

**LIVING ON A SMALL ACREAGE
IN WYOMING**

IRRIGATION



**STATE OF WYOMING
STATE BOARD OF CONTROL**

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IRRIGATION

Introduction

Many of the most desirable homesite locations in Wyoming are made that way by the presence of irrigation. From wooded and meadow bottomlands to open fields on the benchlands found more distant from the streams and rivers, irrigation provides the country amenity most often sought by owners of small acreages—the ability to raise crops and livestock. To retiring ranchers and farmers who formerly operated hundreds or thousands of acres, a small irrigated acreage is a manageable compact version of what they know, and gives hours of enjoyment in being able to apply their knowledge in an intensive manner. However, to a first-time landowner, the complexities that irrigation adds to land ownership can be an unexpected source of frustration and trouble that may dampen the enjoyment of country living. This pamphlet is intended to assist owners of small acreages in understanding the science of irrigation in Wyoming and minimizing the potentials for encountering those difficulties.

Background

Early residents of Wyoming, particularly those immigrating from the eastern United States, soon learned that the high desert, arid climate of this state created vastly different precipitation conditions from what they were accustomed to. Instead of being able to plant their seeds in the spring and let Mother Nature do the rest as they had done in areas of 30 or more inches of natural moisture, they found that they would somehow need to supplement the 6 to 10 inches that naturally fell on their lands in Wyoming if they were to complete a crop. Instead of working to drain and rid their eastern lands of the water that fell excess to their crop needs, they found a need to bring more water onto their powder-dry lands to meet the full crop demand. To do this, they employed the techniques perfected in Europe thousands of years earlier—constructing ditches and canals to lead the water out of the streams, rivers, springs or wells and onto their lands to apply to their crops: irrigation.

A system of order for water diversion was developed, with its basis being a Constitutional declaration that all the water in the state was the property of the state, and those who desired to use some of it would secure documentary permission from the State Engineer. Most early settling in the state occurred initially in close proximity to the live streams and rivers, under the provisions of the 1862 Homestead Act, in land units of 160 acres as prescribed by that act. The flat and productive portions of these river bottom land units were selected by the landowners for application to the State Engineer for water rights, and supply ditches were built from the stream source to deliver irrigation water to the land. More sophisticated engineering technology allowed the construction of large canals to carry water greater and greater distances from the stream sources and out onto flat benches of sagebrush land. These benches were also homesteaded in 160-acre units and became the large farm projects found in all parts of the state today. These ranches and farms secured their water rights and were put under irrigation primarily in the late 1800s and early 1900s, and continued to be operated as large land units into the 1970s when mineral production booms in some areas of the state created a need for a growth in housing. Since that time, and as Wyoming has become a destination for people looking for a home in the wide open spaces, hundreds of acres of irrigated land have been broken up into smaller vestiges of those acreages, creating a vastly different pattern of irrigation and ditch use than when one rancher or farmer irrigated those large land areas. That broken pattern requires new knowledge and cooperation to facilitate continued enjoyment of the historic irrigation scheme.

