0003: Wildlife Friendly Fencing LDR Text Amendment
Agent/Applicant: Teton County
Property Owner: n/a; County-wide
Presenter: Ryan Hostetter, Principal Long-Range Planner

REQUESTED ACTION

Proposal to amend the Teton County Land Development Regulations (LDRs), pursuant to Section 8.7.1, to amend section 5.1.2 related to Wildlife Friendly Fencing. This amendment is made by the Teton County Planning Division at the direction of the Teton County Board of County Commissioners to update the Natural Resource Land Development Regulations in phases. The proposed amendments to this chapter would update and clarify certain standards for when wildlife friendly fencing is required, how it shall be constructed, and certain exemptions for specific uses.

BACKGROUND/DESCRIPTION

PROJECT DESCRIPTION

This proposed project includes an update to the Wildlife Friendly Fencing regulations outlined in section 5.1.2 of the LDRs. The update includes clarification and predictability to existing fence repair and replacement, additional exemptions for agricultural operations, and an update to the design requirements for wildlife friendly fencing. The updates were a cooperative effort between the Teton Conservation District, Wyoming Game and Fish, Teton Wildlife Foundation, Teton County, and concerned members of the public. The updates also follow the guidance outlined in the State of Wyoming guide to Wildlife Friendly Fencing which is published by the Wyoming Wildlife Foundation in cooperation with agricultural operators throughout the state.

BACKGROUND

The FY 2021 Work Plan includes a County assigned task to "continue with a status update and resource inventory for the Natural Resource Regulations Update". A draft update of the Natural Resource Regulations was presented to the community in September of 2018 which included a comprehensive update of much of Article 5., including Div. 5.1 and 5.2 of the LDRs. The draft included updated sections for water quality, wildlife feeding, migration regulations, and tiered habitat designations for development to replace the Natural Resource Overlay (NRO) requirements. While this draft was released in 2018 the regulations were never adopted and continue to remain in draft form. Since then, the County has been on hold with regards to picking this project up until staff positions were filled (former project manager at the County resigned) and the work could continue.

On December 28, 2020, staff provided an update and strategy to continuing this work moving forward with the recent hire of additional staff to continue this project along with other projects outlined in the Work Plan. The proposal presented to the Commissioners in December of 2020 included breaking chapter 5.1 into topics for completion. Topics within LDR section 5.1 include Wildlife Friendly Fencing, Wildlife Feeding, Water Quality (in the form of development regulations and setbacks) and Air Quality. When presented to the County Commissioners the direction provided was a near term completion of Wildlife Feeding, Wildlife Friendly Fencing, and Water Quality with more research and expertise needed to address the Air Quality section at another time. The tiered habitat regulations are separated out as a larger effort and have been included with some funding attached in the FY22 budget and FY22 Work Plan to continue with that component of Div. 5.2 of the LDRs.

LOCATION

N/A; applies County-wide.

STAFF ANALYSIS

A draft of the proposed text amendment is included as an attachment to this report and was released June 14, 2021 pursuant to the LDRs and Wyoming Statue §16-3-103.

SUMMARY OF KEY CHANGES

Many of the pre-existing requirements for fence design remain in place and are unchanged. Some items however have been updated to reflect guidance based on the Wyoming Wildlife Foundation fencing guide which is currently used statewide as a guide for wildlife friendly fencing designs. The updated components of the new draft language include:

- Solid material for top rail added
- Height to top rail reduced from 42" to now 40" from grade
- Height from ground to bottom rail/wire no less than 18" above grade
- Maximum of three horizontal elements
- No barbed wires for top or bottom horizontal elements
- Distance between vertical posts to a minimum of 12' rather than current requirement of exactly 12' (added flexibility)
- Worm (zig-zag) fencing not allowed unless approved through Special Purpose Permit similar to buck and rail
- Limit land disturbance and grading for fence installation, and direct reader to grading standards of Div. 5.7 for earth work
- Fences shall not block natural corridor or movement for wildlife (i.e. not block natural funneling through canyons or areas where topography may restrict movement)
- Fencing next to some topographic features (i.e. drop off or gully) shall contain room for wildlife to take off/land on either side of fence
- Fences next to each other in parallel (double fences) shall be at least 30' apart from each other

KEY ISSUES

KEY ISSUE 1: Repair and Replacement

The current Wildlife Friendly Fencing standards outlined in Div. 5.1.2 of the LDRs allow for repair and replacement of existing non-conforming fences "up to 50% of the linear feet" which has proven to be an issue with enforcement and interpretation. For example, is this 50% per side, is it 50% within a year, how many times can this be used before it is considered a new fence? Currently this allows for any repair and replacement of up to 50% of the linear feet of the existing non-conforming fence and this fence may never come into compliance with wildlife friendly fence design standards.

One of the main reasons for this update is to clarify and tighten up these standards which will increase predictability for property owners and staff implementing the measures as well as ensuring more of the existing fences in the County become more wildlife friendly over time. The updated language allows for any legally existing non-conforming fence to be repaired up to "10% of the total linear fence perimeter of each enclosure being repaired." This change clarifies the language and allows for some small repair and replacement, however the goal is that most fencing become wildlife friendly over time (unless a special purpose fence permit is approved).

KEY ISSUE 2: Amended Agricultural Exemption

Currently, fences for agricultural uses are partially exempt from the wildlife friendly fencing standards. Essentially, agricultural fencing can be repaired or relocated if the fencing is/has been previously existing on the property. New fencing, however, has not previously been exempt for agricultural purposes. The new updated standards proposed would amend this requirement and allow all agricultural fencing to be exempt for agricultural purposes (any new and existing fencing). Additional clarifying language requires the property to contain agriculturally assessed area (per the Assessor's Office) to meet the new agricultural exemption, and that the exempt fencing

must be for the agricultural use only (i.e. not for residential portions of the property). With these amendments the County is striving to exempt bona fide agricultural activities from the fencing requirements and ensure that the new regulations do not have negative impacts on agricultural operations.

KEY ISSUE 3: Fence Height & Design

One common thread in comments received includes issues regarding fence height specifically for containing livestock and horses as well as some comments regarding design. Many of the comments received to date ask to create design requirements which are more wildlife friendly from the existing regulations. Staff has received no comments or concerns about solid top rails, barbed wire only in middle strand, number of horizontal elements and distance from ground to the lower rail/wire. One of the main issues however remains the height of the top rail. There continues to be disagreement regarding an appropriate top rail height from grade. The existing standards require the top rail be constructed no higher than 42 inches, however the Wyoming Wildlife Foundation fencing guide states that 40" is better for wildlife (especially for pregnant or weaker animals). Comments from livestock owners however ask for a height of at least 42" and even 48" to contain livestock or horses.

Staff recommends a height of 40" and if there are special circumstances for which a livestock owner requires a unique fence design, that they apply for a Special Purpose Fence Permit for review and approval. When containing horses, the difference in two inches is negligible, and there are methodologies which the horse owners could utilize to ensure their animals remain safely contained through electric fence wires, proper feeding, and management of the animals. Horses are herd animals and prefer to be in a place with other horses and would not want to escape a situation unless under extreme duress. The primary goal with this update is to amend the requirements so that wildlife is a priority based on Comprehensive Plan Common Value Number One – Ecosystem Stewardship which is the first chapter in the Comprehensive Plan.

STAKEHOLDER ANALYSIS

PUBLIC COMMENT

All written public comments received as of the publishing of this report are attached. A list of some of the main points are as follows:

- Remove exemption for repair and replacement, all fencing including repairs and maintenance should be wildlife friendly, and keep agricultural exemption
- Fence height should be taller for livestock
- Limit unnecessary grading, leveling, and earthwork for fence installation
- County should not have fence requirements and should allow state to regulate
- Agricultural exemption should only include areas assessed as agriculture by Accessor's Office
- All fences should have a permit review and requirement
- Good to remove current 50% exemption however the revised 10% language should have timeframe associated with it
- Include diagrams

DEPARTMENTAL REVIEW

A draft of the proposed amendment was sent to the following departments for review in conjunction with the proposed Text amendment (AMD2021-0003). All reviews received from other departments and advisory agencies are attached.

LEGAL REVIEW

Gingery

RECOMMENDATIONS

PLANNING DIRECTOR RECOMMENDATION

The Planning Director recommends **APPROVAL** of **AMD2021-0003**, as presented in the draft attached dated June 23, 2021, with no conditions based on the findings recommended below.

PLANNING DIRECTOR RECOMMENDED FINDINGS

Pursuant to Section 8.7.1.C. of the Land Development Regulations, the advisability of amending the text of the LDRs is a matter committed to the legislative discretion of the Board of County Commissioners and is not controlled by any one factor. In deciding to adopt or deny a proposed LDR text amendment the Board of County Commissioners shall consider factors including, but not limited to, the extent to which the proposed amendment:

1. Is consistent with the purposes and organization of the LDRs;

Division 1.3: Purpose and Intent: Based on the legislative discretion of the Board of County Commissioners, these LDRs are in accordance with the Jackson/Teton County Comprehensive Plan. Their purpose is to implement the Jackson/Teton County Comprehensive Plan and promote the health, safety, and general welfare of the present and future inhabitants of the community with the intent listed below.

1.3.1. Implement the Community Vision: Preserve and protect the area's ecosystem in order to ensure a healthy environment, community, and economy for current and future generations.

1.3.2. Implement the Common Values of Community Character

A. Ecosystem Stewardship

1. Maintain healthy populations of all native species and preserve the ability of future generations to enjoy the quality natural, scenic, and agricultural resources that largely define our community character.

2. Consume less nonrenewable energy as a community in the future than we do today.

B. Growth Management

1. Direct future growth into a series of connected, Complete Neighborhoods in order to preserve critical habitat, scenery and open space in our Rural Areas.

2. The Town of Jackson will continue to be the primary location for jobs, housing, shopping, educational, and cultural activities.

C. Quality of Life

1. Ensure a variety of workforce housing opportunities exist so that at least 65% of those employed locally also live locally.

2. Develop a sustainable, vibrant, stable and diversified local economy.

3. Residents and visitors will safely, efficiently, and economically move within our community and throughout the region using alternative modes of transportation.

4. Timely, efficiently, and safely deliver quality services and facilities in a fiscally responsible and coordinated manner.

1.3.3. Implement the Illustration of Our Vision

A. Achieve the desired future character identified for each Character District.

B. Implement the policy objectives for each Character District.

C. Achieve the character-defining features identified for each Subarea.

1.3.4. Predictable Regulations, Incentives, and Allowances

A. Ensure standards are consistently applied to similar applications and circumstances.

B. Ensure landowners, the public, and decision-makers know the amount, location, and type of growth to expect.

C. Use data analysis and best practices to inform standards and implement the adaptive management philosophy of the Growth Management Program.

1.3.5. Coordination Between Jurisdictions

A. Implement the joint Town/County Vision through coordinated, supportive actions.

B. Maintain a common structure, format, and definitions in Town and County LDRs.

Div. 1.4. Organization of the LDRs: These LDRs constitute the County's zoning and subdivision regulations. They have two organizing principles. Primarily, they are organized by zone in order to implement and emphasize the community's character-based planning approach. Secondarily, to provide ease of use, they are organized to answer three questions:

- *What can be built or physically developed?*
- *What uses are allowed?*
- *How can the land be developed or subdivided?*

Can Be Made. The purpose of this update to the LDRs is to further bring the wildlife friendly fencing requirements into compliance with the goals of the Comprehensive Plan through enhanced ecosystem stewardship. The current language includes loopholes and confusing language open for interpretation thus reducing predictability and effectiveness at supporting wildlife movement. The update of the current 50% repair language is a major improvement for wildlife friendly fencing while still allowing some repair to remain in place when necessary (proposed up to 10%).

2. *Improves the consistency of the LDRs with other provisions of the LDRs;*

Can be Made. The updated wildlife friendly fencing requirements are consistent with all other provisions of the LDRs. The proposed updates include added language which also tie to other portions of the LDRs such as the grading requirements for any earthwork, as well as the wildlife feeding section regarding small exclusionary fencing areas which are encouraged to protect wildlife to increase consistency.

3. *Provides flexibility for landowners within standards that clearly define desired character;*

Can Be Made. The proposed updates do strengthen the repair and replacement requirements, however there remains an option for a landowner to repair existing fencing as well as apply for a Special Purpose Fence Permit in the event special circumstances arise which necessitate a non-wildlife friendly fence design.

4. *Is necessary to address changing conditions or a public necessity and/or state or federal legislation;*

Not applicable.

5. *Improves implementation of the Comprehensive Plan; and*

Can Be Made. This proposed amendment of the LDRs is intended to implement the ecosystem stewardship Common Value One outlined in the Comprehensive Plan. Maintaining healthy populations of all native species is outlined in Principle 1.1 and this wildlife friendly fencing division in the LDRs exists to implement this principal by ensuring fencing is not negatively impacting natural wildlife movement.

6. *Is consistent with the other adopted County Resolutions.*

Can Be Made. No apparent conflict or relationship to other County Resolutions was identified by staff in this review.

ATTACHMENTS

- Draft Amendment
- Public Comment

SUGGESTED MOTION

I move to recommend **APPROVAL** of **AMD2021-0003**, as presented in the draft dated June 23, 2021, to amend division 5.1.2 for Wildlife Friendly Fencing, being able to make the findings of Section 8.7.1 . as recommended by the Planning Director.

June 23, 2021 Draft

Wildlife Friendly Fencing Amendment AMD2021-0003

~~Strikeouts~~= **delete**
Underline = add

5.1.2. Wildlife Friendly Fencing

A. Findings

Fencing is a structural element that can create an impediment for wildlife movement, resulting in both injuries and death to wildlife and damage to the fencing. The purpose of wildlife friendly fencing is to ease wildlife passage to the habitats that sustain them and reduce incidents of injury and mortality. Wildlife friendly fencing allows wildlife to jump over and pass under more easily, reduces the chance of entanglement, and may incorporate openings or wildlife passes. It also includes consideration of topography and placement, such as to allow free and safe passage around special purpose or barrier fencing.

