NCARC Tri-Bander

Volume 7, Number 5 May 2026

From the NCARC President

Joe Hawley KDØTYU
president@ncarc.co

I hope this message finds you all well. As you know, we are nearing the finish line on the RedFeather Project, and I couldn't be more excited with the progress we've made together. I wanted to reach out specifically to those who weren't able to join us last time, as we'd love to have a few more hands on deck for our upcoming work session.

Our next gathering is set for Saturday, May 30th. Here's what we have planned: we'll mount the solar panels on the frame we set up a couple of weeks ago, install the repeater, finish the tower, put the antennas in place, and, if time allows, mount the microwave dishes as well. It's shaping up to be a busy and productive day, and with your help, we can wrap things up and get the project on the air.

We're estimating the work will take two to three hours, possibly a bit more, depending on how things go. If you're available and can spare the time, your participation would be truly appreciated. For those I've already reached out to directly, feel free to disregard this message. If you weren't part of the last group and would like to join us this time, please reply to this email or contact me so we can coordinate carpooling and ensure everyone has a ride.

Thank you all so much for your continued dedication and support. I'm looking forward to seeing some new faces and making this final push a success together!

NCARC Club Meeting

May 16, 2026

8:30 am Golden Corral opens- breakfast and socialize, **9:00 am** club meeting

In Person and online

Zoom streaming - All members will receive a link to the online broadcast.
If you don't receive a link by Friday before the meeting, please email treasurer@ncarc.net
You choose what you feel comfortable doing: attend in person or online.
PL259 Crimp/Anderson Power Poles – Dick / Joe

Topic:

PL259 Crimp/Anderson Power Poles

Dick Doutt KEØME and Joe Hawley KDØTYU

Location:

The Golden Corral
1360 Sculptor Dr, Loveland CO 80537

Treasurer's Report



	Apr 2026
Beginning Balance	$15,852.86
Income	$194.00
Expenses	$655.23
Ending Balance	$15,391.63
Sources of Income	
	Membership Dues
Sources of Expenses	
	Red Feather Project
	Website
	Monthly Storage

Welcome our newest Club Members

K6OG · AE0LJ · N0HAP

Pete Robbins W0RCR
treasurer@ncarc.co

Officer Elections

Nominations for the Northern Colorado Amateur Radio Club Officers are closed. The following have been nominated:

President: Joe Hawley, KDØTYU

Vice President – Jim Lacey, KØBEC

Secretary: Jim Gale, KF0LAN

Treasurer: Pete Robins, WØRCR

Station Trustee: Wayne Hall, ADØKE

The Elected Official position nominees are:

Technical Committee Officer James Cizek, KIØKN

Public Affairs Officer: Randy Barnett, KFØRUW

Member-at-Large: Pete Borley, KFØBTB

All positions are for 2-year terms.

Voting will take place at the May meeting. Positions start on July 1.

Interested in helping with the ARRL Year of the Club events?
Please contact Joe Hawley and volunteer!

Please Renew Your Membership for 2026!

Remember – your dues are due in **January**!
If you haven't paid yet, you are past due.
Renew your NCARC membership now!
It's quick and easy.
Click here!

Red Feather Work Day Report

By David Taylor, KBØOLE

The day's primary goal was to assemble and place the frame to hold the solar panels. Step 1 was to clear the area of shrubs, rocks and dead wood. Next, all the parts and tools had to be carried from the end of the vehicle track, down the hill a short distance to the installation site. Then came assembly of the frame components. Which part goes where??

The final task was to anchor the frame to the ground. This involved drilling through the surface rubble into solid rock beneath. This was the most time consuming portion of the job. There was only one drill up to the task, so there were a lot of supervisors on hand for this phase. Finally, rods were inserted in the holes and sealed in place with grout. Each foot of the frame was then threaded over a rod and bolted into place.

In parallel, electrical conduit was laid on the surface between the base of the tower and the frame. Wires were pulled through the conduit in preparation for making power connections on a future trip.

Local resident Patrice Diem provided burritos and treats to fuel the crew. She has worked with the local HOA to obtain approval for the project.













