Find My Bull

‘Smart ear tags’ show where the bull is, how well he’s doing his job and if he’s missing in action.

by Paige Nelson, field editor

A first-generation xTpro tag in a Stevenson Down T Angus Ranch bull.

PHOTO COURTESY OF SARA STEVENSON.

An Angus bull is a multi-thousand-dollar asset we turn out to pasture and check on periodically. Ideally, we get at least four good years out of him before he goes to town for salvage value. Any number of things can happen in those four years to take away some or all of his usefulness. We just accept that as life with cattle.

I can tell you exactly where my $1,000 laptop is located at all times. I can push a button on my $100 watch to find my $500 phone, and vice versa. Most of the assets we prize, we keep fairly close tabs on.

Ranching is different. Our most expensive assets have minds of their own and the ability to travel. They don’t come equipped with a “panic” button or a “find my cow” feature. However, new technology is allowing us to track the location of each individual in the herd and make management decisions based on real time, instead of after the fact.

701x ear tags

In May of 2022, 701x, a company based out of Fargo, N.D., and known for its Autonomous Rancher™ App, launched its first xTpro™ ear tag — an ear tag with a GPS tracking device built into it. Now, in 2024, after some modifications and upgrades, the company is selling its second generation of the xTpro tag.

Using 701x’s software program, a cattle producer sets virtual fence boundaries where existing fencelines are and designates where the animals should be grazing.

A solar panel on top of the tag charges batteries that power the electronics inside. Using a cellular network, the tags communicate with the app, and the rancher receives regular updates about their cattle.

“The tag takes a GPS location of the animal every 15 minutes,” explains Max Cossette, vice president of business development for 701x. “If the animal goes outside the fence, it sends an alert immediately, and then you can see right where it crossed, as well, which helps save some time on fixing fence.”

In addition to GPS location information, the ear tag offers a host of biometric data and has Bluetooth® capability. A two-pin design gives added retention in the ear and ensures the electronics assembly is pressed against the inside of the ear.

Biometric data includes a heart rate sensor and a mounting detector. The heart rate sensor monitors life functions, like a beating heart, and will alert the rancher if no heartbeat can be detected, explains Cossette.

Maybe the coolest function of the ear tag is its mounting detection for bulls.

“One of the sensors is an accelerometer, which is where we track all the movement of the animal,” he says. “So we can determine if the animal’s eating, ruminating, walking, or resting or being chased by a predator. Then that accelerometer also allows us to track the movement upwards of the animal jumping.”

Cossette expects each xTpro tag to last two years on an animal. The cost per tag for the first year is $125, and $42 the following year for the cell service renewal.

Option Two

Another tag option with less capability is the xTlite™. It looks more like a radio frequency identification (RFID) tag. The lite tag doesn’t have solar, cellular connectivity or GPS, but it does have Bluetooth. When a lite tag comes within 50 feet of a pro tag, the GPS location will be uploaded to the app via the pro tag’s connection.

“If you have calf number 10 (with a lite tag) near bull number 5 (with a pro tag) out in the pasture, the xTpro tag says, ‘Calf number 10 is near me. I’m going to check that animal in as my location, as well,’” explains Cossette.

Pinpointing location

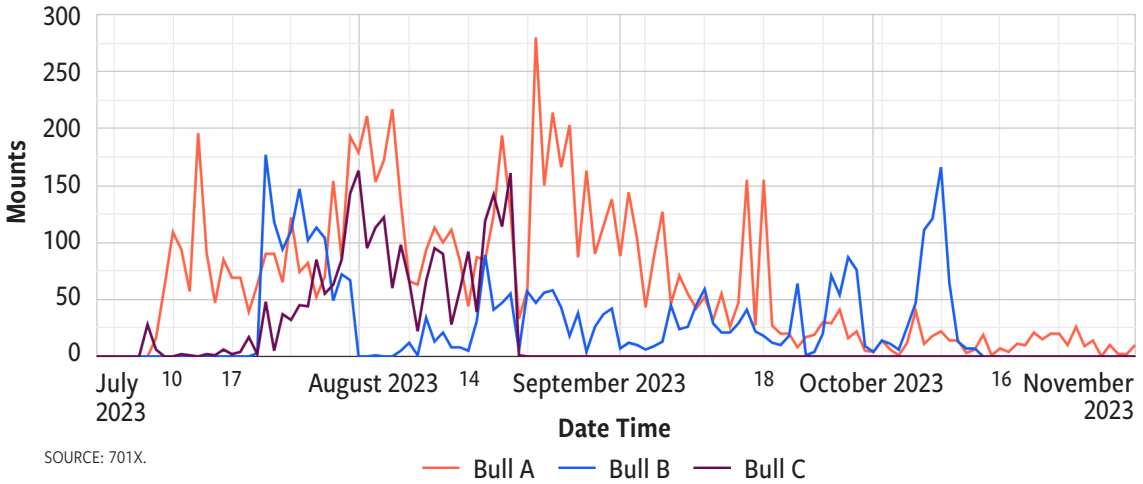
Most of his customers are using pro tags on their bulls, says Cossette. “They’re the most expensive animal in operation.”