B. Applicability

~~New fences erected after September 12, 2006 shall comply with the standards of this Section.~~

~~If over 50% of the linear feet of an existing fence is replaced, the fence shall be considered "new" and shall abide by the standards of this Section.~~ ~~Except that the following shall be exempt from the provision of this Section:~~

~~1. Repair, or relocation of prior or existing fences associated with agricultural use meeting the standards for exemption in Section 6.1.3.B.; and~~

~~2. Fences built for new riding arenas, as defined in these LDRs.~~

1. Repair or replacement of legally established nonconforming fencing ~~(including fencing erected prior to September 12, 2006)~~ that does not meet the standards of Sec. 5.1.2. is permissible under the following standards:

    a. Repair of less than 10% of the total linear fence perimeter of each enclosure being repaired;
    b. Approval of a Special Purpose Fence Permit as outlined in Sec. 5.1.2. D.
    ~~c. Any repair of existing buck and rail or worm fencing shall receive approval of a Special Purpose Fence Permit and comply with the design requirements of 5.1.2 C.~~

2. Exemptions for Wildlife Friendly Fencing outlined in Sec. 5.1.2 :

    a. Fences associated with agricultural use on properties meeting all of the following:

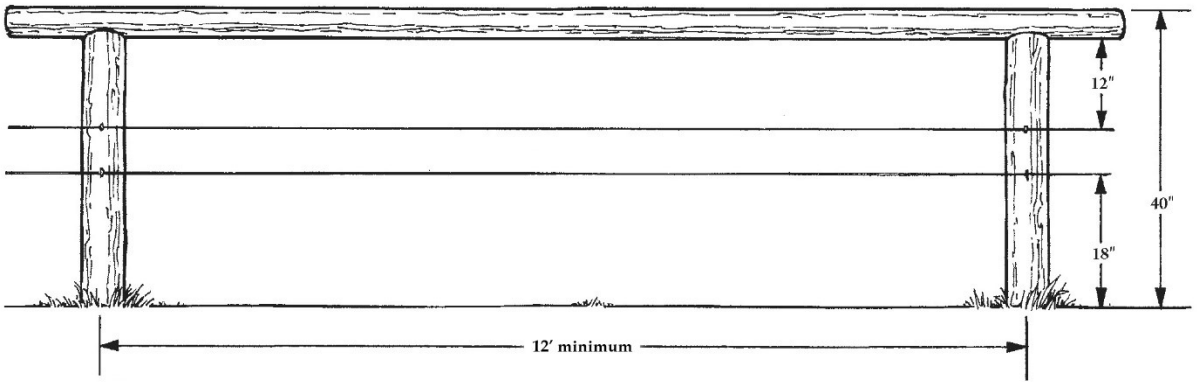
i. Properties of 70 acres or more and meeting the standards in Section 6.1.3.B.;.and;
ii. Properties containing agriculture as assessed by the Teton County Assessor; and
iii. Exempt fencing per this section is used only for agricultural purposes on the property as defined herein.

b. ~~2.~~ Fences built for new riding arenas, ~~as defined in these LDRs~~;
c. Fences erected for exclusionary purposes of small areas ~~to protect~~ such as hotwire around automatic trout feeders, apiaries, vegetable gardens, composting areas, haystacks, livestock feed storage, and ornamental landscaping areas directly adjacent to structures.

C. Fencing ~~Height~~Design

Fencing materials and design shall comply with the following standards:

1. Measurements: The top rail ~~Fencing,~~ for purposes other than livestock control, shall be no higher than 38 inches above the ground~~. Fencing~~ The top rail for livestock control shall be no higher than ~~42~~ *40* inches above the ground. There shall be no more than three horizontal strands/rails permitted. These heights allow wild ungulates (deer, elk, moose, antelope) to jump over more easily. ~~For both of the above fence types~~ Spacing between the top ~~two wires or top~~ pole/rail and adjacent wire shall be at least 12 inches. The distance between the bottom wire/rail and the ground shall be no less than 18". The spacing of fence posts shall be a minimum of 12-foot centers unless topography prohibits this spacing. The posts may have extra height to allow for any necessary lower or raising of the top rail.



~~D. Materials and Design~~

2. Materials: Wood (or similar highly visible solid material) top poles, and either wood rails or wire strands are permitted as horizontal elements in fencing, however wire shall not be used as the top most horizontal strand. When using wire, the middle or bottom wire strands shall be smooth or twisted wire. Barbed wire may be used in the middle strand when necessary to control livestock. Barbed wire is prohibited in the top and bottom strands of the fence.

~~2. The required fencing design includes a top level of a wood (or similar material) pole rather than wire. The bottom rail or wire strand shall be at least 16 18 inches above the ground. This bottom height allows easier passage for pronghorn, young deer, elk and moose, and other medium-sized mammals, and smooth wire reduces injury.~~

~~3. The spacing of fence posts shall be on 12-foot centers unless topography prohibits this spacing. The posts shall have extra height to allow for any necessary lower or raising of the top rail. Spacing of the second and third wire shall be evenly spaced. Spacing distances may vary from 7-8 inches depending on the height of the fence~~.

3. Double Fences: The spacing between parallel fencing (regardless of ownership) shall be at least 30 feet as to not create a trap for wildlife.
4. ~~The top level of a newly constructed fence shall be flagged immediately after construction. The flagging shall be white and maintained for at least 1 year~~.
5. ~~All exclusionary fencing shall demonstrate ability for wildlife to safely circumnavigate~~
6. ~~6.~~ New buck and rail ~~or~~, buck and wire, and worm fencing is prohibited unless approved by the Planning Director through a Special Purpose Fencing Exemption. ~~When buck and rail fencing is necessary due to rocky~~ or wet soil, ~~a portion of the fence shall be laid down or constructed to a lower height, not to exceed 38 inches, to allow wildlife movement.~~
7. Land disturbance and vegetation clearing for fence installation and repair shall be the minimum necessary to install fence posts and allow installation of fence materials. Any land disturbance shall comply with the requirements of Div. 5.7. of the Land Development Regulations.
8. Fencing adjacent to a swale, gully, or other topographic feature shall be designed to allow wildlife to safely cross. In these instances, the fence shall require a minimum 8 foot clear area between the fence and the animal landing/takeoff area.
9. Fences shall not be placed in such a manner as to block the natural funneling of wildlife through canyons and areas such as swales, gullies, ridges, canals, streams or other topographic features.

D~~E~~. Special Purpose Fencing

Notwithstanding the provisions of this Section, the Planning Director may exempt individual special purpose fencing from this Section, provided the fencing meets the below standards. The applicant shall provide a written explanation for how the proposal qualifies for a special purpose fencing request based on the information in this section.

EXAMPLE: Examples of special purpose fencing within a non-qualifying agricultural property include fencing for a dog kennel, certain types of agricultural fencing (such as bull enclosure, pig pens, sheep enclosure, fencing to secure stored livestock feed, fencing for winter livestock feeding sites, and fencing for 4-H projects), fencing for mitigation sites, fencing for restoration areas, securing a construction site, swimming pool enclosure, screening of refuse facilities, recycling containers, dumpsters, and small yard enclosure. See Sec. 5.1.3 Wildlife Feeding.

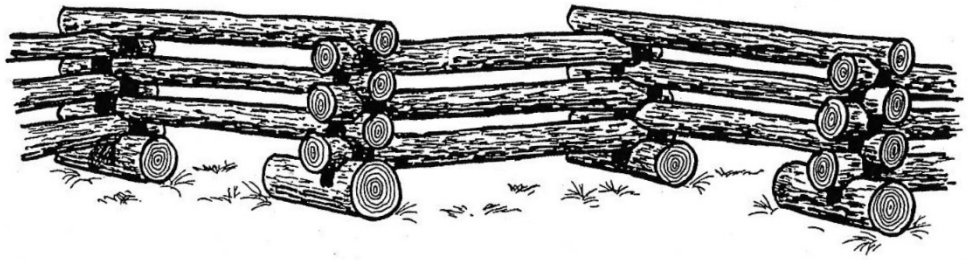
1. Smallest area. The special purpose fencing shall encompass the smallest area necessary to achieve the purpose.

2. Specific design. The applicant shall demonstrate that the Special purpose fencing is constructed for a particular use and requires a specific design to accomplish the purpose of the fence.

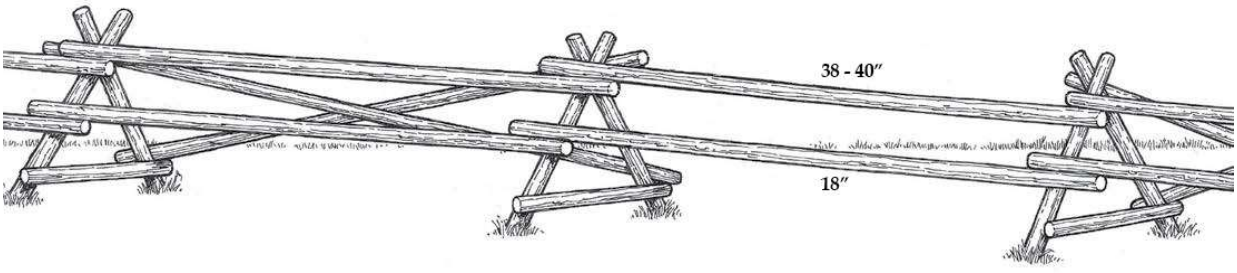
3. Height in yards. Special purpose fencing located in a street yard shall not exceed 4 feet in height. Special purpose fencing located in a side or rear yard shall not exceed 6 feet in height.

4. Setback. Special purpose fencing is not subject to a setback from property lines.

5. Rocky or wet soil. Buck and rail or worm fencing may be approved when the applicant demonstrates necessity due to rocky or wet soil. A 10 foot gap in the fence shall be provided every 120 feet or constructed to a lower height, not to exceed 38 inches, to allow wildlife movement. All buck and rail or worm fencing permitted under this section shall comply with the design requirements of Section 5.1.2 C above.



Worm Fencing



Buck and Rail Fencing

6. The Planning Director may consider other mitigation practices demonstrating improved wildlife passage such as drop down horizontal elements, open gates and other practices recommended by Wyoming Game and Fish Department or as included in the "Wyoming Landowner's Handbook to Fences and Wildlife: Practical Tips for Fencing with Wildlife in Mind" by Christine Paige, 2015 Wyoming Community Foundation, Laramie.

7. All standards for natural resource protection as recommended by the Planning Director shall be recorded in the permit.

Ryan Hostetter

From: Ryan Hostetter
Sent: Thursday, March 11, 2021 8:32 AM
To: Ryan Hostetter
Cc: Chris Neubecker; Rian Rooney; Kristi Malone
Subject: Technical Review of new Wildlife Friendly Fencing Land Development Regulations (LDRs)
Attachments: Draft Fencing Update.docx

Agency Representatives and County Partners,

The Long Range Planning section is pleased to submit this first draft language which will update the Wildlife Friendly Fencing requirements of the County's LDRs (currently section 5.1.2 which can be found here). Much of this work has been perfected by partners in the community, including Roby Hurley who completed the lion's share of this effort early on (thanks to Roby!). While we were hoping to have this draft released for public review early March, however we took some extra time to vet the language with staff at the County a bit more these last couple weeks.

In an effort to move this proposed language forward, we are seeking your technical review and input on the draft language (attached) prior to a more complete or final draft for review by the general public. I would ask that you review and submit any comments/additions to me no later than Friday March 26th. If there are any questions please don't hesitate to contact me and I would be happy to walk you through the changes being prepared and I am also open to any suggestions you may have.

This is the first piece of updating sections of the County's Natural Resource LDR's, and our next section we are revising includes language updates for wildlife feeding and bear proof trash containers. The wildlife feeding regulations are taking a bit more time in an effort to partner with waste management and a comprehensive roll out of the pay as you throw program (if you want to chat more about this effort please give me a call).

Please submit any comments/questions/additions to attached draft by **March 26th** (track changes in this document is best), and I look forward to completing this step in the process.

Thank You,

Ryan Hostetter, AICP
Principal Long Range Planner
Planning & Building Services – Teton County
PO Box 3594
200 S. Willow Street
Jackson, WY 83001
(307) 732-8414


TETON COUNTY
100
WYOMING
1921 ★ 2021

Teton Conservation District
Est. 1946

Ryan Hostetter
Long-Range Planner | Teton County Planning and Development
PO Box 1727
200 South Willow Street
Jackson, Wyoming, 83001

April 2, 2021

Dear Ms. Hostetter,

Thank you for asking Teton Conservation District (TCD) to provide comments on the draft amendment to Teton County's Land Development Regulations (LDR) regarding fencing. The TCD staff does not create or interpret LDRs but staff is familiar with the needs of agriculture and wildlife ecology regarding fences. TCD programs provide support for landowner fencing needs and best management practices for considering wildlife movement.

TCD's comments are intended to acknowledge landowner rights to construct fences and the need to use fencing to achieve valuable human purposes while addressing the unintentional negative effects to the wildlife resource and interruptions to healthy ecological function. In addition, TCD's comments strive to clarify and simplify the regulations and the improve the ability to achieve compliance.

To begin, Agriculture, as defined by the Wyoming Department of Revenue and Wyoming Administrative Rules, is a valuable human endeavor, which is also cited in the Town and County Comprehensive Plan as providing many beneficial social, cultural, and ecological benefits. Therefore, TCD is encouraged that exemptions exists in the LDRs, for certain properties with agricultural classification, agriculture is exempted so as not to hinder the generation of such benefits.

Please consider the following TCD suggestions (in red):

Overall:

1. The term "Wildlife Friendlier Fencing" be incorporated throughout the draft amendment.
2. A definition of a "fence section" be provided – *The fencing components from one vertical fence element (e.g., posts or bucks) and the next subsequent vertical fence element.*
3. Aligning the LDRs with the Wyoming Department of Revenue's agricultural land tax classification qualifications, including the Wyoming Department of Revenue's 35-acre qualification versus the LDR's proposed 70-acre qualification.

420 W. Pearl Ave.
P.O. Box 1070
Jackson, Wyoming 83001

307/733-2110, Ext 2
www.tetonconservation.org
tom@tetonconservation.org

Section 5.1.2.A. Findings:
TCD suggests that this introductory section could be made more accurate and complete with the following suggested wording:
"Fencing as a structural element can have various negative effects on wildlife ecology. This is in part due to design of the fence. Negative effects include wildlife injuries, mortality, changes in movement patterns, and increased energy consumption by wildlife. The purpose of wildlife friendlier fencing is to ease wildlife passage to the habitats that sustain them and reduce incidents of wildlife injury and mortality. Wildlife friendlier fence allows wildlife to jump over, pass under and/or circumnavigate fences more easily thereby reducing negative effects and reducing the degradation of our currently intact ecological functions and processes."

