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YELLOWSTONE BISON AND AN IOWA EXPERIMENT

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Tall Grass Bison (of Iowa) consists of myself, the on-the-farm manager and animal behaviorist, Susan Chin, Wildlife Biologist, and son Scott Jackson – with Bill Jackson, the academic and first person to teach a bison management course at a 4-year college in the U.S.A., providing professional and technical assistance.

We have raised bison on our Iowa farms since 1976, now maintaining a base herd of 300 animals on 1000 acres. In the past we haven't had much communication and input from other bison producers, relying instead on using our backgrounds in farming, fish/wildlife biology, our knowledge of horses, and my observations of big game during 30 years experience as a part-time, back country ranger in Yellowstone National Park.

For almost 20 years I could count the fellow producers I knew on one hand. With rapid changes in the bison industry, the need to be involved has become increasingly apparent. The "cattle-ization" of bison alarms us. I share with you what I know of bison in Yellowstone National Park and how we apply that knowledge to our own herd.

1. **First and foremost is the fact that gregarious herds and flocks such as bison, elk, and geese are made up of multiple core and extended family units.** People hear about a herd of 2,000 elk migrating from Jackson Hole, or the 1,000 bison in Yellowstone National Park's Hayden Valley. What few people know is that these herds break up into smaller family units for most of each year. The Jackson Hole elk split into *many* groupings as they migrate north to summer in small drainages of Yellowstone. The isolated bison of Hayden Valley go to their separate draws, nooks and crannies on the perimeter of a 10-mile by 10-mile grassed valley for summer grazing.

These bands are tight-knit blood relatives. Even when larger massing of animals occurs in the rut, or for main herd movements, these families keep close track of each other. It is no different than how primitive man or Native-Americans have

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changed community sizes to conform to the fluctuating food and welfare needs of their people. It might consist of a single family or a band, a tribe or a nation, but their identity was maintained. It was not swallowed up by the whole.

In Bison, the most visible and pertinent family grouping applicable to private producers is the extended family – or grazing grouping. It consists of related lead cows and as many of their adult female offspring (and their juvenile offspring) as they can control, teach and care for. The more fertile the ground, the stronger and larger this family can be. In the 50,000 or so miles I have ridden horseback in the mountains of Yellowstone, the largest family unit seen was around 60 bison. When the herd gets bigger than 60 or so, satellite herds spin off. They are still dependent but keep varying distances apart from the core group. Once numbers of all related groups get to 300 (bull groups included) or so territories are formed and competition between herds from different territories commences.

I say pertinent family grouping because most basic life needs depend on this unit. Without this grouping, bison could not exist as a species in the wild. It is responsible for dispersal grazing, dissipation of inappropriate behavior, social order, and even prevention of inbreeding. With bulls breeding from 6-8 yrs. of age, and all breeding age individuals (3 yrs. of age and older) of matriarchal groups being related, one gets line breeding without inbreeding. It is the perfect combination for the survival of the best characteristics and the reason all ungulates got to where they are today. Human manipulation of animal breeding doesn't come close and is not sustainable.

Everything, *everything* depends on this basic structure.

If anyone wants to see this system of families (and dispersal grazing) at work with bison, I suggest driving through Hayden Valley before or after the rut. One will see various basic family units off to the sides of the valley. Space between families is important. The grass may not be as nutritious where they are grazing, but the isolation allows and maintains the family control, order, and identity. Families mean animals in close proximity to one another and eating what's in front of them is more important than ranging to "eat the best and leaving the rest". This close proximity is what modern range management tries to duplicate with Management Intensive Grazing systems. The bison of Yellowstone do this without fenced in paddocks. The herds of Yellowstone offer excellent study for application to private herds because bison herds there live year round, by free choice, in areas no bigger than some farms and ranches.

In applying this knowledge to our own private herd, maintaining family units is our greatest concern. It is more important than any bull genetics. Lead cows and confident families mean dispersal grazing without our man-made inputs. It also means “learning from their ancestors”. Unweaned calves know what plants to eat and when to eat them because they learned from their mothers. Knowledge is compounded at a rate directly proportionate to the size of the family tree. Grazing consultants tell us bison need 2 million acres for a natural grazing system to work properly. Yellowstone has it in 10-mile valleys and we achieve it with our somewhat self-defined four-family units. I say somewhat defined because roads split our property apart into smaller grazing areas. If it was all in one piece, they could more effectively keep space between themselves.