Facts about Irrigation on Small Acreages

1. Not all small acreages have the right to irrigate, even though an irrigation ditch may run through the property. Such a ditch may be the sole property of someone else and its existence and purpose must be respected. Water rights are only on the land if they were specifically permitted or adjudicated there by the state to an earlier landowner. This must be determined by researching the subdivision plat, if one exists, or, if the information is not there, by contacting the State Engineer's Office.
2. Water rights in Wyoming are attached to the land by legal land description (quarter-quarter, section, township and range), generally not by residential subdivision lot description. Anyone seeking water rights information must provide legal land description information for the parcel of interest. It has happened that an uninformed subdivider may have subdivided a larger irrigated field into smaller parcels, but represents that he/she somehow held back the water rights on one or more of the parcels and didn't convey them with the land. This cannot be done by the subdivider alone under Wyoming law, and the potential purchaser of land under that sort of representation should check with the State Engineer's Office to see if an official recordation of that nature was made.
3. The irrigation water rights on most small acreages are generally a small part of a larger water right shared by neighboring small acreages. Those other acreages are generally equal in their right of priority and access to irrigation water, so that no one small acreage has any sort of advantage over neighboring small acreages—all are treated equally. Although many buyers of country property do so for the privacy, it must be recognized that water, by its transient nature moves from property to property, and thus, while landowners may wish to be isolated private enclaves, they usually can't take that approach to irrigation water use. Landowners who share a ditch or pipeline system with neighboring properties simply have to deal with their co-owners, and anyone who takes a contrary position will likely be the cause of unnecessary water difficulties.
4. Ditches or pipelines which bring water to small acreages are generally the common property of all parcels which are served with water from that facility. As such, the responsibility for the complete and satisfactory maintenance of those ditches or pipelines falls on each user (co-owner) of water from that facility, based on the relative proportionate water right acreage of each parcel to the total water right acreage served. The same is true for waste ditches and drain ditches. A companion pamphlet dealing with the more technical aspects of ditch easements and rights-of-way is also available from the State Engineer's Office/Board of Control.

Questions sometimes arise as to who has authority to actually go to the stream source or main canal and manipulate the diversion gate to turn water into, or out of, a water delivery system. The answer varies somewhat from area to area, but it must be recognized that the stream or river supply is always under the administration jurisdiction of the local water commissioner or other local State Engineer official. That being the case, it is critical that any individual or entity desiring to turn water from a natural watercourse into an irrigation delivery system must first seek permission from that local authority.

Once the diverters have notified their water commissioner of their desire, the commissioner may allow them to open, adjust or set the diversion gate themselves, or he/she may do it for them. In any case, those inexperienced in performing this function should generally not attempt it on their own because of the potential for damage or injury to the system by turning too much water in at one time. Any flooding or other damage caused by such an action may make the perpetrator liable.

If the small acreage is located within an irrigation district or ditch company, and is served by a lateral from the main ditch or canal, it is not necessary to contact the state water commissioner for permission to turn water in. That contact must be made with the ditch officials discussed in 7, 8 and 9 below.

When more than one acreage is served by a diversion system, it is crucial that all users participate in decisions as to when and how much water will be turned on and off so that all users can prepare accordingly. Often everyone will agree that an "old-timer" on the system can make those decisions and manage the diversion gate. All users should agree that only one contact person will be responsible for making such diversion gate adjustments, and the rest will refrain from creating trouble by making adjustments themselves.

5. Adequate maintenance of irrigation water delivery systems often requires the use of farm equipment which, unfortunately, is seldom among the possessions brought to small acreages by new landowners. Tractors, ditchers, blades, loader buckets, backhoes, and weed cutters are all implements that, at some time, will likely be needed to maintain an irrigation system, and in areas where there is no access to such equipment, water and ditch difficulties will eventually arise. Keeping ditches clean so that water can freely move into and out of the area may be the single best way to avoid water problems overall.

Owners of small acreages need to recognize when such equipment is needed to keep their irrigation system operational, and either rent the equipment themselves, or contract the work collectively at the time the work is needed rather than let the system disintegrate and cause problems.

It follows, obviously, that the requirement for ditch maintenance includes the right of other ditch owners to enter any property with reasonable equipment to clean and otherwise maintain existing ditches. Communication with any landowner over whose land ditch cleaning is needed is a must.

6. No co-owner in an irrigation system has the right to expect other users to provide water delivery, system operation, or system maintenance for him or her. Since the first ditch was built in Wyoming, irrigation has had to be a co-operative enterprise, and its success in any area where more than one landowner irrigates, depends entirely on each and every co-user of the water and delivery system contributing his or her proportionate share of the work and capital necessary to maintain and operate all facets of the system. Wyoming law identifies penalties for any user(s) who fails to do his, her, or their, proportionate share of ditch responsibility. See Appendix A for a method of determining "proportionate share."