Section 5.1.2.B. Applicability:
No new section F was included in the Draft LDR's provided.
1.a. TCD suggests that a diagram of what is intended by the term "perimeter" could be useful for the public noting that some fences that create ecological issues may not form a "perimeter" or encirclement around a piece of land. TCD will provide diagrams separately.
1.b. TCD suggests a simplification of this wording because replacing various fence elements such as just the top wire, or a dozen rotted posts or "bucks" within a period can circumvent the intended outcomes (e.g., No time frame is given. This allows for non-conforming fence replacement to be completed in phases just replacing the posts, then the top element, then the second element, etc. ending up with an entire fence that is still non-conforming). Please consider the following suggestion: *"Repair of less than 10% of the horizonal length of the entire fence or repair of less than 10% or the fence sections (defn.) need not be conforming. Replacement of any single horizontal element constitutes the replacement of the horizontal length of the fence."*

Section 5.1.2.C. Fencing Horizontal Element Heights:
Rather than provide measurements for all the possible variations of horizontal elements, the regulations could be simplified and made more enforceable by establishing the height limit of the top element (38-40 inches) and the bottom element elevation (18" above the ground) with no more than three horizontal elements allowed. There is no room for a fourth horizontal element when the above prescribed bottom and top strand elevations are used, and a three horizontal element fence is a relatively wildlife friendlier design, particularly with a wooden element on the top (rail or plank) and a smooth wire on the bottom. If this concept is confusing, TCD can provide a diagram upon request.

420 W. Pearl Ave.
P.O. Box 1070
Jackson, Wyoming 83001
307/733-2110, Ext 2
www.tetonconservation.org
tom@tetonconservation.org

Section 5.1.2.D. Materials and Designs:

1. Wood (or similar material) top poles/rails, *dimensional lumber (e.g. wood planks no larger than 2" thick by 6" wide and placed horizontally)*, or wire strands are permitted as horizontal elements in fencing. The wire strands shall be smooth or twisted wire. Barbed wires may be used in the middle strand, but not as the top and bottom strands.

2. The exclusion of wire as a top horizontal element contradicts #1, which states that wire strands are allowed without specification as top element or otherwise. Consider combining #1 and #2 or clarifying #1.

5. The top *horizontal element* of a newly constructed fence that is wire shall be flagged immediately after construction using one marker per fence section (defn.). The flagging shall be ~~white~~ *a color recommended by Wyoming Game and Fish Department* and maintained for at least 1 year after construction is completed. (The proposed #5 is also in conflict with #2)

6. All exclusionary fencing shall allow wildlife to reasonably circumnavigate the excluded area. *Consider adding language that would allow for exclusionary fencing, enclosing less than 50 square feet, to be allowed without requiring any permit because wildlife can unarguably circumnavigate that size of exclosure. In addition, entanglement is unlikely given that the fence would be designed to exclude crossings.*

7. *Construction of* new buck and rail or buck and wire fencing *(after September 12, 2006?)* is prohibited unless approved by the Planning Director through a Special Purpose Fencing Exemption. *Replacement of non-conforming buck and rail, or buck and wire fencing of a quantity greater than 10% in horizontal length of the entire fence length or 10% of all the fence sections within a fence line, also requires a Special Purpose Fencing Exemption. In addition, "Worm Fencing" should be given special considerations as a special purpose fence, with 10-foot-wide gaps required every 120 linear feet of fence, etc.* ~~When buck and rail fencing is necessary due to rocky or wet soil, a portion of the fence shall be laid down or constructed to a lower height, not to exceed 38 inches, to allow wildlife movement.~~

5.1.2.E, Special Purpose Fencing:

Examples: Fence *on a non-qualifying agricultural property* for a dog kennel, bull enclosures, pig pens, sheep enclosure, *(Are these likely on a non-agricultural property? Agricultural*

420 W. Pearl Ave.
P.O. Box 1070
Jackson, Wyoming 83001

307/733-2110, Ext 2
www.tetonconservation.org
tom@tetonconservation.org

property owners may find using these examples in this context confusing.) fencing to secure livestock feed, wildlife exclusion fencing for winter livestock feeding sites and fencing for 4-H projects, patches of landscaping, etc.), securing a construction site, *erosion control on a construction site,* swimming poll enclosure, …

5. Buck and rail fencing demonstrating necessity due to rocky or wet soil. A 10-foot gap in the fence shall be provided every 120 feet (10 fence sections) or constructed to a lower height, not to exceed 38 inches. *This* allow*s* wildlife movement. All buck and rail fencing permitted under this section shall comply with the design requirements of 5.1.2 D 1-6.

6. The Planning Director may consider other mitigation practices demonstrating *improved wildlife* passage such as drop-down horizontal elements ~~rails~~, open gates and other practices recommended by Wyoming Game and Fish Department. Please consider citing "*A Wyoming Landowner's Handbook to Fences and Wildlife: Practical Tips for Fencing with Wildlife in Mind*", by Christine Paige, 2015, Wyoming Community Foundation, Laramie, WY, 56pg.

TCD hopes that the suggestions above can make the public's understanding the County fencing LDR's clearer and allow for the expression of land ownership rights, while improving the community benefits derived from healthy agriculture, free-ranging wildlife populations and elevated ecological function in Teton County.

Sincerely,

Tom Segerstrom

Tom Segerstrom
Executive Director

420 W. Pearl Ave.
P.O. Box 1070
Jackson, Wyoming 83001

307/733-2110, Ext 2
www.tetonconservation.org
tom@tetonconservation.org

WYOMING GAME AND FISH DEPARTMENT

5400 Bishop Blvd. Cheyenne, WY 82006
Phone: (307) 777-4600 Fax: (307) 777-4699
wgfd: wyo.gov

June 7, 2021

Ryan Hostetter, Principal Long Range Planner
Teton County Planning and Building Services
200 S. Willow St.
Jackson, WY 83001

Dear Ms. Hostetter,

Thank you for the opportunity to provide a technical review of the draft Wildlife Friendly Fencing Amendment (Section 5.1.2) to Teton County's Land Development Regulations. Wyoming Game and Fish Department (WGFD) Jackson Region staff have reviewed the draft amendment and offer the following comments for your consideration.

1. In 5.1.2.B.2 Exemptions, we suggest adding "haystacks" and "livestock feed storage" to the list of examples of where fences can be erected for exclusionary purposes. There are many landowners in Teton County who own livestock who do not meet the agricultural exemption criteria listed in the regulations, but who need to secure hay and other livestock feed from wildlife. The ability to quickly secure hay and livestock feed from wildlife is an important tool in preventing and/or remedying wildlife conflict on private lands.

2. In 5.1.2.C.1. Measurement, we recommend removing the text, "including pregnant or stressed animals".

3. We suggest removing the standard 5.1.2.C.4, which requires the top level of a newly constructed fence to be flagged. Since this regulation will require all new fences to have a wooden top rail or similar material, this will provide an adequate visual element for wildlife.

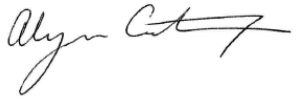
4. We suggest removing most of the language in standard 5.1.2.C.9, which prohibits placing fences on a number of different topographical features. As long as the fence meets the design criteria outlined in this regulation, wildlife should be able to navigate across it even within these topographical features. The exceptions would be waterways such as canals, streams, and creeks. Therefore, we suggest modifying 5.1.2.C.9 to "Fences shall not be placed across streams, creeks, or canals, unless for livestock control".

5. In 5.1.2.D Special Purpose Fencing, we suggest clarifying what is meant by "fencing for conservation easement areas", which is listed as an example.

6. We would also like to suggest that the County consider prohibiting barbed and smooth wire use in fences that are not used for livestock containment. Wire that is not maintained on a regular basis can pose an entanglement and injury risk for wildlife.

Thank you for the opportunity to provide technical expertise feedback to this draft regulation. If you have any questions, please contact Doug McWhirter, Wildlife Management Coordinator, or me at 307-733-2321.

Sincerely,



Alyson Courtemanch, North Jackson Wildlife Biologist

Ryan Hostetter

From: Pence, Jay -FS <jay.pence@usda.gov>
Sent: Thursday, March 11, 2021 1:36 PM
To: Ryan Hostetter
Subject: FW: [External Email]Technical Review of new Wildlife Friendly Fencing Land Development Regulations (LDRs)

[**NOTICE:** This message originated outside of the Teton County's mail system -- **DO NOT CLICK** on **links** or open **attachments** unless you are sure the content is safe.]

Ryan: I'm pretty sure the USFS fences are exempt from this direction based on the size of the acreage we manage. I thought you might be interested in some of the issues my Range specialists observed. Mainly while we want wildlife friendly fences and support this effort. In certain situations we feel that there are areas that need a bit beefier fencing to function (keep the livestock on the right side of the fence).

I thought the let down fence concern was valid. If someone wanted to construct a let down fence in many situations with migratory or winter use by wildlife this would be significantly easier for the animals than a low fence? It might be an option for a "taller fence" when in use and the wildlife have migrated but its let down and not an issue during the heavier wildlife season?

I'm not sure how to recommend handling the areas with high pressure where a taller fence may be needed. If the fence is not high enough then it may not function for holding livestock and create a significant hazard. You may want to spell out some kind of process to consider granting exemptions for case by case situations?

As always it is hard to have a rule that addresses all situations. Best of luck and I hope this was helpful?

From: Hanson, Greg -FS <greg.hanson@usda.gov>
Sent: Thursday, March 11, 2021 12:14 PM
To: Pence, Jay -FS <jay.pence@usda.gov>; Hoggan, Matthew -FS <matthew.hoggan@usda.gov>; Stokes, Jaimi -FS <jaimi.stokes@usda.gov>
Subject: RE: [External Email]Technical Review of new Wildlife Friendly Fencing Land Development Regulations (LDRs)

If we are exempt no. If we are not exempt see the following

C. Fencing Height Fencing, for purposes other than livestock control, shall be no higher than 38 inches above the ground. Fencing for livestock control shall be no higher than 42 inches above the ground. For both of the above fence types, spacing between the top two wires or top pole/rail and adjacent wire shall be at least 12 inches. 2. The required fencing design includes a top level of a wood (or similar material) pole rather than wire. The bottom rail or wire strand shall be at least 16 inches above the ground.

Generally this works well but in high pressure areas sometimes we use taller fences with 4 or five wires.

D. Materials and Design Fencing materials and design shall comply with the following standards:
1. Wood (or similar material) top poles, and either wood rails or wire strands are permitted as horizontal elements in fencing. The wire strands shall be smooth or twisted wire. Barbed wires may be used in the middle strands, not including the top and bottom strands, when necessary to control livestock.

Smooth wires do not control cattle as well as barbed wires. We could probably get along with smooth bottom wires.

2. The required fencing design includes a top level of a wood (or similar material) pole rather than wire. The bottom rail or wire strand shall be at least 16 inches above the ground.

- Hard to make a let down fence with a wood top rail.
- A wood top rail is very costly compared to wire.
- Wood top rail will also prohibit the type of post used as it is difficult to hang wood rails on steel posts.

3. The spacing of fence posts shall be on 12-foot centers unless topography prohibits this spacing. The posts shall have extra height to allow for any necessary lower or raising of the top rail. Spacing of the second and third wire shall be evenly spaced. Spacing distances may vary from 7-8 inches depending on the height of the fence.
Some places we go further spacing on posts this would add expense to the fence.

4. New buck and rail or buck and wire fencing is prohibited unless approved by the Planning Director through a Special Purpose Fencing Exemption. When buck and rail fencing is necessary due to rocky or wet soil, a portion of the fence shall be laid down or constructed to a lower height, not to exceed 38 inches, to allow wildlife movement.
The buck rail fence we buy is taller than this. In areas we need buck and rail fence we would need to special order jacks, or shorten jacks. Many of our rail fences are in high pressure areas. Usually these are shorter runs of fence but often we want them tall and formidable.

5. The top level of a newly constructed fence shall be flagged immediately after construction. The flagging shall be white and maintained for at least 1 year
This is from Page 5-6 .

Greg Hanson
Rangeland Management Specialist
Forest Service
Caribou-Targhee National Forest, Palisades and Teton Basin Ranger Districts
p: 208-542-5808
c: 208-313-7939
greg.hanson@usda.gov
3659 East Ririe Highway
Idaho Falls, ID 83401
www.fs.fed.us
Caring for the land and serving people

From: Pence, Jay -FS <jay.pence@usda.gov>
Sent: Thursday, March 11, 2021 8:44 AM
To: Hanson, Greg -FS <greg.hanson@usda.gov>; Hoggan, Matthew -FS <matthew.hoggan@usda.gov>
Subject: FW: [External Email]Technical Review of new Wildlife Friendly Fencing Land Development Regulations (LDRs)

Do either of you see anything that needs to be addressed? It appears the USFS is exempt?

Exemptions

a. *Fences associated with agricultural use on properties greater than 70 acres, meeting the standards for exemption in Section 6.1.3.B., and assessed as Agricultural by the Teton County Assessor;*

Thanks

From: Ryan Hostetter <rhostetter@tetoncountywy.gov>
Sent: Thursday, March 11, 2021 8:32 AM
To: Ryan Hostetter <rhostetter@tetoncountywy.gov>
Cc: Chris Neubecker <cneubecker@tetoncountywy.gov>; Rian Rooney <rrooney@tetoncountywy.gov>; Kristi Malone <kmalone@tetoncountywy.gov>
Subject: [External Email]Technical Review of new Wildlife Friendly Fencing Land Development Regulations (LDRs)

Agency Representatives and County Partners,

The Long Range Planning section is pleased to submit this first draft language which will update the Wildlife Friendly Fencing requirements of the County's LDRs (currently section 5.1.2 which can be found here). Much of this work has been perfected by partners in the community, including Roby Hurley who completed the lion's share of this effort early on (thanks to Roby!). While we were hoping to have this draft released for public review early March, however we took some extra time to vet the language with staff at the County a bit more these last couple weeks.

In an effort to move this proposed language forward, we are seeking your technical review and input on the draft language (attached) prior to a more complete or final draft for review by the general public. I would ask that you review and submit any comments/additions to me no later than Friday March 26th. If there are any questions please don't hesitate to contact me and I would be happy to walk you through the changes being prepared and I am also open to any suggestions you may have.

This is the first piece of updating sections of the County's Natural Resource LDR's, and our next section we are revising includes language updates for wildlife feeding and bear proof trash containers. The wildlife feeding regulations are taking a bit more time in an effort to partner with waste management and a comprehensive roll out of the pay as you throw program (if you want to chat more about this effort please give me a call).