How we manage our herd means more than just obtaining dispersal grazing. We have to have different perspectives on almost everything. Although we live in the “Corn State”, we grass feed instead. Otherwise grain feeding causes lack of control in our herd. Calves, yearlings, and subordinates don’t need, don’t “listen”, and can’t be taught by their leaders when the excitement of the ever present feed bunks is there. Of course, we feel anything that presses family groups together causes problems – intensive grazing systems included. Forcing bison into packed conditions would be like a teacher moving her first grade class onto Wall Street surrounded by a rush hour that never ends. She would have no control. In the winter, we maintain family identity by feeding big bales in separate parts of the pasture.

As a producer if you want to know if you have family groupings in your own herd, I suggest you turn them out in your most spacious and lush pastures after they’ve grazed down a smaller cell. The bison families will probably be really tired of each other. Even if they don’t have total confidence, it will be worth it for them to stay in separate groups for several days. When asked if they can mix and match (buy and sell), I advise producers to start with a bunch of calves with no dysfunctional adults (no bad teachers), separate age classes, or sell off everything over 6 to 7 years old. They *need* to change management to get confident family groupings and dispersal grazing. Time to obtain functioning family groups is 3-4 generations (12-15 yrs.). This may seem like a long time but it is no different than the time it takes for a pure bred beef producer to establish animals with their own identity.

I see three general groupings of bison in today’s private herds – loners, masses, and embryonic family units. One with smaller numbers of bison would have it easier dealing with basic mass herd confusion. They may only have a single family

to organize or the need to develop a lead cow to go with their young, untrained bison if they pretty much let the herd form up without their inputs. The worst scenario would be if one has totally shattered individuals – the loners. They are the long-term weaned orphans and foster children. These are bison that have never been allowed to bond with herds in a normal manner. Life is very lonely for them, and distrust is high. There will be no grouping and no herds, just hillsides of young individuals grazing apart from each other. Of course, it is also a way to get dispersal grazing, but the price to pay for it can be very high.

2. **Survival of a species is different than optimum living conditions.**

- *In Yellowstone, essentially no breeding occurs with bulls less than 5 years of age.* Younger bulls are the “teasers”. They get the cows ready for the “big boys” and practice for when they become “the man”. Elk biologists say spike bulls can breed, but they do not pass on the same vigor and vitality to their offspring as when they become six point bulls. I’d say the same applies to buffalo. We breed with 5 to 10-year old bulls because we don’t want to change what is needed in the wild.

I compare the present day bison industry selection practices of using 2 to 5-year old bulls to that of scouts searching for and teams signing on professional athletes when they are in junior high school. The teams then would have to wait 7 to 8 years to see if they made the right choice. Michael Jordan, of course, would be a non-entity because he was cut from his sophomore high school team. The problem would be compounded further because the signees wouldn’t live long enough to play in the pro’s. The end result is that teams would never know if their choices were right. In today’s bison industry I think most breeding bulls are in spirit form only. It’s worse than the cattle business. At least they keep bulls into maturity.

The only trait I see that’s available for critique in bison sire selection is fast growth during part of adolescence. Yes, I know, the judges look at the legs, head, etc., but that’s a “no brainer” in self selecting wild herds. To think that we’ve cattle-ized and screwed up bison in such a short time period that we have to judge for defects doesn’t bode well for the bison industry.

- *As a last resort a bison cow **will** breed her own adolescent offspring to ensure species survival. In optimum conditions, she and her relatives **select their mate.*** In Yellowstone, the bulls fight to get the chance to breed, but just because one bull “wins” doesn’t mean the cow herd always wants him. I liken it to the town bully. He may beat up everybody, but how many girls want him? In the wild, a

cow may opt to simply walk away from a fight. Insecure bulls will not even fight for her if she's a confident leader. There's too much at stake for the matriarchal unit to have no choice in the matter. Carrying a calf for 9 months and then raising it up in her "family" means a lot more time and effort on her part than what the bull puts into it. She doesn't want rogue genetics when she's in charge of a family. Only in public and private herds with high cow to bull ratios does she have to accept her fate.

At Tall Grass Bison, the cows are given the chance to choose. We can't give 1 to 1 cow/bull ratios, so sire selection becomes observation of the cow's choices. For example, if a breeding-age bull is consistently alone at the big bales (no matter what his favorable traits are), he is selected for meat. We learn a lot about the "winter dance" – at the big bales. In Yellowstone, once a cow chooses a bull, she mates with him as many years as he can protect her. This happens for a longer time in our herd because they breed longer. We can point out three generations of juvenile males following a breeding bull (he had all bull calves) – all with the same specific genetic trait he has. The kids go back to *their* family and their mother and her herd when not following him around.