7. Many small-acreage tracts lie within the boundaries of organized irrigation districts. An irrigation district is a court-established assessment district which is organized for making water available to the lands which have water rights within its boundaries, and usually consists of a large diversion canal with numerous smaller distribution ditches, called laterals, leading water from the main canal to the various individual parcels with water rights. Such districts levy an annual assessment fee through the County assessor to all the landowners, and employ ditch managers and ditch riders who operate the main canal delivery system and some of the major laterals, but who generally refrain from managing and dividing water among small acreages. That duty falls to the co-owners as described in #6 above, just as it formerly fell to the single landowner who irrigated the larger acreage before it was broken into smaller acreages. Owners of small acreages within irrigation districts are obligated to find out who are their district officials and what is the process for receiving water from them. Most district officials and boards require that when there are more than one individual small acreage parcels being irrigated from the same lateral, such as in a subdivision, the landowners collectively appoint one spokesman to communicate with the district, rather than to expect district officials to attempt to work with, and appease, each lot owner. Subdivided areas are authorized to form Homeowners Associations or other loose organizations within a district or company to create their own rules or bylaws for handling their water in their own small area without outside oversight.
8. Some small-acreage tracts lie within the boundaries of ditch companies or other miscellaneous corporations. These organizations are generally smaller and less formal than the irrigation districts described in #7 above, but their purpose is much the same—to organize all the various users under the common water supply system. These organizations often elect a board of directors and employ managers and/or ditch riders, but their assessments are handled internally, rather than through the County assessor. Like districts, Company officials are authorized to enter properties within the company boundaries while individual landowners cannot. Owners of small acreages with water rights served by these organizations are obligated to find out who are their corporate officials and what are their procedures.
9. Other small acreages are not part of any organized group of irrigators, but instead may simply share a private ditch or pipeline with a few other irrigated acreages. In those situations, the users of that ditch are, again, all obligated to stand the operation and maintenance of all matters connected to the ditch in order to keep it operational, and coordinate their own mutually-agreed ditch activities. As with Homeowner's Associations, they have the ability to assess themselves and establish rules to help maintain order among themselves.
10. Once the small landowner has figured out that he does indeed have water rights, whether or not those water rights are in priority, who to contact about having water turned on or off (if applicable), and what ditches or facilities to use to get it to his property, he will need to determine whether the delivery system is set up so that he can have water full time or at least whenever he wants it, or if he is obligated to share water with neighbors on either a proportionate share or rotational basis. Some irrigation systems are designed to allow each co-owner of a common supply to have a small proportionate share of water all the time, with the distribution system consisting of a ditch or pipeline that has valves or divider boxes that automatically allot the proper share to each tract. Which system is in place will be determined by talking with

neighboring landowners.

More commonly, because the legal appropriation of water is so small for small acreages, the distribution system is designed to allow the users to combine their individual allocations to create a larger volume and then rotate that volume from one acreage to the next in a sequence that provides water to each tract on a regular and timely basis. Procedures for establishing such a rotation are found in Appendix B of this pamphlet.

It has happened that some co-owners in a privately-owned, non-company irrigation system may want to turn water into the system, but other owners don't want the water on at that time. Similarly, there may be times after the irrigation season has started when some co-owners desire to turn the main supply off, but others need it to stay on. With luck, the system will have been originally built to accommodate each user's needs individually so that those who want water on, or off, can have what they need without affecting their co-owners. If such is not the case, the users should immediately get together and attempt to determine what problem needs to be solved to allow each user to enjoy his or her portion of the water supply, and then do it. The general rule in a non-district or non-company ditch is that no user, or group of users, has the right to deny other co-owners their water unless an unpreventable injury is occurring, or unless someone is attempting to take water in violation of a rotation that all parties are engaged in.