Please submit any comments/questions/additions to attached draft by **March 26th** (track changes in this document is best), and I look forward to completing this step in the process.

Thank You,

Ryan Hostetter, AICP
Principal Long Range Planner
Planning & Building Services – Teton County
PO Box 3594
200 S. Willow Street
Jackson, WY 83001
(307) 732-8414

Correspondence, including e-mail, to and from employees of Teton County, in connection with the transaction of public business, is subject to the Wyoming Public Records Act and may be disclosed to third parties.

This electronic message contains information generated by the USDA solely for the intended recipients. Any unauthorized interception of this message or the use or disclosure of the information it contains may violate the law and subject the violator to civil or criminal penalties. If you believe you have received this message in error, please notify the sender and delete the email immediately.

Ryan Hostetter

From: Bob Hammond <bob.hammond@wyo.gov>
Sent: Friday, March 26, 2021 11:20 AM
To: Ryan Hostetter
Cc: Chris Neubecker; Rian Rooney; Kristi Malone
Subject: Re: Technical Review of new Wildlife Friendly Fencing Land Development Regulations (LDRs)

[**NOTICE:** This message originated outside of the Teton County's mail system -- **DO NOT CLICK** on **links** or open **attachments** unless you are sure the content is safe.]

Ryan,

Thank you for sending this information for our review. WYDOT fencing on WYDOTR projects is not under the jurisdiction of Teton County. WYDOT does have wildlife friendly fencing designs that we have developed and modified over the years with WY Game & Fish input. We also have wildlife exclusion fencing that is used in appropriate locations. WYDOT fencing is standardized for ease of bidding by contractors as well as ease of maintaining by our crews.

Thank you again for sharing.

Bob Hammond, P.E.
Resident Engineer
WYDOT - Jackson, WY
Direct - (307) 732-9602
Office - (307) 733-3665

On Fri, Mar 26, 2021 at 8:54 AM Ryan Hostetter <rhostetter@tetoncountywy.gov> wrote:

> Good Morning All,
>
> I have received a request to spend a bit more time with our technical review on this effort – If you can please get comments by **April 2nd** (for those that need it) I would appreciate it. I will go through all of your comments, and will provide an update on timing for future hearings once I see what type of comments I get back from everyone. Thank You,
>
> **Ryan Hostetter, AICP**
>
> Pronouns: She/Her/Hers
>
> Principal Long Range Planner

Planning & Building Services – Teton County

PO Box 3594

200 S. Willow Street

Jackson, WY 83001

(307) 732-8414

From: Ryan Hostetter
Sent: Thursday, March 11, 2021 8:32 AM
To: Ryan Hostetter <rhostetter@tetoncountywy.gov>
Cc: Chris Neubecker <cneubecker@tetoncountywy.gov>; Rian Rooney <rrooney@tetoncountywy.gov>; Kristi Malone <kmalone@tetoncountywy.gov>
Subject: Technical Review of new Wildlife Friendly Fencing Land Development Regulations (LDRs)

Agency Representatives and County Partners,

The Long Range Planning section is pleased to submit this first draft language which will update the Wildlife Friendly Fencing requirements of the County's LDRs (currently section 5.1.2 which can be found here). Much of this work has been perfected by partners in the community, including Roby Hurley who completed the lion's share of this effort early on (thanks to Roby!). While we were hoping to have this draft released for public review early March, however we took some extra time to vet the language with staff at the County a bit more these last couple weeks.

In an effort to move this proposed language forward, we are seeking your technical review and input on the draft language (attached) prior to a more complete or final draft for review by the general public. I would ask that you review and submit any comments/additions to me no later than Friday March 26th. If there are any questions please

don't hesitate to contact me and I would be happy to walk you through the changes being prepared and I am also open to any suggestions you may have.

This is the first piece of updating sections of the County's Natural Resource LDR's, and our next section we are revising includes language updates for wildlife feeding and bear proof trash containers. The wildlife feeding regulations are taking a bit more time in an effort to partner with waste management and a comprehensive roll out of the pay as you throw program (if you want to chat more about this effort please give me a call).

Please submit any comments/questions/additions to attached draft by **March 26th** (track changes in this document is best), and I look forward to completing this step in the process.

Thank You,

Ryan Hostetter, AICP

Principal Long Range Planner

Planning & Building Services – Teton County

PO Box 3594

200 S. Willow Street

Jackson, WY 83001

(307) 732-8414

Correspondence, including e-mail, to and from employees of Teton County, in connection with the transaction of public business, is subject to the Wyoming Public Records Act and may be disclosed to third parties.

E-Mail to and from me, in connection with the transaction of public business, is subject to the Wyoming Public Records Act and may be disclosed to third parties.

Ryan Hostetter

From: Anna DiSanto <annacdisanto@gmail.com>
Sent: Tuesday, March 16, 2021 7:28 PM
To: Ryan Hostetter
Subject: Re: Technical Review of new Wildlife Friendly Fencing Land Development Regulations (LDRs)
Attachments: Draft Fencing Update_acd.docx

Hi Ryan, thank you for sending this for review. I have attached a track-changes version with just one comment.

Thanks!

Anna

On Thu, Mar 11, 2021 at 8:31 AM Ryan Hostetter <rhostetter@tetoncountywy.gov> wrote:

> Agency Representatives and County Partners,
>
> The Long Range Planning section is pleased to submit this first draft language which will update the Wildlife Friendly Fencing requirements of the County's LDRs (currently section 5.1.2 which can be found here). Much of this work has been perfected by partners in the community, including Roby Hurley who completed the lion's share of this effort early on (thanks to Roby!). While we were hoping to have this draft released for public review early March, however we took some extra time to vet the language with staff at the County a bit more these last couple weeks.
>
> In an effort to move this proposed language forward, we are seeking your technical review and input on the draft language (attached) prior to a more complete or final draft for review by the general public. I would ask that you review and submit any comments/additions to me no later than Friday March 26th. If there are any questions please don't hesitate to contact me and I would be happy to walk you through the changes being prepared and I am also open to any suggestions you may have.
>
> This is the first piece of updating sections of the County's Natural Resource LDR's, and our next section we are revising includes language updates for wildlife feeding and bear proof trash containers. The wildlife feeding regulations are taking a bit more time in an effort to partner with waste management and a comprehensive roll out of the pay as you throw program (if you want to chat more about this effort please give me a call).
>
> Please submit any comments/questions/additions to attached draft by **March 26th** (track changes in this document is best), and I look forward to completing this step in the process.

Thank You,

Ryan Hostetter, AICP

Principal Long Range Planner

Planning & Building Services – Teton County

PO Box 3594

200 S. Willow Street

Jackson, WY 83001

(307) 732-8414

--

Anna C. DiSanto
Summit Environmental Solutions, Inc.
307-226-0328
www.summitenvsolutions.com

annacdisanto@gmail.com
anna@summitenvsolutions.com

Wildlife Friendly Fencing Amendment

~~Strikeouts~~**= delete**
Underline = add

5.1.2. Wildlife Friendly Fencing (_/_/21)

A. Findings

Fencing is a structural element that can create an impediment for wildlife movement, resulting in both injuries *and death* to wildlife and damage to the fencing. *The purpose of wildlife friendly fencing is to ease wildlife passage to the habitats that sustain them and reduce incidents of injury and mortality. Wildlife friendly fence allows wildlife to jump over and pass under easily, reduces the chance of entanglement, and may incorporate openings or wildlife passes. It also includes consideration of topography and placement, such as to allow free and safe passage around special purpose or barrier fencing.*

B. Applicability

New fences erected after September 12, 2006 shall comply with the standards of this Section.

~~If over 50% of the linear feet of an existing fence is replaced, the fence shall be considered "new" and shall abide by the standards of this Section. Except that the following shall be exempt from the provision of this Section:~~

~~1. Repair, or relocation of prior or existing fences associated with agricultural use meeting the standards for exemption in Section 6.1.3.B.; and~~ (see new sec. F)

~~2. Fences built for new riding arenas, as defined in these LDRs.~~ (see new sec. F)

1. Repair of legally non conforming fencing erected prior to September 12, 2006 that does not meet the standards of Sec. 5.1.2.C and D. is permissible under the following standards:

a. Repair of less than 10% of the total fence perimeter;
b. If more than 10% of the total fence perimeter is repaired, the repaired sections shall meet the standards of 5.1.2.C. and D; and
c. Approval of a Special Purpose Fence Permit

2. Exemptions

a. Fences associated with agricultural use on properties greater than 70 acres, meeting the standards for exemption in Section 6.1.3.B., and assessed as Agricultural by the Teton County Assessor;

b. *Fences built for new riding arenas, as defined in these LDRs; and*
c. *Fences erected for exclusionary purposes to protect hotwire around automatic trout feeders, apiaries, gardens, composting areas and landscaping and no larger than 60 linear feet in length per exclosure. See Sec. 6.4.9. Wildlife Feeding.*

C. Fencing Height

Fencing, for purposes other than livestock control, shall be no higher than 38 inches above the ground. Fencing for livestock control shall be no higher than ~~42~~ *40* inches above the ground. *These heights allow wild ungulates (deer, elk, moose) to jump over easily, including pregnant or stressed animals.* For both of the above fence types, spacing between the top two wires or top ~~pole/~~rail and adjacent wire shall be at least 12 inches. *A 12" gap has been shown to significantly reduce the possibility of ungulates entangling their hooves as they clear the fence.*

D. Materials and Design

Fencing materials and design shall comply with the following standards:

1. Wood (or similar material) top poles, and either wood rails or wire strands are permitted as horizontal elements in fencing. The wire strands shall be smooth or twisted wire. Barbed wires may be used in the middle strands, not including the top and bottom strands, when necessary to control livestock.

2. The required fencing design includes a top level of a wood (or similar material) pole rather than wire. The bottom rail or wire strand shall be at least ~~16~~ *18* inches above the ground. *This bottom height allows easier passage for pronghorn, young deer, elk and moose, and other medium-sized mammals, and smooth wire reduces injury.*

3. The spacing of fence posts shall be on 12-foot centers unless topography prohibits this spacing. The posts shall have extra height to allow for any necessary lower or raising of the top rail. Spacing of the second and third wire shall be evenly spaced. Spacing distances may vary from 7-8 inches depending on the height of the fence.

4. Parallel fencing, regardless of ownership, shall be avoided to the maximum amount feasible as to not create a small corridor wildlife can't escape. The spacing between parallel fencing shall be at least 30 feet.

5. The top level of a newly constructed fence shall be flagged immediately after construction. The flagging shall be ~~white~~ *a color recommended by Wy Game and Fish* and maintained for at least 1 year.

6. All exclusionary fencing shall demonstrate ability for wildlife to safely circumnavigate.

7. New buck and rail or buck and wire fencing is prohibited unless approved by the Planning Director through a Special Purpose Fencing Exemption. ~~When buck and rail fencing is necessary due to rocky or~~

~~wet soil, a portion of the fence shall be laid down or constructed to a lower height, not to exceed 38 inches, to allow wildlife movement.~~

E. Special Purpose Fencing

Notwithstanding the provisions of this Section, the Planning Director may exempt special purpose fencing from this Section, provided the fencing meets the below standards. *The applicant shall provide a written explanation for how the proposal qualifies for a special purpose fencing request based on the information in this section.*

EXAMPLE: Examples of special purpose fencing include fencing for a dog kennel, certain types of agricultural fencing (such as bull enclosure, pig pens, sheep enclosure, fencing to secure stored livestock feed, fencing for winter livestock feeding sites, and fencing for 4-H projects), securing a construction site, swimming pool enclosure, screening of refuse facilities, recycling containers, dumpsters, and small yard enclosure. *See Sec. 6.4.9. Wildlife Feeding.*

Commented [AD1]: Perhaps mitigation sites and conservation easement sites should be included in this list of special purpose fencing exemptions

1. Smallest area. The special purpose fencing shall encompass the smallest area necessary to achieve the purpose.

2. Specific design. Special purpose fencing is constructed for a particular use and requires a specific design to accomplish the purpose of the fence.

3. Height in yards. Special purpose fencing located in a street yard shall not exceed 4 feet in height. Special purpose fencing located in a side or rear yard shall not exceed 6 feet in height.

4. Setback. Special purpose fencing is not subject to a setback from property lines.

5. *Buck and rail fencing demonstrating necessity due to rocky or wet soil. A 10 foot gap in the fence shall be provided every 120 feet or constructed to a lower height, not to exceed 38 inches, to allow wildlife movement. All Buck and rail fencing permitted under this section shall comply with the design requirements of 5.1.2 D 1-6.*

6. The Planning Director may consider other mitigation practices demonstrating free passage such as drop rails, open gates and other practices recommended by Wyoming Game and Fish.

7. All standards for natural resource protection as recommended by the Code Compliance Office and Planning Director shall be recorded in the permit.

Ryan Hostetter

From: lorna miller <lornamiller@live.com>
Sent: Friday, April 2, 2021 2:40 PM
To: Ryan Hostetter
Subject: fence comments 2 B. Applicability

Comments re B. Applicability

1. Repair of legally non conforming fencing erected prior to September 12, 2006 that does not meet the standards of Sec. 5.1.2.C and D. is permissible under the following standards:

1. *Repair of less than 10% of the total fence perimeter;*

1. *If more than 10% of the total fence perimeter is repaired, the repaired sections shall meet the standards of 5.1.2.C. and D; and*

1. *Approval of a Special Purpose Fence Permit*

It a very good thing to eliminate the 50% exemption rule because that has been a giant loophole and has been heavily and widely abused .
I think it's important to look at the history of this section.
When then Commissioner Leland Christensen introduced this amendment to the fencing regulations back in 2006, his stated reason for this exemption on repair and replace was for the express purpose of accommodating working agricultural interests, most especially for the sheep ranchers in Alta. At that time, agriculture was subject to these regulations. Now that agriculture is totally exempt from these regulations, I have to ask why any exemption on repair and replace is included in this draft.

The devil is always in the details and it will end up being a complicated and a very time consuming enforcement challenge to monitor the 10%. Most people will interpret this as a 10% repair regardless of when the fence was built and whether or not it is legally non conforming. The absence of a way of tracking fences makes it extremely difficult to prove nonconforming or otherwise .
The *intent* of fencing regulations when they were first introduced and prior to 2006 was to acknowledge that fencing has a finite lifetime and that as fences reached the end of that functional life time,15 or 20 or more years , the stock of fencing in Teton County would gradually be replaced with fencing that was more suitable for wildlife permeability. Due to the 50% exemption and lack of enforcement generally, this gradual and organic change towards wildlife friendlier fencing (WFF)has been only marginally successful.