Tech Report

James Cizek, KIØKN
techchair@ncarc.co

May 2026

Buckhorn:

I believe the GPS problems we are experiencing are now due to weather soaked coax. Our contact at PVREA has changed but I am in contact with the new person and it will be no problem to gain access to "their side" of the building. There is a temporary GPS inside the building that is working at the moment, but I do have replacement coax and everything necessary to repair this permanently. Everything else at the site is working great.

Horsetooth

We've lost the GPS (or antenna or something!!) there too, so the Buckhorn voters are not working at Horsetooth. We also have a failed camera there. I have a replacement for that too and we'll get up there to replace it soon.

Nunn

I've had the new antenna in my possession for a while now but health issues have kept me from replacing this. I now have 2 climbers that can do this work on my behalf and will be scheduling that soon to return the site to full health.

Grover

Same situation here, it's been waiting on me and my health. This will be a short and simple change and I will focus on getting it done soon!

Overall

Overall, I've moved our main server (it runs VMWare which hosts an authentication server, a camera recording server, the "listen live" server and a few other small things for the club) from the CSU datacenter to Buckhorn mountain. The move is complete and it's working. At the last club meeting, the club voted to allow me to buy solid state disk drives for this server since the cameras were over running the spinning disks. I am shopping and attempting to buy these at the best possible price. This has been a challenge since AI is causing *massive* increases in price of memory and solid state devices.

Red Feather

A crew installed the solar panel frame recently and the next trip (May 30th) is scheduled to be the final trip and get both the analog and DMR repeaters on the air finally!! Stay tuned!

Did You Know?

A regular contribution from Bob Schmid, WA9FBO

HISS and TOOT

Telegraphy meets information theory

Long before the word *bit* was coined or Claude Shannon formalized information theory, telegraph operators were dealing with its physics firsthand. In the 1840s, Samuel Morse and Alfred Vail turned simple pulses of current into a code that embodied the same principles, decades ahead of theory. Though they knew nothing of bits or information theory, they were already encountering the same limits—attenuation, distortion, and noise—that would later form the language of communication theory.

Signals across oceans

The telegraph's success on land was immediate and transformative—entire continents learned to communicate at a speed unimagined only a generation before. But when engineers tried to carry those signals beneath the sea, nature had other ideas. The first undersea cables of the 1850s revealed that a long cable was not just a wire—it behaved like a circuit all its own. Its capacitance and inductance turned it into a lowpass filter: each dot or dash spread out, merged with the next, and the baseline current crept upward with every pulse. In effect, the cable acted as an integrator—never allowing the current to fall fully back to zero before the next pulse. At higher signaling rates, the contrast between current and no-current disappeared, and the message faded into the noise (Fig. 1, left).