11. In all cases, water in open channels only runs downhill. This seems so obvious as to go without saying, but the lay of the land may be deceiving to the naked eye and many problems on small acreages are caused by a water user trying to push water in a direction that is not downhill. Often, land may slope downhill in more than one direction and it will take surveying equipment or observation of water running over the land to determine the slope that will dictate water flow.

Open, unlined ditches originally constructed to carry irrigation water to the land were surveyed on the slope (or grade) most suited to the lay of the land, generally with around 1/10 of a foot of elevation drop per 100 feet of ditch length. Much steeper ditch slopes can create erosive water velocities and may eventually ruin the ditch by downcutting or sidecutting, while flatter ditch slopes cause water velocities to be so low that water seeps out of the ditch through its banks, silt drops out of suspension causing ditch clogging, and weeds and grass proliferate in the ditch causing the need for frequent cleaning.

These are the reasons the original ditches were surveyed into their original locations at their original grades, and why new landowners may find themselves with a myriad of different types of water problems if they fill in or attempt to re-route an old ditch found on their small acreage. Often, the old historic location of a ditch, surveyed in years ago at the time the water right was first put to use, is the only location that can be used to transport water from the source to the points of use, and thus those locations must be rigidly preserved.

This is particularly true if the ditch is used to deliver water to other irrigated property further on down the ditch. Changing the location of a ditch on your property in a manner which inhibits or eliminates the ability of a down-ditch neighbor to receive his or her water is illegal and will be the source of considerable difficulty among neighbors.

It has happened that the boundaries created when a small acreage was parceled out of a larger field, were such that there was no place to build a house, yard and driveway without a historic ditch being in the way, or that the preferred homesite is right on the spot where a ditch already exists. Sometimes in these instances one or more culverts in the ditches will allow the desired utilization of the property, and in other cases, placing the entire ditch in an underground pipeline may be necessary to provide a large enough unobstructed area for the house and yard. The general rule for changing a ditch or its location is that a landowner may do what he needs to do on his own property as long as what he does has no impact on his neighbors' ability to get their historic amount of water at the historic point of entrance or exit to their properties. Any activity of this nature that leaves a neighbor's ability to get (or get rid of) his water diminished in quantity or location will leave the person creating the problem liable for damages. The only satisfactory way to avoid this situation is to contact the neighbor prior to any work and get his or her input on the proposed change(s).

12. Irrigation on small acreages, the same as on any other acreage, often generates "by-products" in the form of waste or runoff water from the surface of the land, and/or seep or subsurface water. Runoff water is that which is not consumed by the crop or soil during the irrigation process and runs off the land in quantities sufficient to require conveyance facilities to keep it confined.

Each individual who uses water to irrigate is responsible for caring, or making arrangements for downstream neighbors to care, for his or her runoff water. It is unacceptable for any irrigator to generate runoff water and then cast it onto neighboring property in a diffuse or unconfined manner, unless the neighbor has agreed to accept it in that way, and even then, the upper irrigator might be held liable for damages such water might cause. Conversely, it is also illegal for a downstream landowner to attempt to stop or divert or cast back properly confined runoff water from an uphill neighboring property. Such water has a natural propensity and right to flow downhill to its outlet back to a natural watercourse. [*Aqua currit et debet currere solebat*—"water runs, and ought to run as it is accustomed to run"].] If the small acreage tract is part of a subdivision platted after 1981, the original subdivider was required by law to establish runoff catch-ditches on the downhill boundary of each lot to prevent surface water from one lot running uncontrolled onto an adjacent lot. If those ditches have not been cleaned or maintained regularly, difficulties may arise which necessitate such maintenance. Once again, every irrigator whose runoff water enters a common ditch is fully responsible for his or her proportionate share of the maintenance or liability incurred from introducing water into that ditch, from the time it leaves his/her property until it enters a natural waterway or constructed drain which is under the maintenance responsibility of some other entity, such as a drainage district.