Some questions that come to mind regarding calculation of total perimeter: " Total perimeter fence ": does this mean length of the perimeter of the enclosure or field or pasture to be repaired or is it the entire perimeter of the ownership ?
What constitutes "repair" and when does that morph into replacement?

Could the 10% be interpreted as 10% of the posts or 10% of other materials. Can 10% be “repaired “annually over 10 years or more?.

if a residential property owner owns two or three residential lots which have not been combined into one parcel, is the total perimeter fence calculated on the entire ownership or on the individual parcel where the fence repair may be contemplated or on the field or paddock in question ?

if the fencing that is going to be repaired is an interior or cross fence, is the 10% still calculated using the perimeter fence? Or could it be calculated on the length of the side of the pasture being repaired. A number of fences that are a serious barrier to movement of wildlife are interior or cross fences.

Again since the County does not keep track of fencing in a manner that can be easily tracked, attempting to administer any exemption will easily become an enforcement challenge (nightmare)which is very time consuming for staff
Keep in mind that there is already a stock of residential fences that were built **after** 2006 but which ignored the wildlife friendlier fencing standards. These fences will not have a 10% repair loophole. This will be very confusing for people and will be easily exploited as a loophole.

Given that the original justification for exemptions was to accommodate working agricultural ranches and they are now exempt from regulation, I would like to suggest that there be no exemption for repairs and that the regulations be returned to the original intent which was that over the next X number of years as existing fences reach the end of their functional lifespan, they will gradually and organically be replaced with fences that meet the standards for wildlife permeability .

In fact, if repairs are required to be at the WFF standards, overtime this will increase the permeability of the old stock of non conforming fences it would be a real plus for wildlife and the vision of the comprehensive plan.

Ryan Hostetter

From: lorna miller <lornamiller@live.com>
Sent: Friday, April 2, 2021 4:38 PM
To: Ryan Hostetter
Subject: Fence 3 comment special purpose fence permit

Fence **3 special purpose fence permit**

I would suggest that rather than using the Miscellaneous Planning Request (MSC) Application. please consider designing a permit application that is specifically intended for fence applications.
For a layperson who does not know how to navigate the Land Development Regulations nor understand the nuances of what may or may not be required, the Miscellaneous Planning Request (MSC) Application. is intimidating .
The application form should be fit for purpose, easy to understand and not complicated by asking the applicant to decide whether or not the other categories apply to them too. It is confusing. It is likely the homeowner who will fill out a fence application, not a planning, design or engineering professional.

Is there a fee for the application?
Give clear directions, with sketches and explanations of how to find the property on the GIS map system.
Sketches of the fences with dimensions as required by the regulations; and include the actual regulation section.
Trying to find the current version of the LDR's can be frustrating if you do not know what you are looking for.
Give an example of the site plan you want to see.
Have as much visual information as possible.

Use the application as an educational tool.

What is a worm fence, is it permitted under a special permit application?
What are the dimensions of the buckrail fence including the width and the preferred modified design.

How topography can affect the actual height of the fence.

If the material is not described in the standards, is it not permitted unless reviewed under Special Purpose Fence application.?

What is not permitted?
Eg woven wire, fences topped with barbs or pointed spikes, such as decorative iron fences, (The spike fences do exist: Storage Stables, a residence in Wilson)

A very important question regarding Special Purpose Applications:
My understanding is that these applications at least for fences are reviewed by the planner of the day in a rather pro forma manner. (I think I mentioned this under the landscape fencing comment) I think

it's really important that there be a thorough review of these special applications If the approval is pro forma without looking at the fences in context then we will not have accomplished what I think these regulations are intended to do .

Ryan Hostetter

From: lorna miller <lornamiller@live.com>
Sent: Friday, April 2, 2021 5:20 PM
To: Ryan Hostetter
Subject: Draft regs one last thought

Dear Ryan

Thanks for the opportunity to comment on the draft fencing regs. I did it in the the previously sent a narrative form because I had so many different points that I wanted to include for your consideration.

.

I have thought for years that in an ideal world there would be a very easy straight forward online permit system that would enable the County to keep track of what fences are being constructed each year and their location. As it stands right now there's no way to keep track of it all. And because the County relies on neighborhood complaints to monitor fence construction, a lot of information is lost each year and a lot of fences are constructed that don't comply with existing regulations. This makes the work of the compliance officer extremely time-consuming and challenging. Such a permit system would also be a great educational tool because people would have the opportunity to read information about the importance of appropriate fencing for wildlife permeability and to understand the pros and cons of different kinds of fencing. In 2021, most people are accustomed to filling in online forms for all sorts of reasons. If I had a magic wand, I'd give you a totally up to date IT system with a fence permit process included!

I did have one other question. The draft is talking about fencing as a structural element that can affect wildlife permeability. However, there are other structural elements that perform the same function or a similar function to fencing and they are I'm wondering if this if they should be addressed at this time too : for example, walls. Such an element has not been in great demand thus far but with the change in demographics and the number of people moving to Jackson Hole who can likely afford to build a high wall for privacy or security one has to wonder if this should be addressed now. Is this the place to do so? Or is it already addressed somewhere else?

I hope you have/had a great weekend and thanks again for the opportunity to comment

Lorna

Lorna Miller

Ryan Hostetter

From: melvinreel@yahoo.com
Sent: Saturday, June 19, 2021 5:54 AM
To: Ryan Hostetter
Subject: Wildlife fencing

Hi. I am not a resident of teton county Wyoming, but rather live in the foothills in teton county Idaho. Because i am NOT effected by your decision regarding fencing i am sharing my unbiased opinion.
We have highland cattle that are fenced in by a buck and rail (some call it a jack pole) fence. The fence height averages over 42 inches. We also have seen moose , elk, deer and foxes going through our property regularly. Our fences do not impede the movement of wildlife, but a fence lower than 42 inches would not contain cattle that were determined to get out.
Just an fyi as you weigh your decisions.

Ryan Hostetter

From: KELLY LOCKHART <kellylockhart@me.com>
Sent: Friday, March 26, 2021 11:25 AM
To: Ryan Hostetter
Cc: Chris Neubecker; Rian Rooney; Kristi Malone; Board Of County Commissioners; Jim Magagna
Subject: Re: Technical Review of new Wildlife Friendly Fencing Land Development Regulations (LDRs)
Attachments: Draft Fencing Update.docx

Good Morning,
The purpose of most fences is to control animals. Note the 8 foot high fence around the elk refuge, or the new fences on south hi-way 89, or the fences and corrals all over the valley. Please let the people who own the livestock be responsible for the fencing to control their animals they know more about what is necessary to do that than Teton County.
This is an ill-conceived regulation. If you want to have a regulation that speaks to ornamental back yard fences or dog runs knock yourself out. The State of Wyoming has statutes that speaks to Livestock fencing.
My recommendation is that you eliminate any regulation that has to do with the control of domestic livestock. Fencing is not your expertise and is not an area you should be worried about. The State of Wyoming can handle that for you.

Regards,

Kelly Lockhart
(307) 730-9155
kellylockhart@me.com

On Mar 26, 2021, at 8:54 AM, Ryan Hostetter <rhostetter@tetoncountywy.gov> wrote:

Good Morning All,

I have received a request to spend a bit more time with our technical review on this effort – If you can please get comments by **April 2nd**(for those that need it) I would appreciate it. I will go through all of your comments, and will provide an update on timing for future hearings once I see what type of comments I get back from everyone. Thank You,

Ryan Hostetter, AICP
Pronouns: She/Her/Hers
Principal Long Range Planner
Planning & Building Services – Teton County
PO Box 3594
200 S. Willow Street
Jackson, WY 83001
(307) 732-8414

From: Ryan Hostetter
Sent: Thursday, March 11, 2021 8:32 AM
To: Ryan Hostetter <rhostetter@tetoncountywy.gov>
Cc: Chris Neubecker <cneubecker@tetoncountywy.gov>; Rian Rooney <rrooney@tetoncountywy.gov>; Kristi Malone <kmalone@tetoncountywy.gov>
Subject: Technical Review of new Wildlife Friendly Fencing Land Development Regulations (LDRs)

Agency Representatives and County Partners,

The Long Range Planning section is pleased to submit this first draft language which will update the Wildlife Friendly Fencing requirements of the County's LDRs (currently section 5.1.2 which can be foundhere). Much of this work has been perfected by partners in the community, including Roby Hurley who completed the lion's share of this effort early on (thanks to Roby!). While we were hoping to have this draft released for public review early March, however we took some extra time to vet the language with staff at the County a bit more these last couple weeks.

In an effort to move this proposed language forward, we are seeking your technical review and input on the draft language (attached) prior to a more complete or final draft for review by the general public. I would ask that you review and submit any comments/additions to me no later than Friday March 26th. If there are any questions please don't hesitate to contact me and I would be happy to walk you through the changes being prepared and I am also open to any suggestions you may have.

This is the first piece of updating sections of the County's Natural Resource LDR's, and our next section we are revising includes language updates for wildlife feeding and bear proof trash containers. The wildlife feeding regulations are taking a bit more time in an effort to partner with waste management and a comprehensive roll out of the pay as you throw program (if you want to chat more about this effort please give me a call).

Please submit any comments/questions/additions to attached draft by**March 26th** (track changes in this document is best), and I look forward to completing this step in the process.

Thank You,

Ryan Hostetter, AICP
Principal Long Range Planner

Planning & Building Services – Teton County
PO Box 3594
200 S. Willow Street
Jackson, WY 83001
(307) 732-8414

Ryan Hostetter

From: Richard Bloom <richbloom.jh@gmail.com>
Sent: Thursday, March 11, 2021 9:48 AM
To: Ryan Hostetter
Subject: Re: Technical Review of new Wildlife Friendly Fencing Land Development Regulations (LDRs)

[**NOTICE:** This message originated outside of the Teton County's mail system -- **DO NOT CLICK** on **links** or open **attachments** unless you are sure the content is safe.]

Ryan - I am sure this has been vetted with the wildlife and agency experts - so I will defer to them.

Two items:

1. The following section could be tightened as it stood out to me to be rather subjective - while most all of the other sections are very objective.

Since fencing can not talk - how will the exclusionary fencing demonstrate its ability for wildlife to safely circumnavigate? Is there any objective - qualitative - quantitative additions that could be made to this section? Can you add that the Planning Director has the power to interpret this section?

I think this is an important section to enhance so no one tries to game a way around it.

> *6. All exclusionary fencing shall demonstrate ability for wildlife to safely circumnavigate.*

2. I assume per my previous conversation and email with you - that you have a plan to preview this release to the agricultural interests before a public release - so there is not again an over reaction based on incomplete or incorrect information?

Thanks - Rich

> On Mar 11, 2021, at 8:31 AM, Ryan Hostetter <rhostetter@tetoncountywy.gov> wrote:
>
> Agency Representatives and County Partners,
>
> The Long Range Planning section is pleased to submit this first draft language which will update the Wildlife Friendly Fencing requirements of the County's LDRs (currently section 5.1.2 which can be found here). Much of this work has been perfected by partners in the community, including Roby Hurley who completed the lion's share of this effort early on (thanks to Roby!). While we were hoping to have this draft released for public review early March, however we took some extra time to vet the language with staff at the County a bit more these last couple weeks.
>
> In an effort to move this proposed language forward, we are seeking your technical review and input on the draft language (attached) prior to a more complete or final draft for review by the general public. I would ask that you review and submit any comments/additions to me no later than Friday March 26th. If there are any questions please don't hesitate to contact me and I would be happy to walk you through the changes being prepared and I am also open to any suggestions you may have.

This is the first piece of updating sections of the County's Natural Resource LDR's, and our next section we are revising includes language updates for wildlife feeding and bear proof trash containers. The wildlife feeding regulations are taking a bit more time in an effort to partner with waste management and a comprehensive roll out of the pay as you throw program (if you want to chat more about this effort please give me a call).

Please submit any comments/questions/additions to attached draft by **March 26th** (track changes in this document is best), and I look forward to completing this step in the process.

Thank You,

Ryan Hostetter, AICP

Principal Long Range Planner
Planning & Building Services – Teton County
PO Box 3594
200 S. Willow Street
Jackson, WY 83001
(307) 732-8414

<image001.jpg>

 <Draft Fencing Update.docx>

Ryan Hostetter

From: Robb Sgroi <robb@tetonconservation.org>
Sent: Friday, April 2, 2021 2:05 PM
To: Ryan Hostetter
Subject: RE: Technical Review of new Wildlife Friendly Fencing Land Development Regulations (LDRs)
Attachments: L_FenceLDRamendment_04022021.pdf

[**NOTICE:** This message originated outside of the Teton County's mail system -- **DO NOT CLICK** on **links** or open **attachments** unless you are sure the content is safe.]

Good afternoon Ryan. Thank you for the opportunity to provide comment on the draft LDR amendment for fencing. We have had a high level of discussion between supervisors and staff on this subject, in order to provide comment. Comments are attached. Please note TCD has committed to developing diagram(s), which are forthcoming, likely next week. If any clarification is needed on any comments, please don't hesitate to give a call. Thank you.

Robb Sgroi
Land Resources Specialist | Teton Conservation District
Office: (307) 733-2110 | Cell: (307) 413-4474
420 W. Pearl Ave. | PO Box 1070 | Jackson, WY 83001

Certified Wildfire Mitigation Specialist
ISA Certified Arborist. RM-8201A

From: Ryan Hostetter <rhostetter@tetoncountywy.gov>
Sent: Thursday, March 11, 2021 8:32 AM
To: Ryan Hostetter <rhostetter@tetoncountywy.gov>
Cc: Chris Neubecker <cneubecker@tetoncountywy.gov>; Rian Rooney <rrooney@tetoncountywy.gov>; Kristi Malone <kmalone@tetoncountywy.gov>
Subject: Technical Review of new Wildlife Friendly Fencing Land Development Regulations (LDRs)

Agency Representatives and County Partners,

The Long Range Planning section is pleased to submit this first draft language which will update the Wildlife Friendly Fencing requirements of the County's LDRs (currently section 5.1.2 which can be found here). Much of this work has been perfected by partners in the community, including Roby Hurley who completed the lion's share of this effort early on (thanks to Roby!). While we were hoping to have this draft released for public review early March, however we took some extra time to vet the language with staff at the County a bit more these last couple weeks.