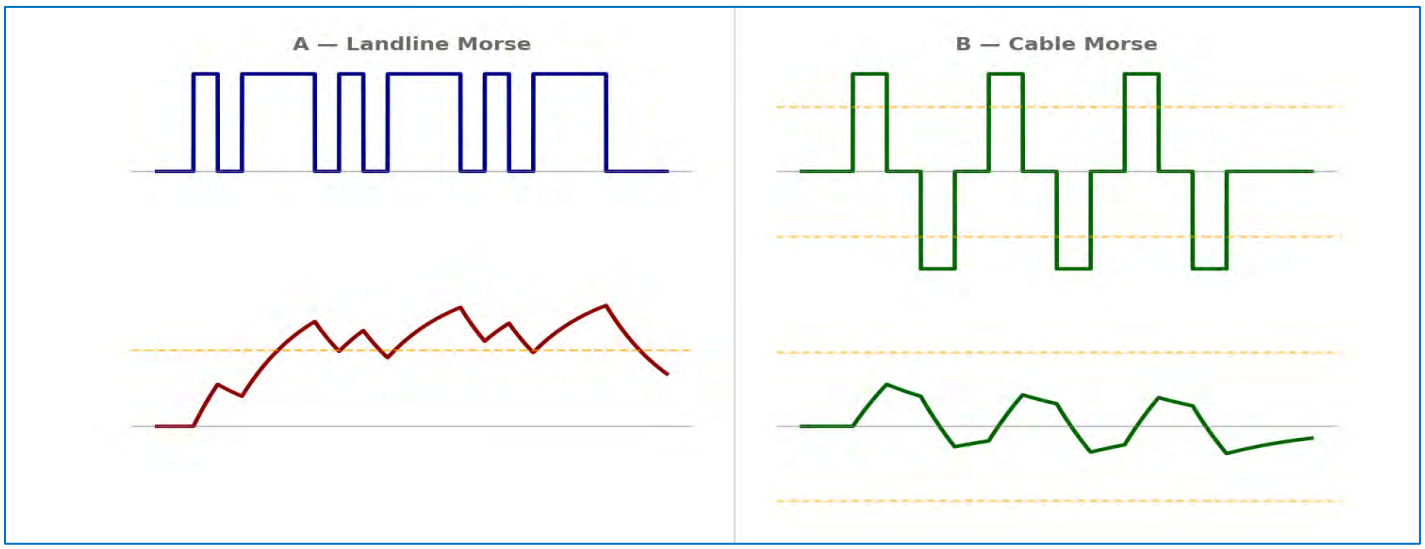


Figure 1 - In the landlin

The solution was to restore electrical symmetry. A unipolar signal always left charge behind; a bipolar one would not. So engineers developed Cable Morse, or polar telegraphy, using positive pulses for dots and negative for dashes. The opposite currents discharged the line and held its average near zero, so the pulses—though still smeared by the cable—stood out clearly enough to be detected (Fig. 1, right).

HISS and TOOT

Even this improvement had a quirk. Operators noticed that a string of dots (as in the word *HISS*) would drive the baseline upward, while all dashes (as in *TOOT*) would push it the other way. To correct it, engineers followed each dot or dash with a momentary pulse of the opposite polarity—just long enough to bring the line's potential back toward zero. The telegraph line, in effect, balanced itself.

HISS and TOOT (cont.)

Advantages

Cable Morse offered additional benefits. Because all pulses and spaces were of equal duration—dots and dashes alike—it allowed operators to send messages at a faster rate. On long lines, earlier systems suffered from stretched and uneven pulse lengths, but Cable Morse's uniform timing effectively canceled those irregularities. The result was not only more reliable transmission but an early form of signal normalization—anticipating by decades the logic of modern digital line coding.

From dots and dashes to bits and baud

By the late 1850s, engineers such as William Thomson (later Lord Kelvin) and Charles Bright were adopting polar transmission for undersea service, borrowing its logic from American Morse—the landline variant used in North America. The cable version was, in a sense, the first *self-correcting code*, one that compensated for its own medium.

As vacuum tubes and repeaters later appeared, pulse-regenerating circuits restored signals to full amplitude at each end of the line. The speed of transmission rose dramatically. Long before Shannon described entropy (how much uncertainty there is in a message) and channel capacity, telegraph engineers had stumbled upon the same questions: How fast can information be sent without distortion? How much of a message can survive a noisy, lossy medium?

Their answers came not from equations, but from the hiss and toot of early telegraph pulses sent through the deep Atlantic.

Where the Signals Landed

The first successful transatlantic cable of 1866 stretched nearly 2,000 miles from Valentia Island, Ireland, to Heart's Content, Newfoundland (Fig. 2).

Each shore had its own cable station, where engineers tended batteries, induction coils, and the fragile line itself. No amplifiers or repeaters existed—the signal made the full crossing on its own. At the receiving end, operators used William Thomson's mirror galvanometer, a tiny moving coil and mirror that reflected a beam of light across a scale. Those faint flickers were the ocean-spanning dots and dashes of Cable Morse, proof that information could cross the Atlantic long before radio or fiber optics.



Figure 2 - Simplified map showing 1866 transatlantic telegraph cable connecting Valentia Island, Ireland, and Heart's Content, Newfoundland