The male choices we give the cows come from our own herd and from private or federal sources that keep more natural breeding mature bull-cow ratios. We want these choices from herds containing various age groupings, non-weaned calves, and living in natural conditions. We'd love it if some of Yellowstone's bison were available. We don't need their (or the wood bison's) specially adapted large hump to "plow snow" with, but that liability would be offset by selection genetics, being some of the best in the country. We also don't have the minimum 400 animals biologists say a wild bison herd needs to keep varied genetics, so outside sources become the necessity we have to accept.

- *Cows in Yellowstone wean their own calves.* The fact that a calf can survive on his own, grazing for its total nutrition before normal weaning time, is a survival adaptation. If a cow didn't need to nurse a calf until the natural weaning time, I have no doubt that cow would save her energy for the next calf. If humans, with all our research and technology, still can't produce adequate artificial milk for our own babies, we at Tall Grass Bison don't think we can formulate adequate substitutive feeds for a prematurely weaned calf.

Involving social aspects, to wean a calf is to produce an orphan. Orphans can survive and can go back into the herd, but their relationship with the family unit is forever, negatively altered. We are fortunate to be raising bison on very fertile

ground where we get a calf every year, but we feel so strongly about this that we would rather have a calf every other year than artificially wean. Again we want animals that can learn from their ancestors.

- *In Yellowstone, pecking order is only a part of social order.* This applies to all herd animals. Pecking order by itself is a survival trait. Social order is an optimal living condition. As a back country ranger I depended on horses, living 32 miles from a road 3 to 5 months a year without coming out to civilization. My horses (and the ones outfitters use in coming into my area) were limited to pecking order because Yellowstone's Corral Operations 80-horse stable is composed mostly of geldings. Injuries to horses and humans are common. On the other hand, we can go to fine breeding farms where 150 "family" horses live with rudimentary social order. One can walk among them, no matter how big the group is, and not worry about getting kicked or knocked down. We can use herd dynamics of horses and apply them to bison herds. With social order we don't fear spirit, flashing eyes and heads held high in our bison. We love it and select for it.
- *Disposition is not a problem in healthy, wild bison herds.* Aggressiveness and other aberrant behaviors only occur where individual survival needs are altered. Yellowstone is known for people getting killed and gored by bison. Warnings are everywhere. Incidents happen along the roads because thousands of people throw rocks, etc., in an effort to get bison up and moving for picture-taking. In the back country, I know of not a single bison-related incident in my 30 years as a ranger. Nor do any of the old timers, outfitters and other rangers I've asked. During the rut in Hayden Valley, I can ride through hundreds of bison, where bulls are fighting and roaring all over, and not have any come at me. Social order dissipates energy and focus's their thoughts. People who say they have bison with good temperament and disposition should be honored more for raising them in an arena of trust and lack of abuse (or they sedate them with lots of grain).

At Tall Grass Bison we liken the environment needed for working bison, to the trust and comfort needed at a children's hospital or preschool. Abuse in corrals wrecks leaders and imprints a calf for life, the same as it does to a horse. Our bison may not see us for 6 months at a time. The only human contact might be someone putting mineral out for them once every two weeks. When it's time to sort, though, it's simply a matter of putting them on the best grass (close to the corrals) and feeding some good hay in the holding pens for a two-week period

of time. If the corrals are wet, we might roll out 15 to 20 tons of old hay for bedding. Sorting means using family living traits as a guide. If we want 2-year old heifers corralled, we wait until a group of them mosey into a holding pen. Then it's one person standing at the gate letting any other animals out and allowing 2-year olds in. They like being with their girl friends just like teenagers do at school.

Butcher bulls are the same way. We wait until the "popular guys" are in and then let them draw in their buddies of the same age. We've had "the boys" leave the herd a quarter of a mile away to join the guys in the pen. Cows and calves have been walking out the gate while young bulls were running in. If that core group doesn't produce results, we let them all go and start again. They weren't the "homecoming king and his attendants". Within a of couple hours all the butcher bulls are in. We then sort off the king and maybe a couple of others for possible future herd bull replacements.

We couldn't do this without raising them with long-term trust and as family social units.

- 3. Composite herd makeup is much more important in Yellowstone National Park than the individual animals.** They're like well-oiled sports teams. A real strong family needs all components. Infrastructure is no different than a military chain of command or a company's business organization. To depend on one individual would be like a general getting killed in a war and everybody else surrendering. A good infrastructure means someone can step in and fill their shoes.