In an effort to move this proposed language forward, we are seeking your technical review and input on the draft language (attached) prior to a more complete or final draft for review by the general public. I would ask that you review and submit any comments/additions to me no later than Friday March 26th. If there are any questions please don't

hesitate to contact me and I would be happy to walk you through the changes being prepared and I am also open to any suggestions you may have.

This is the first piece of updating sections of the County's Natural Resource LDR's, and our next section we are revising includes language updates for wildlife feeding and bear proof trash containers. The wildlife feeding regulations are taking a bit more time in an effort to partner with waste management and a comprehensive roll out of the pay as you throw program (if you want to chat more about this effort please give me a call).

Please submit any comments/questions/additions to attached draft by **March 26th** (track changes in this document is best), and I look forward to completing this step in the process.

Thank You,

Ryan Hostetter, AICP

Principal Long Range Planner
Planning & Building Services – Teton County
PO Box 3594
200 S. Willow Street
Jackson, WY 83001
(307) 732-8414

Ryan Hostetter

From: Robb Sgroi <robb@tetonconservation.org>
Sent: Wednesday, April 14, 2021 4:29 PM
To: Ryan Hostetter
Subject: FW: Technical Review of new Wildlife Friendly Fencing Land Development Regulations (LDRs)
Attachments: FenceGuideP20_example.pdf; FenceImage2.pdf; M_LDRfence_04142021.pdf

[**NOTICE:** This message originated outside of the Teton County's mail system -- **DO NOT CLICK** on **links** or open **attachments** unless you are sure the content is safe.]

Hello Ryan. Hope you are well.
TCD offered to provide diagrams to illustrate concepts of the amended LDR for fencing. Attached are two images that could be utilized (first and second attachments). Also attached are the suggested captions, and credit/citation information (third attachment). The captions are lengthy. If I can be of future help to abbreviate those, please don't hesitate to reach out.
Thank you.

From: Robb Sgroi
Sent: Friday, April 2, 2021 2:05 PM
To: rhostetter@tetoncountywy.gov
Subject: RE: Technical Review of new Wildlife Friendly Fencing Land Development Regulations (LDRs)

Good afternoon Ryan. Thank you for the opportunity to provide comment on the draft LDR amendment for fencing. We have had a high level of discussion between supervisors and staff on this subject, in order to provide comment. Comments are attached. Please note TCD has committed to developing diagram(s), which are forthcoming, likely next week. If any clarification is needed on any comments, please don't hesitate to give a call. Thank you.

Robb Sgroi
Land Resources Specialist | Teton Conservation District
Office: (307) 733-2110 | Cell: (307) 413-4474
420 W. Pearl Ave. | PO Box 1070 | Jackson, WY 83001
WWW BLOG
Certified Wildfire Mitigation Specialist
ISA Certified Arborist. RM-8201A

From: Ryan Hostetter <rhostetter@tetoncountywy.gov>
Sent: Thursday, March 11, 2021 8:32 AM
To: Ryan Hostetter <rhostetter@tetoncountywy.gov>
Cc: Chris Neubecker <cneubecker@tetoncountywy.gov>; Rian Rooney <rrooney@tetoncountywy.gov>; Kristi Malone <kmalone@tetoncountywy.gov>
Subject: Technical Review of new Wildlife Friendly Fencing Land Development Regulations (LDRs)

Agency Representatives and County Partners,

The Long Range Planning section is pleased to submit this first draft language which will update the Wildlife Friendly Fencing requirements of the County's LDRs (currently section 5.1.2 which can be found here). Much of this work has been perfected by partners in the community, including Roby Hurley who completed the lion's share of this effort early on (thanks to Roby!). While we were hoping to have this draft released for public review early March, however we took some extra time to vet the language with staff at the County a bit more these last couple weeks.

In an effort to move this proposed language forward, we are seeking your technical review and input on the draft language (attached) prior to a more complete or final draft for review by the general public. I would ask that you review and submit any comments/additions to me no later than Friday March 26th. If there are any questions please don't hesitate to contact me and I would be happy to walk you through the changes being prepared and I am also open to any suggestions you may have.

This is the first piece of updating sections of the County's Natural Resource LDR's, and our next section we are revising includes language updates for wildlife feeding and bear proof trash containers. The wildlife feeding regulations are taking a bit more time in an effort to partner with waste management and a comprehensive roll out of the pay as you throw program (if you want to chat more about this effort please give me a call).

Please submit any comments/questions/additions to attached draft by **March 26th** (track changes in this document is best), and I look forward to completing this step in the process.

Thank You,

Ryan Hostetter, AICP

Principal Long Range Planner
Planning & Building Services – Teton County
PO Box 3594
200 S. Willow Street
Jackson, WY 83001
(307) 732-8414

Ryan Hostetter

From: Scott Pierson <spierson842@live.com>
Sent: Thursday, March 11, 2021 4:08 PM
To: Ryan Hostetter
Subject: RE: Technical Review of new Wildlife Friendly Fencing Land Development Regulations (LDRs)

Ryan,
Thanks, got it.

Scott
Spierson842@live.com
307.413.8522

From: Ryan Hostetter <rhostetter@tetoncountywy.gov>
Sent: Thursday, March 11, 2021 8:32 AM
To: Ryan Hostetter <rhostetter@tetoncountywy.gov>
Cc: Chris Neubecker <cneubecker@tetoncountywy.gov>; Rian Rooney <rrooney@tetoncountywy.gov>; Kristi Malone <kmalone@tetoncountywy.gov>
Subject: Technical Review of new Wildlife Friendly Fencing Land Development Regulations (LDRs)

Agency Representatives and County Partners,

The Long Range Planning section is pleased to submit this first draft language which will update the Wildlife Friendly Fencing requirements of the County's LDRs (currently section 5.1.2 which can be found here). Much of this work has been perfected by partners in the community, including Roby Hurley who completed the lion's share of this effort early on (thanks to Roby!). While we were hoping to have this draft released for public review early March, however we took some extra time to vet the language with staff at the County a bit more these last couple weeks.

In an effort to move this proposed language forward, we are seeking your technical review and input on the draft language (attached) prior to a more complete or final draft for review by the general public. I would ask that you review and submit any comments/additions to me no later than Friday March 26th. If there are any questions please don't hesitate to contact me and I would be happy to walk you through the changes being prepared and I am also open to any suggestions you may have.

This is the first piece of updating sections of the County's Natural Resource LDR's, and our next section we are revising includes language updates for wildlife feeding and bear proof trash containers. The wildlife feeding regulations are taking a bit more time in an effort to partner with waste management and a comprehensive roll out of the pay as you throw program (if you want to chat more about this effort please give me a call).

Please submit any comments/questions/additions to attached draft by **March 26th** (track changes in this document is best), and I look forward to completing this step in the process.

Thank You,

Ryan Hostetter, AICP
Principal Long Range Planner
Planning & Building Services – Teton County
PO Box 3594
200 S. Willow Street
Jackson, WY 83001
(307) 732-8414

Ryan Hostetter

From: William Best <wjbest295@gmail.com>
Sent: Monday, June 21, 2021 10:02 AM
To: Ryan Hostetter
Subject: Comment on Wildlife Friendly Fencing
Attachments: PDF Fencing PC Draft 2021-06.pdf; Untitled attachment 00003.htm

Dear Teton County Planning Department:

Thank you for the opportunity to comment on these proposed changes to the fencing regulations. I have commented previously (in 2017) in regards to the reduction of the maximum height of fencing to 42 inches, and would like to incorporate those comments into this response.

We have four horses on our property, which consists of a total of 6 acres (in two lots), north of town. Approximately 2/3 of the property is fenced with 48 inch high, three rail wood fencing, originally constructed in the 1990's. It has been repaired since the original fence was installed. In fact, we have taken down some of the fencing (and mesh screening) that encircled the full six acres when we bought the property in 2010.

Thus, my reading of the attached modification is that our fence is fully compliant, but mainly because it was constructed in the 1990's. However, I would like to make some comments regarding the proposed regulations.

- **First and foremost, the 48 inch height is absolutely necessary to contain some horses. We have one horse who has jumped the 48 inch fence a couple of times. I can imagine that some horses who are better trained and/or taller, would easily jump the 48 inch height if frightened. Thus, the 42 inch fencing is inadequate. Again, while this does not impact us due to the grandfather clause, it may impact future properties in Teton County.**

- **At a 38 or 42 inch height, horses could easily hop over the fence. Lower fences would encourage horses to more regularly attempt a jump, which can lead to injury.**

- **Other wildlife can easily jump our 48 inch fence. We regularly have deer, moose, and elk in our pastures, which are surrounded by 48 inch fencing. These tend to be the adults. Smaller animals can make their way through or under the rails. We also have 12" wide "pass-throughs" mainly intended for humans that the small animals can use. Horses cannot make it through these openings.**

- **In the spring, we regularly have some of the Kelly Buffalo herd wander into our neighborhood. These animals also can jump the 48 inch fence…we have seen them do it. Thankfully, they jump it rather than push their way through, which they could easily do at their weight of 2000 pounds**

Finally, there are a number of inconsistencies between the "redline" version (attachment) of the regulations and those proposed as final (as shown below). These should be corrected, as it is confusing, and subject to misinterpretation during enforcement.

Thanks you for your consideration of this matter.

If possible, I will attend the July 12 meeting of the planning commission to answer any further questions.

Bill

W.J.Best
wjbest295@gmail.com
Cell: 847-420-4031
Home: 307-733-4835

5.1.2. Wildlife Friendly Fencing (1/1/15)

A. Findings

Fencing is a structural element that can create an impediment for wildlife movement, resulting in both injuries to wildlife and damage to the fencing.

B. Applicability

New fences erected after September 12, 2006 shall comply with the standards of this Section. If over 50% of the linear feet of an existing fence is replaced, the fence shall be considered "new" and shall abide by the standards of this Section. Except that the following shall be exempt from the provision of this Section:

1. Repair, or relocation of prior or existing agricultural fences; and
2. Fences built for new riding arenas, as defined in these LDRs.

C. Fencing Height

Fencing, for purposes other than livestock control, shall be no higher than 38 inches above the ground. Fencing for livestock control shall be no higher than 42 inches above the ground. For both of the above fence types, spacing between the top two wires or top pole/rail and adjacent wire shall be at least 12 inches. 5-6 Teton County Land Development Regulations

5.1.2. Wildlife Friendly Fencing (1/1/15) Article 5. Physical Development Standards Applicable in All Zones | Div. 5.1. General Environmental Standards

D. Materials and Design

Fencing materials and design shall comply with the following standards:

1. Wood (or similar material) top poles, and either wood rails or wire strands are permitted as horizontal elements in fencing. The wire strands shall be smooth or twisted wire. Barbed wires may be used in the middle strands, not including the top and bottom strands, when necessary to control livestock.

2. The required fencing design includes a top level of a wood (or similar material) pole rather than wire. The bottom rail or wire strand shall be at least 16 inches above the ground.

3. The spacing of fence posts shall be on 12-foot centers unless topography prohibits this spacing. The posts shall have extra height to allow for any necessary lower or raising of the top rail. Spacing of the second and third wire

shall be evenly spaced. Spacing distances may vary from 7-8 inches depending on the height of the fence.

4. Buck and rail fencing shall be avoided. When buck and rail fencing is necessary due to rocky soil, a portion of the fence shall be laid down or constructed to a lower height, not to exceed 38 inches, to allow wildlife movement.

5. The top level of a newly constructed fence shall be flagged immediately after construction. The flagging shall be white and maintained for at least 1 year

Ryan Hostetter

From: Susan Johnson <susan@sjplanningsolutions.com>
Sent: Tuesday, July 6, 2021 4:09 PM
To: Ryan Hostetter
Subject: Comments on Fencing Amendment

Hi Ryan,
Thank you for your work on the proposed Wildlife Friendly Fencing amendment. I appreciate the opportunity to comment on the amendment language. My comments on the Draft 6/23/2021 Amendment are as follows:

- Section 5.1.2.B.2.a: recommend changing “properties” to “sites” as most of the large agricultural landowners have split their ranches up into 35-acre tracts.
- Section 5.1.2.B.2.a.i & ii: same comment as above, change “Properties” to “Sites”
- Section 5.1.2.B.2.a.iii: same comment above, change “property” to “site”
- Because Wyoming is a fence-out state, and subdivisions next to ranch land are required to fence out livestock, and adjacent properties need to be able to fence livestock out of their property, please consider adding the following exemption, 5.1.2.B.2.b: Fencing on properties that do not meet the definition of agriculture, but are adjacent to a bona-fide agricultural operation or a federal or state grazing allotment, where the property owner would like to or are required to construct livestock fencing along the perimeter of the property with said adjacency to keep livestock off of their land, pursuant to Wyoming State Statute 11-28-106.
- Section 5.1.2.B.2.b: Are existing riding arenas not exempt? They should be permitted to replace existing fencing. Perhaps clarify that with, “Fences built for new or existing riding arenas;”
- Section 5.1.2.B.2.c: recommend replacing the language “ornamental landscaping areas directly adjacent to structures” with “ornamental landscaping within 200 feet of a building” keeping alignment with the landscaping standards per LDR Section 5.5.4.B.2.

Thank you for your consideration of the above comments. Feel free to contact me with any questions or if you need further clarification.
Best Regards,
Susan

Susan Johnson | SJ Planning Solutions
PO Box 523 | 60 E. Simpson Ave
Jackson, WY 83001
307.413.2694

July 9, 2021

Planning and Building Department
Teton County Wyoming
200 S Willow Street
Jackson, WY 83001

Dear Teton County Planning and Building Department and Commissioners,

Thank you for the opportunity to review the Wildlife Friendly Fence Amendment draft per the Teton County Land Development Regulation's update. We are grateful that the County is amending the current regulation as we also feel there is room for modification. The changes made in the draft amendment have improved the code greatly. In this letter we offer further suggestions for improvement.

Our small community is experiencing exponential growth and visitation. In 2012, we adopted a visionary Comprehensive Plan to address development and our community's values. In order to achieve the vision set by the Comprehensive Plan, we need County Land Development Regulations that provide clear, warranted, and unambiguously stated development guidelines.