Bulls are also typically the animals that get outside the fence, get injured or, probably most importantly, don’t do their job.

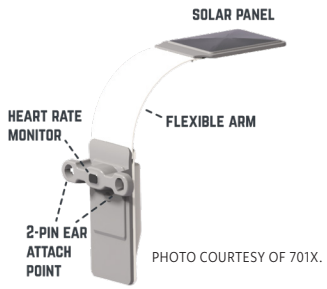
Sara Stevenson, co-owner of Stevenson Down T Angus Ranch in White Sulphur Springs, Mont., came across 701x at the American Angus Association trade show in 2022. She was looking for a better cattle recordkeeping software, so the app is what originally caught her attention, but the GPS ear tags became a big selling point.

“At the time, I was running cattle in the

Fig. 1: Bull mounting report from Stevenson Down T Angus Ranch



SOURCE: 701X.



Second-generation xTpro tag design.

mountains, and we were having a bugger of a time keeping track of our bulls," she says.

Stevenson tagged her cleanup bulls with first-generation pro tags in late-spring 2023. She set the app to notify her once a day of each bull's location, unless he started to get close to the fence.

"If they get out of that geofence that I've established, then they start pinging the alert," she says.

The technology offers time savings and can make management calls easier if you are familiar with the bull and/or the neighbor's bull battery, notes Stevenson. For instance, knowing which bull is out and where he is located dictates how you solve the problem.

"078 bull-turned-elk, you're going to have to take two horses and two ropes, and you're going to have to go get him back in. Whereas 2048, he's a puppy dog. You can send out grandma, and she can just open the gate, and he'll walk back in," she laughs.

What Stevenson says she appreciates most is the peace of mind. Her cleanup bulls are high-value assets. Keeping them alive and healthy while they're out breeding is imperative. Her biggest worry is the injuries that result from fights with the neighbor's bull.

"If he's within 20 feet of that fence and we know that the neighbor just turned bulls out, then we get out there immediately and move the whole herd of cows," she says. "Twice, we moved cows based on that information."

Job shadow

The tag is proving itself to be invaluable when it comes to quickly identifying who has enough libido to breed cows, says Cossette. When testing the mounting feature, the 701x team tagged a bull with a pro tag and turned him in a small pasture with 17 heifers.

"The very first bull we put in there, he didn't mount a single heifer. The heifers were all mounting each other," says Cossette. "We could tell they were in heat."

The team took the tag off the original bull, and tagged and turned in a second bull.

"We have it video-verified, 92 mounts in an eight-hour period on those 17 heifers," he says, "so we proved that we had a bull that didn't do anything."

According to Cossette, by monitoring bull mounts during breeding season and making adjustments as necessary, getting one more cow pregnant during the desired breeding window easily justifies the cost of the tag.

Today, you have to have your cows bred — even if you're going to sell them, so knowing the bulls are working is critical, says Stevenson. "Just knowing that they're getting up, especially these old bulls, in the night and actually doing their job is reassuring."

Stevenson Down T Angus Ranch artificially inseminates (AI) all of its cows. When Stevenson doesn't see bulls actively breeding cows during the day, it's not alarming because there really shouldn't be too much to do. However, she did enjoy watching the real-time step and mount counts come in on the app during the breeding season (see Fig. 1).

The data is shown as a line graph with each bull assigned his own color. Viewers can quickly identify the most active and least active bulls.

"I hope to compare that data with calves on the ground and make sure that line graph that shows that 2048 was working his hind end off, indicates that he had more calves," she says.

Of course, conclusions can only be made based on accurate data. When one of the tags fell out of a bull's ear last summer, his numbers obviously tanked. She says the 2023 breeding season was not an apples-to-apples comparison across all of her breeding bulls. However, the lost tag was easy to locate because of its GPS signal.

As a side note, the tags can detect zero gravity and send out an alert if they have fallen out of the ear.

The two-pin redesign will hopefully solve retention problems in the future, Cossette assures.

Now that Stevenson has a year under her belt, she is excited to use the GPS ear tags to their fullest extent.

"This year, now that we know what we know, I really do think that it's going to really help us with [knowing] which bulls are working, which bulls are getting the job done. And we don't have to wait until the DNA tests come back at calving to find out who's getting that done," she says.

Maybe knowing exactly where your bull/cow/calf is located at all times does take a little bit of the "adventure" out of cowboying, but it sure is nice to keep tabs on your most expensive assets. ABB

Editor's note: Paige Nelson is a freelance writer and cattlewoman from Rigby, Idaho.