Quad Rock Race Support a Great Success

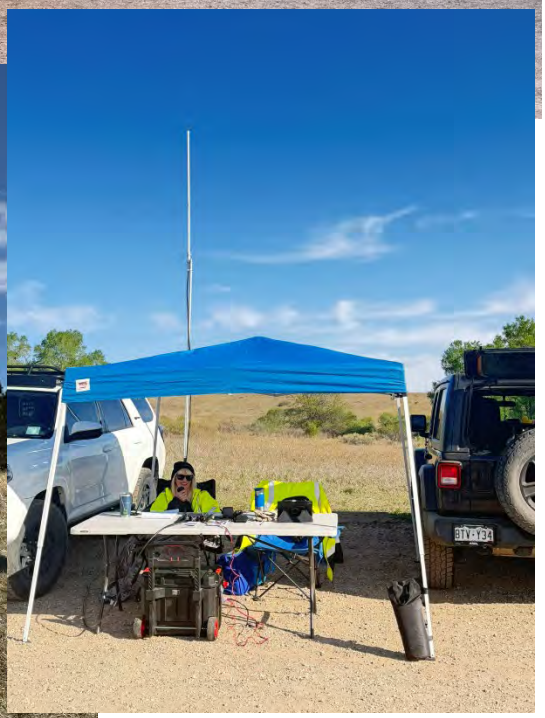
Several NCARC members helped support this race. There were approximately 350 runners in 50 and 25 mile races. The weather was great!





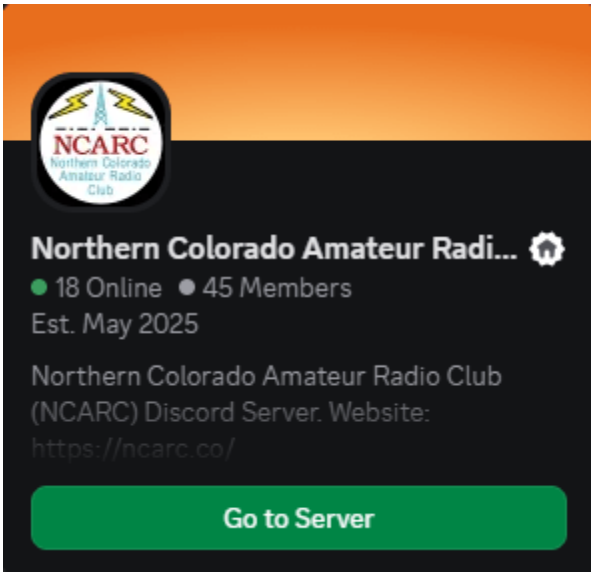








Join our NCARC Discord Server!



Redfeather Project Final Assembly Day

The plan is in place for May 30th!
Please contact Joe Hawley by May 25th if you are interested or able to help.
Joe will have a zoom meeting to plan and discuss the logistics.
Meet at Ted's Place at 9 am and plan on spending the day there.

Upcoming Ham Radio Events

Ride to End Alzheimer's: Jun 6, 2026, Loveland, CO. More info here. Contact Ron KØAZA

C.A.S.T. for Kids: Jun 6, 2026, Fort Collins, CO. More info here. Contact Marty KØMLG

ARRL Field Day: Jun 26-27, 2026, Windsor, CO. More info here.

Courage Classic Bicycle Tour: Jul 18-19, 2026, Copper Mountain, CO. More info here. Contact Christian WØCDN.

Never Summer Race Event: Jul 24-26, 2026, Gould, CO. More info here. Contact Wayne ADØKE

Fall Equinox Marathon: Sep 20, 2026, Poudre Canyon, CO. More info here. Contact Marty KØMLG

Red Feather Trail Jamboree: Sep 25-27, 2026, Red Feather, CO. More info here. Contact Bryan NØBCB

Blue Sky Marathon: Oct 17, 2026, Fort Collins, CO. More info here. Contact Ron KØAZA

Weekly On Air Events

FoCo CW Round Table, Tuesdays, 8:00 pm MT, 7.118 +/- for QRM. More info here.
NCARC Tech Net, Mondays, 6:00 pm MT, 447.275 (100 Hz tone)
NCARC Club Net, Wednesdays, 6:30 pm MT, 447.275 (100 Hz tone)

Biweekly Get Together

Martinez-Clarke Luncheon: every other Wednesday, 11:30 am,
(next one May 27, 2026) Perkins Restaurant, 2222 W Eisenhower Blvd, Loveland, CO

From the Editor

Ann Donoghue KØARD
newsletter@ncarc.net

All kinds of summer activities are happening, time to have fun in the field! And there is the (unwelcome) potential for hams to be needed for support during the fires we should be expecting. Keep your gear ready!
There are only 10 more shopping days until my birthday in case you might be thinking of adding to my radio inventory! 😊