Within the technical LDR descriptions, we believe the purpose, scope, and ecosystem benefit should be described within the Wildlife Friendly Fencing section A. Findings. In that vein, we provide slight yet important language modification suggestions in the below addendum to this letter (suggested edits to the proposed amendment AMD2021-0003 are in track changes). It is important to outline the safety and mobility of wildlife and human-wildlife coexistence accurately, as we foresee profound changes in the human population in Jackson into the future. Our community's Comprehensive Plan vision statement is to "preserve and protect the area's ecosystem in order to ensure a healthy environment, community, and economy for current and future generations." Getting code 'right' now helps us achieve this goal. It also ensures this amendment will stay relevant until the next official review of the Land Development Regulations.

Additional specific concerns are:

- Section 5.1.2.B.1.a: Repair of less than 10% of the total linear fence perimeter of each enclosure being repaired.

The way this is currently written, fence owners could replace 10% of their fence every month (or week!) and still be within code. Ideally, we prefer that fence replacement or repairs must fit within the wildlife friendly fence code unless exempted by the Planning Director. If repair or replacement cost is being incurred, those costs should go toward becoming compliant and protecting wildlife. If the county feels it is necessary to keep the percentage language, then we suggest a 5-year timeline for 10% fence replacement to remove the temptation to slip past regulations that are meant to protect wildlife.

- Section 5.1.2.B.2.b: Fences built for new riding arenas

Fence types that are required for the safety of riders are generally not permeable to wildlife movement. We are concerned that blanket exemptions of riding arenas outside of the NRO would be problematic to wildlife mobility. In addition to consideration of the NRO, we suggest that riding arenas need exemption from the Planning Director after also evaluating the property and adjacent lands for wildlife movement

paths that are not captured in the NRO. If this amended exemption remains as-is, we suggest that language such as “the riding arena shall be located outside the NRO.”

- Section 5.1.2.B.2.c: Fences erected for exclusionary purposes of small areas

Please include chicken yards in the “such as” list and describe ornamental landscaping in its own section (e.g., “d”) to elaborate on details. We feel it is reasonable to put a small fence around ornamental plants (individual tree, shrub, or small planter box) when they are first installed, but these fences should only exclude a single plant in a manner that does not inhibit wildlife movement and should be removed post establishment. Please consider establishing standards for the type of exclusionary fence materials that may enclose ornamental plants so as to reduce wildlife entanglement.

- Section 5.1.2.D.: Special Purpose Fencing

Ideally, buck and rail and worm fence would not be so blatantly demonstrated in the LDR as it leads landowners to consider some of the least-ideal fences based on aesthetics alone without due consideration for wildlife movement. We suggest removing worm fencing as an acceptable exemption on rocky or wet soil. This type of fence is purely installed for aesthetics and is a complete barrier for wildlife calves and fawns. We understand that the draft code requires a 10-foot gap in the fence every 120 feet, but if there is no real containment value for livestock or pets with worm fencing, then we see no need to approve it within the County. In addition, the buck and rail fence shown in the drawing as a possible fence design that could be exempted by the Planning Director is a wildlife unfriendly design and we suggest that if the county feels the need to include examples of buck and rail fences, they consider a design demonstrated in the Wyoming Landowners Handbook that does not have a rail in the cradle of the bucks and does not have a rub rail, but rather cross rails on the interior (see page 22 of the Handbook).

Thank you for taking the time to consider these important modifications that will provide further protections for wildlife movement in a complicated landscape. We provided additional language modifications throughout the document to try to make the language and code unmistakable.

We appreciate the work you do to conserve our ecosystem.

Sincerely,

Renee Seidler

Renee Seidler
Executive Director
Jackson Hole Wildlife Foundation

Chelsea Carson

Chelsea Carson
Conservation Program Manager
Jackson Hole Conservation Alliance

Lorna Miller

Lorna Miller
Teton County Resident

Chris Colligan
Wildlife Program Coordinator
Greater Yellowstone Coalition

Wildlife ~~Friendly~~ Friendlier Fencing Amendment AMD2021-0003

~~Strikeouts~~= **delete**
Underline = add

5.1.2. Wildlife ~~Friendly~~ Friendlier Fencing

A. Findings

Fencing is a structural element that can create an impediment for wildlife movement, resulting in both injuries and death to wildlife, separation of wildlife herds and populations that can reduce genetic viability, and damage to the fencing. The purpose of wildlife ~~friendly~~ friendlier fencing is to ease wildlife passage to the habitats that sustain them and reduce incidents of injury and mortality, ensuring a healthy environment, community, and economy for current and future generations. Wildlife ~~friendly~~ friendlier fencing allows wildlife to jump over and pass under more easily, reduces the chance of entanglement, and may incorporate openings or wildlife passes. It also includes consideration of topography and placement, such as to allow free and safe passage along traditional wildlife travel routes and around special purpose barrier fencing.

B. Applicability

~~New fences erected after September 12, 2006 shall comply with the standards of this Section.~~

~~If over 50% of the linear feet of an existing fence is replaced, the fence shall be considered "new" and shall abide by the standards of this Section. Except that the following shall be exempt from the provision of this Section:~~

~~1. Repair, or relocation of prior or existing fences associated with agricultural use meeting the standards for exemption in Section 6.1.3.B.; and~~

~~2. Fences built for new riding arenas, as defined in these LDRs.~~

1. Repair or replacement of legally established nonconforming fencing ~~(including fencing erected prior to September 12, 2006)~~ that does not meet the standards of Sec. 5.1.2. is permissible under the following standard~~s~~:

   ~~a. Repair of less than 10% of the total linear fence perimeter of each enclosure being repaired;~~ (Or, if not removed, add language "Repair of less than 10% every 5 years…")

   ~~b.~~a. Approval of a Special Purpose Fence Permit as outlined in Sec. 5.1.2. D.

   ~~c.~~b. ~~Any repair of existing buck and rail or worm fencing shall receive approval of a Special Purpose Fence Permit and comply with the design requirements of 5.1.2 C.~~

2. Exemptions for Wildlife Friendly Fencing outlined in Sec. 5.1.2 :

   a. Fences associated with agricultural use on properties meeting all of the following:

i. Properties of 70 acres or more and meeting the standards in Section 6.1.3.B.;.and;

ii. Properties ~~containing~~ under agriculture use as assessed by the Teton County Assessor; and

iii. Exempt fencing per this section is used only for agricultural purposes on the property as defined herein.

b. ~~2.~~ Fences built for new riding arenas outside of the NRO and not in wildlife movement corridors not captured by the NRO, ~~as defined in these LDRs~~;

c. Fences erected for wildlife exclusionary purposes of small areas not to exceed 0.25 acres ~~to protect such as~~including ~~hotwire~~ electric fence around automatic trout feeders, apiaries, vegetable gardens, composting areas, haystacks, livestockfeed storage, chicken yards, or for other conservation purposes. ~~and~~ Other conservation fences not meeting these standards will require application for a special purpose exemption.

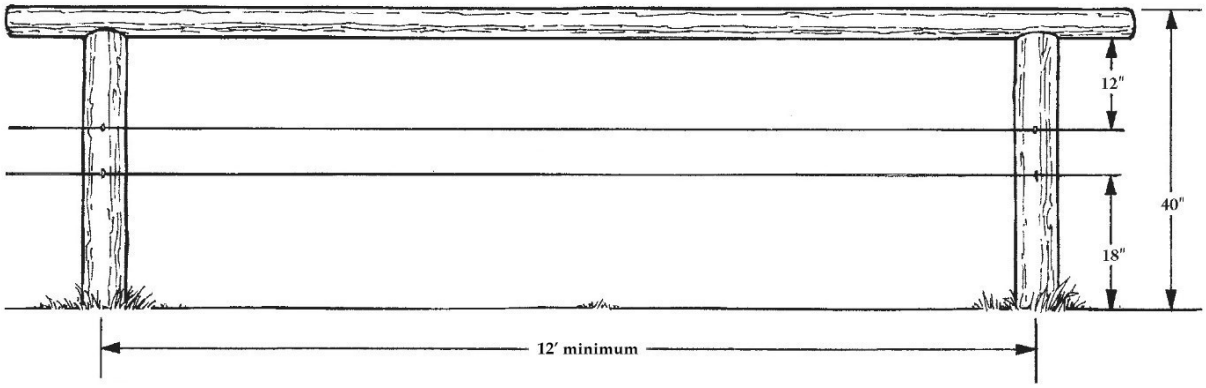
~~c.~~d. Newly installed ornamental landscaping ~~areas directly adjacent to structures~~where fence is only applied to an individual tree, shrub or small planter box in a manner that does not inhibit wildlife movement. Fence around ornamental landscaping will be removed after plant establishment.

C. Fencing ~~Height~~Design

Fencing materials and design shall comply with the following standards:

1. Measurements: The top rail ~~Fencing,~~ for purposes other than livestock control, shall be no higher than 38 inches above the ground for aesthetic fences. ~~Fencing~~ The top rail for livestock control shall be no higher than ~~42~~ *40* inches above the ground. There shall be no more than three horizontal strands/rails permitted. These heights allow wild ungulates (deer, elk, and moose, ~~antelope~~) to jump over more easily. ~~For both of the above fence types~~ Spacing between the top ~~two wires or top~~ pole/rail and adjacent wire shall be at least 12 inches. The distance between the bottom wire/rail and the ground shall be no less than 18". This height allows pronghorn, juvenile ungulates, and small mammals to navigate under fencing more easily. The spacing of fence posts shall be a minimum of 12-foot centers unless topography prohibits this spacing. The posts may have extraheight to allow for any necessary lowering or raising of the top rail.

Include an image of the 38" example fence here too:



D. ~~Materials and Design~~

2. Materials: Wood (or similar highly visible solid material) top poles, and either wood rails or wire strands are permitted as horizontal elements in fencing, however wire shall not be used as the top most horizontal strand. When using wire, the middle or bottom wire strands shall be smooth or twisted wire. Barbed wire may be used in the middle strand when necessary to control livestock. Barbed wire is prohibited in the top and bottom strands of the fence.

~~2. The required fencing design includes a top level of a wood (or similar material) pole rather than wire. The bottom rail or wire strand shall be at least 16~~ 18 ~~inches above the ground. This bottom height allows easier passage for pronghorn, young deer, elk and moose, and other medium-sized mammals, and smooth wire reduces injury.~~

~~3. The spacing of fence posts shall be on 12-foot centers unless topography prohibits this spacing. The posts shall have extra height to allow for any necessary lower or raising of the top rail. Spacing of the second and third wire shall be evenly spaced. Spacing distances may vary from 7-8 inches depending on the height of the fence~~.

3. Double Fences: The spacing between parallel fencing (regardless of ownership) shall be at least 30 feet as to not create a trap for wildlife.
4. ~~The top level of a newly constructed fence shall be flagged immediately after construction. The flagging shall be white and maintained for at least 1 year~~.
5. ~~All exclusionary fencing shall demonstrate ability for wildlife to safely circumnavigate~~
6. New buck and rail ~~or,~~or buck and wire~~, and worm~~ fencing is prohibited unless approved by the Planning Director through a Special Purpose Fencing Exemption. Worm fence, fence with decorative spikes, and walls are prohibited.~~When buck and rail fencing is necessary due to rocky~~ or wet ~~soil, a portion of the fence shall be laid down or constructed to alower height, not to exceed 38 inches, to allow wildlife movement.~~
7. Land disturbance and vegetation clearing for fence installation and repair shall be the minimum necessary to install fence posts and allow installation of fence materials. Any land disturbance shall comply with the requirements of Div. 5.7. of the Land Development Regulations.
8. Fencing adjacent to a swale, gully, or other topographic feature shall be designed to allow wildlife to safely cross. In these instances, the fence shall require a minimum 8 foot clear area between the fence and the animal landing/takeoff area. (This description is unclear)
9. Fences shall not be placed in such a manner as to block the natural funneling of wildlife through canyons and areas such as swales, gullies, ridges, canals, streams, springs, rivers or other topographic features.

D~~E~~. Special Purpose Fencing

Notwithstanding the provisions of this Section, the Planning Director may exempt individual special purpose fencing from this Section, provided the fencing meets the below standards. The applicant shall provide a written explanation for how the proposal qualifies for a special purpose fencing request based on the information in this section.

EXAMPLE: Examples of special purpose fencing within a non-qualifying agricultural property include fencing for a dog kennel, certain types of agricultural fencing (such as bull enclosure, pig pens, sheep enclosure, fencing to secure stored livestock feed, fencing for winter livestock feeding sites, and fencing for 4-H projects), fencing for mitigation sites, fencing for restoration areas, fencing around ornamental plants, securing a construction site, swimming pool enclosure, screening of refuse facilities, recycling containers, dumpsters, and small yardenclosure. See Sec. 5.1.3 Wildlife Feeding.

1. Smallest area. The special purpose fencing shall encompass the smallest area necessary to achieve the purpose.

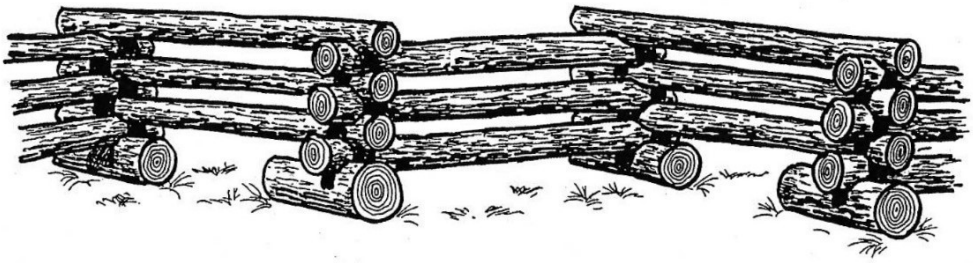
2. Specific design. The applicant shall demonstrate that the Special purpose fencing is constructed for a particular use and requires a specific design to accomplish the purpose of the fence.

3. Height in yards. Special purpose fencing located in a street yard shall not exceed 4 feet in height. Special purpose fencing located in a side or rear yard shall not exceed 6 feet in height.

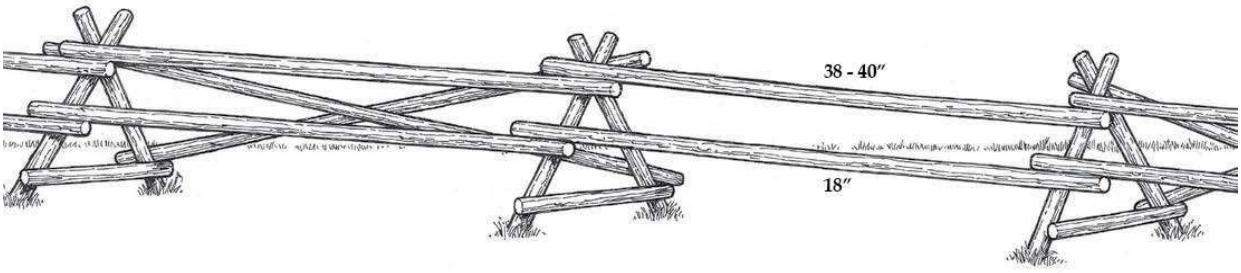
4. Setback. Special purpose fencing ~~is~~ may not be subject to a setback from property lines.