13. Seep water is that water which arises on the land from under the surface, generally creating springs or boggy spots, often in unlikely or undesirable locations. The source of such water is sometimes difficult to determine, but nearly always can be traced to an up-gradient water supply where the head pressure, or simple gravity, pushes water unseen below ground level through permeable soil until the path of least resistance for that water is up to the ground surface and the water then emerges above-ground, or "daylights" into excavated ditches or other openings such as well pits or basements.

Leaky ditches, pipelines, well casings, canals, ponds and reservoirs can all be sources of seep water, as can natural groundwater aquifers, streams and rivers. Additionally,

the continued application of irrigation water on a field or pasture over a long period of time may create a saturated subsoil, the head pressure in which may be sufficient to force seep water to the ground surface, sometimes some distance away from the actual field.

Seep water may spring from the ground in quantities great enough to create flowing water on the soil surface, or it may only create a wet and boggy area where water sits and which stays wet a good portion of the time, but from which water does not flow.

The soil-water relationships that create seepy conditions are complex and generally not easily or cheaply remedied. Buyers of small acreages are well-advised to study the potential property carefully for signs of bogginess. If such is apparent but other amenities encourage purchase of the property anyway, the buyer needs to be advised to avoid building houses, barns, roads, etc. in the low spots. Even if they appear fairly dry in the winter and early spring, such low spots may become wet and swampy at other times of the year and the new small acreage landowner will seek to go looking for someone to blame for water in his basement or his impassable road. It is noted that blame for these types of seepage problems is often not assignable because of the complex of natural conditions that contribute, and thus the concept of *caveat emptor* ("let the buyer beware") is extremely appropriate for seepage problem situations. Because of those complex relationships, it nearly always takes an extensive investigation by technical personnel to pinpoint the source of seep water, such investigation often being an expensive undertaking, which still may not result in conclusive assignation of blame.

The small acreage irrigator is advised that construction of small ponds and reservoirs on upslope areas has been identified as one of the activities that most often generates seepage problems.

Construction of such ponds in areas where houses and properties are fairly close together should not be undertaken without having first determined that the soil into which the pond is to be built is absolutely impermeable, or, if it is not, provisions made for lining the pond with an impermeable material before any water is stored. If seepage damage can be traced to a poorly constructed pond or ditch, it is likely the owner of that facility may be found liable through civil proceedings.

14. The digging and construction of drain ditches or buried drains have often been the remedy for unwanted seep or high water table water in the soil. These facilities are constructed in areas where soils are saturated, and their purpose is to create a conduit of negative pressure at some depth in the soil that draws water laterally out of the soil into a collector and disposes of it to a down-gradient watercourse. Properly constructed drains are extremely effective for drying out surface soils and have been installed in all parts of the state during the past 90 years with excellent results.

Some small acreages may already be the beneficiary of existing drains, and others may be in need of the same. The USDA Natural Resources Conservation Service (NRCS) is the authoritative federal agency in drainage of lands and should be consulted when new drainage is desired.

Maintenance of drains is the same as for other ditches as described in #4 above. Any irrigator whose land is benefited by a drain is responsible for contributing his or her

proportionate share of the work and capital necessary to keep the drain operational, whether it is an open drain ditch or a buried drain. If the small acreage is located within the boundaries of an organized Irrigation or Drainage District, the district may have that drain on their list of facilities maintained by the district and, in that case, the small acreage landowner may be relieved of that duty. However, there are often private drains within the boundaries of such a district over which the district officers may accept no authority and, in those cases, maintenance duties will be on those whose lands benefit from the drain.

A clogged or undermaintained drain will prevent proper evacuation of water from the soil with the result being water in basements, crawl spaces, barrow pits and other low areas, while cleaning the drain will net almost immediate results by lowering the water table and disposing of the water.