In Yellowstone, division of work means some cows take care of calves, leaders show the family to good grass, and breeding-age bulls are nearby and ready in case "heavy hitting" defense is needed.

- *At Tall Grass Bison we don't produce "just any 'ol' cow or calf" for sale.* We are guided by complex herd requirements. This definitely doesn't mean we sell all cows over 6 to 7 years old for maximum cash flow. One old cow doesn't even calve anymore. Yet she settles down the young females in the corrals. One of the herd bulls likes to be in with the butcher bulls. They hero-worship him, and things stay quiet when the herds leave the corral pastures. In our herd we can justify selling almost any "product" if we know what niche he or she provided and we have someone coming up to replace her or him. CEO's, vice-presidents, and teachers are very important in our herd.
- *We don't tag our animals because it puts too much emphasis on our own bison prejudices.* Using temporary color markers and paying heed to horn

characteristics are what we depend on for individual identification. Lead cows and priceless bulls are developed by the herd, not chosen by us. Puppet regimes don't work for people, nor do we believe it works for bison in public or private herds.

- *Culling means looking at family units and seeing which animals don't fit in.* Animals that don't fit in stay on the fringes of the herd. In the wild they have a harder life and die prematurely. In our herd they are identified and butchered. We could put some weight on them, take them to a sale or show, and make more money, but we have to respect people and the animals we raise. Along with our mission and goal statements we include one on ethics which says "if we use, we lose". If we take advantage of people or animals, the resultant lost respect means we cease to learn from them.
- *Good infrastructure means we have animals with confidence, animals that have been trained by families, and a sense of social order that prevents chaos in the herd.*

4. **We see no long-term benefits to "economic traits".** We believe these are exploitative traits that will make less money for us in the long haul. Large size seems to be the "fad" and a prominent economic trait nowadays at the bison shows. People comment to us that we have the largest cows in the country. Although it's nice to get their "stamp of approval", to us our bison are simply healthy animals – being the size any non cattle-ized wild bison would be in our location. Biologists say size is a physiological response to elevation and latitude. The colder and harsher the environment, the more body mass an animal has to keep on. That doesn't mean it's more efficient or "robust". They just have to carry more weight around. A mature bison bull from northern Montana would probably stay 400 pounds lighter eating exactly the same food stuffs in the warmer climates. He doesn't need to eat as much to be efficient.

As for using genetic traits to alter the bison for larger size, we believe it is counter productive, especially in areas where bison have to graze large areas to get the nutrients they need to maintain body mass. For a parallel all I have to look at is the centers on basketball teams. They can't move around as much as the smaller guards. The beef industry has already gone through the size issue with exotics. Why do we want to repeat it? At Tall Grass Bison we don't dwell on sizes – just as we feel shiny, dark coats are a better sign of good health than genetics. Vigor, vitality, energy, and health are the important characteristics we look for. Our priceless bull is not the oldest or largest bull. Yet he has the ability to control the entire herd with

a single roar, and the lead cows love him at the big bales. Other herd bulls follow him around as if they are the vice presidents and he is the owner of a company.

- *As for fast growth, the slogan “buffalo tastes like beef use to taste” is losing its ring today in the bison industry.* At restaurants I sample more and more bison low on natural flavor. At Tall Grass Bison, fast growth does not equate with flavor – and tenderness does not stop with age. Youth requirements are the lowest common denominators needed for present day mass meat production. Consistency, uniformity, and soft-bone indicators are standards needed for the most inefficient producer, the most stressed out animals, the unskilled meat cutters, the packaging weight enhancers, and the most inept “stovetop fixer” of the final food product.

While the present day bison meat industry in following the beef industry’s model may need these standards, we believe they’re not conducive to the *best* meat product. I’ve hunted all my life and live and patrol next to outfitted big game hunting camps outside Yellowstone’s boundary in Thorofare – my duty station. The same themes keep coming up. “Dry cows are the choice for meat hunters.” “Mature, non-breeding bulls can be just as tender and have more flavor than younger breeding bulls.” “The best meat comes from animals summering on the best grasses.” These statements are reinforced by weight lifters who will tell you they can put on the muscle they need in six months, but ligaments and connective tissues needed to lift the weight take much longer to develop.