5. Rocky or wet soil. Buck and rail ~~or worm~~ fencing may be approved when the applicant demonstrates necessity due to rocky or wet soil. A 10 foot gap in the fence shall be provided every 120 feet or constructed to a lower height, not to exceed 38 inches, to allow wildlife movement. All buck and rail ~~or worm~~ fencing permitted under this section shall comply with the design requirements of Section 5.1.2 C above and will not include a cradle or interior rub rail but rather will have crossed rails in alternate fence sections ("Wyoming Landowner's Handbook to Fencesand Wildlife: Practical Tips for Fencing with Wildlife in Mind").

Delete worm fencing; it should not be a viable option in Teton County as it is purely installed for aesthetics, is a complete barrier for wildlife calves and fawns, and does not effectively contain livestock.



Worm Fencing



Buck and Rail Fencing

6. The Planning Director may consider other mitigation practices demonstrating improved wildlife passage such as drop down horizontal elements, open gates and other practices recommended by Wyoming Game and Fish Department or as included in the "Wyoming Landowner's Handbook to Fences and Wildlife: Practical Tips for Fencing with Wildlife in Mind" by Christine Paige, 2015 Wyoming Community Foundation, Laramie.

7. All standards for natural resource protection as recommended by the Planning Director shall be recorded in the permit.

Ryan Hostetter

From: Ryan Hostetter
Sent: Friday, July 9, 2021 4:03 PM
To: Britnee Nelson
Subject: FW: comment regarding proposed fencing regulation amendment
Attachments: IMG_4719.JPG; ATT00001.txt; Screen Shot 2021-07-08 at 10.42.08 PM.png; Screen Shot 2021-07-09 at 3.34.28 PM.png

Please forward to the Planning Commissioners. Thank You!

Ryan Hostetter, AICP
Pronouns: She/Her/Hers
Principal Long Range Planner
Planning & Building Services – Teton County
PO Box 3594
200 S. Willow Street
Jackson, WY 83001
(307) 732-8414

From: lorna miller <lornamiller@live.com>
Sent: Friday, July 9, 2021 3:52 PM
To: Ryan Hostetter <rhostetter@tetoncountywy.gov>
Subject: comment regarding proposed fencing regulation amendment

[**NOTICE:** This message originated outside of the Teton County's mail system -- **DO NOT CLICK** on **links** or open **attachments** unless you are sure the content is safe.]

Dear Ryan,

Thank you for all the hard work you have put into addressing the complexities of fencing in the valley.
I had a couple of comments regarding worm fences and also the exclusionary landscaping fences that are being used to protect tree plantings.
The sketch of the worm fence in the draft suggests that there is a space between the bottom rail and the ground. The local fences are not constructed that way and the bottom rail either does touch the ground or almost does so. See

images above of the fence at JH Golf and Tennis. The 18" height is almost at the top of the second rail. These fences are *completely* impermeable.

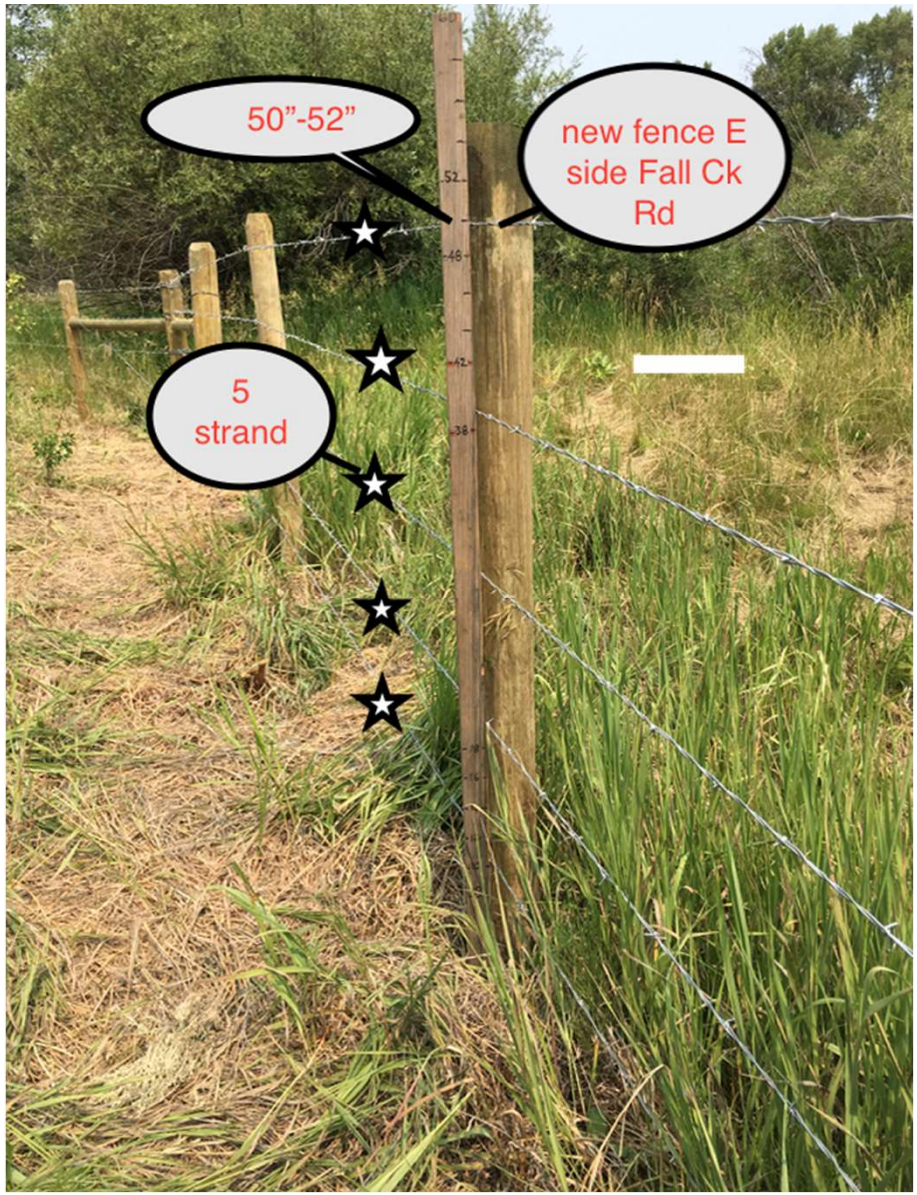
The third photo is of an exclusionary landscaping fence(approx 6 ft tall) that extends for almost 1200 ft along the west side of S Park Loop Road with no openings for wildlife passage. Please consider applying the requirement to have at least a 10 foot passageway for wildlife every 120ft to these exclusionary fences in the Special Purpose Permit Section.

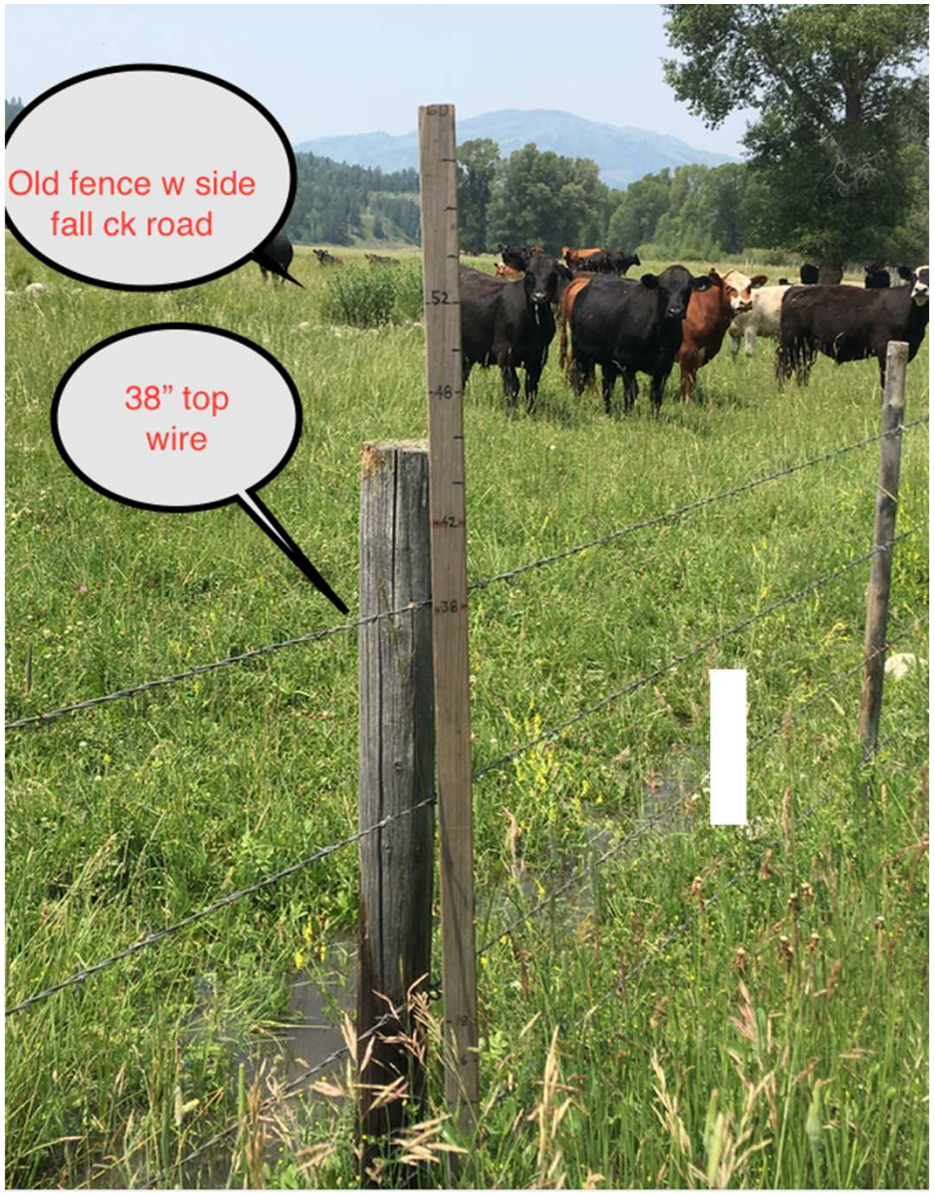
Thank you for the opportunity to comment

Lorna Miller

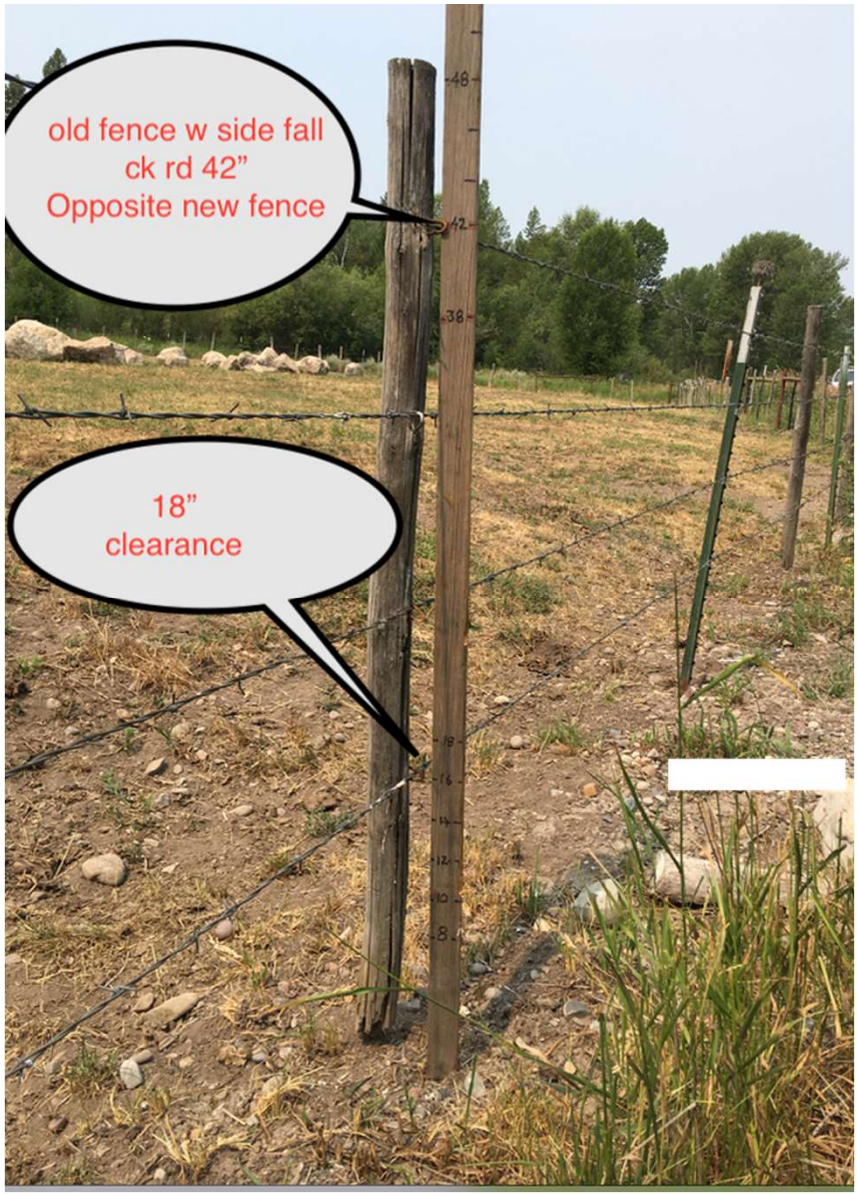

52
48
42
38
19
16
14
12
10


18
inches


50”-52”
new fence E side Fall Ck Rd
5 strand


Old fence w side fall ck road
38” top wire


old fence west side of
Fall Ck Rd Almost 18”
clearance for elk calves
(opposite new fence)
18
16
14
12
10
8


old fence w side fall
ck rd 42”
Opposite new fence
18”
clearance