15. Often, small acreage landowners will perceive opportunities on their properties that entail developing additional water use out of a wasteway or drain on their (or a neighboring) property, putting additional new land under irrigation using a pump out of an existing creek, ditch, or drain, developing a spring for livestock water, drilling a well, etc. Wyoming law requires that any new use of water on the land will nearly always require a permit and/or authorization by the State Engineer's Office or Board of Control. While those offices will not design or engineer such projects, they can advise of the proper procedures to follow, and should be contacted before initiating the desired work. Developing water use without a valid permit is not only illegal, but delays the priority date ultimately assigned to a new water right.
16. Problems of property damage created by the topics discussed in this brochure invite the application of concepts of civil law—the law of private rights, having their resolution in the retention of attorneys and recourse in civil court. Water officials or engineers from either the State Engineer's Office or the NRCS are not empowered or authorized to represent either party in a dispute over the concepts described herein and likely will defend only their own work in the performance of their official duties.

APPENDIX A

DETERMINATION OF PROPORTIONATE SHARE OF PERSONAL RESPONSIBILITY IN A SHARED SYSTEM

Proportionate share assigned to each individual in a shared irrigation system is nothing more than a determination of how much each user is responsible for or entitled to in relation to the whole. For example, if there are four subdivision lots, all of equal water right acreage size with all acres entitled to water from the same ditch, each lot is obviously obligated for a 1/4 share of the cost of cleaning or otherwise maintaining the supply ditch, waste ditch or drains, and entitled to 1/4 of the water. If only three of the four lots have water rights, but those three are all of equal size, the obvious proportionate share for each would be 1/3 of the total, and the fourth lot would have no obligation because it receives no benefits from the system.

Mathematical Formula:

$$\text{Share (\%)} = \frac{\text{Total acres owned by one user that benefits from the facility}}{\text{Total acres owned by everyone that benefits from the facility}} \times 100$$

Example: Suppose a certain ditch serves water to 36 total acres of land and Bob is the owner of 5 of those acres. What is Bob's proportionate share of the total water allocated to the 36 acres?

$$\text{Bob's share} = \frac{\text{Bob's acres}}{\text{total acres}} \times 100$$

$$\text{Bob's share} = \frac{5}{36} \times 100 = 13.9\%$$

Thus, Bob gets 13.9% of the water, and pays 13.9% of the costs of facility maintenance.

APPENDIX B

ESTABLISHING A WATER USE ROTATION SCHEME

Wyoming law allows the establishment of rotations to maximize the beneficial use of a collective water supply and lays out procedures for legalizing such a scheme. A rotation allows a limited supply of water to be kept together in one volume (rather than being divided into several smaller volumes), and then moved from one water user to the next in a manner that allows all users to have a turn at the full amount on a regularly scheduled basis. For example, suppose 10 equal-sized subdivision lots are collectively entitled to use 0.5 cfs (224 gpm) of water for irrigation. Splitting the water up so that each user gets the proper proportionate share would allow each lot only 22.4 gpm, which would generally be considered too small an amount to effectively irrigate. By allowing each irrigator to use the full 0.5 cfs for one day each and then moving that full 0.5 cfs to the next neighboring irrigator, a larger, more efficient volume of water can be use by each lot once every ten days. Rotations are generally set up so that the water returns to each user every 10 to 14 days as that seems to be an adequate frequency for most Wyoming irrigation. Appendix A's determination of proportionate share of total benefited ownership can be used to establish a rotation where the acreages sharing in the common supply are not of equal size.

APPENDIX C

SOME WATER UNIT CONVERSIONS

Legal duty of water	=	1 cfs / 70 acres
1 cubic foot/second (cfs)	=	448.8 gal / min
1 cfs running 24 hrs	=	1.98 acre feet
1 cfs	=	0.646 million gallons / day
1 acre-foot	=	43,560 cubic feet
3/4" garden hose delivery	=	approx. 5 gpm

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