Old time beef producers say a beef doesn’t gain flavor until its 2 years old. They say eating today’s beef is like eating “baby Huey” veal. Farmers around here, who contract with “feedlot” companies to mass produce beef, raise beef slower and differently for their own consumption. With the bison meat industry going to younger and younger animals, I can see the day when it faces the same no-way-out problem of the beef industry. This “Catch 22” means the economics of meat from 18-month old 1,000 pound animals and fat being the only flavor. At the 1998 winter National Bison Association Conference marketing committee meeting, bison meat purveyors were justifying high fat buffalo burger because their buyers said it had more flavor. *Deja vu!!* How soon will the bison industry be faced with the failure of the MacDonal’d’s “MacLean” hamburger due to lack of flavor from butchering our bison too young?

At Tall Grass Bison we don’t want our bison to go the way of flavorless chicken, beef, and pigs. My dad and mom raised all three and the flavor was a

lot different than what we get from the stores today. This problem isn't limited to long-time domestic animals, either. Nutritionists say farm raised shrimp and salmon have 3 to 5 times the fat content found in their wild cousins. There is little of the original flavor and more fat. We don't creep feed or background because our butcher animals put on less gain when we need them to be tender. If the grass is good, the gain is better because there is less time for feedlot stress. My brother, the researcher (who's studies show bison liver has 19 times the amount of fat soluble vitamins A and E as beef liver) can also tell me controlling "off flavor" from some grasses is just a matter of understanding phospholipids.

I don't understand today's mentality to alter a meat that Native Americans preferred over all other meat. At Tall Grass Bison we don't butcher any animals less than 4 yrs. old.

- *Teenage pregnancy (stunted cows) rarely occurs in Yellowstone National Park.* Stunted cows have health problems and they die in the wild before they reach maturity. The environment cannot tolerate weak animals. Bison in Yellowstone do not get the flush of artificial nutrients needed to bring an immature female into heat.

Teenage pregnancy I define as a female having a calf before full growth potential is realized. Some beef ranchers purposely stunt cows so they forever after don't eat as much. I feel people, beef, and buffalo have the same problems with teenage pregnancy. Any hospital or Planned Parenthood clinic can educate us on a whole slew of long term physical liabilities that we can cross reference for both cow and offspring. At Tall Grass Bison we have inadvertently flushed young cows in the winter with detrimental consequences to the family units. A stunted cow is way down on the social order of things. They can't wean calves as well. They can't fight off the teaser bulls, and their relationships with bulls in general becomes one of subordination. (We do not dehorn for exactly the same reasons.) Across the nation today I see large 1 and 2-year olds and more small cows.

- *With economics becoming so important with present day bison raising, I see the "cattle-ization" of bison accelerated.* Individual item costs and profits are penciled in and used *individually* to enhance management decisions. My extension service beef specialist tells me it costs a dollar a day for each 3 to 5-year old bull that's not breeding. Our old non-calving cow also becomes non-productive and a liability money-wise. I can expect less money selling a 14-year old cow than a 7-year old cow. To not sell calves before natural weaning also means less cash

flow. That is the reality of today's business world. On the other hand, how do we pencil in mellow herds that have little stress? We've had: virtually no vet bills, no orphan calves for 30 years, only one cow dying while giving birth in that same time frame. Not a single shot has been given, nor is there the cost of intensive grazing management.

- *I see ads for pregnancy-checked cows and semen-tested bulls when there should be no need for sterility checks except in a cattle-ized bison operation. Sterility is not passed on genetically. Our calving rate is directly related to the amount of grass available.*
- *I see no geographic advantage raising bison in one area of the country over another if they occupied that part of the country historically. I call this the regional economic trait. "Washy" grass or "strong" grass issues are irrelevant if lots of bison lived there before. I see the reason for the great herds of the west as being no different than reasons for the great herds in Africa's tsetse fly, low human occupied lands. There are prehistoric mineral licks six miles from Tall Grass Bison (and we don't have major mineral deficiencies) that are a hundred times larger than the largest I have ever seen on Yellowstone's main migration routes. Knowing that an animal can travel only so far for water and grass means there had to be huge numbers of animals supported close by for a lick to be of that size.*

Early Spanish explorers found bison in abundance on the gulf of Texas and there were so many bison in the eastern United States that one early leader said the continual hunting of them (instead of farming) was setting civilization expansion back 100 years. I realize each area will always have its "sales" pitch, but I feel the bison industry would benefit if less time was spent on the negatives of someone else's geographic region and more research time was spent on what made bison thrive in that particular area in prehistoric times. We have a whole country out there with a lot of good bison habitat.

In summary I simply say: If we can only understand how bison choose to live, and maintain respect for them, then there will be no abuse. It will be good for the bison and good for the industry as well.