THE SIGNAL

BELLA VISTA RADIO CLUB ARKANSAS

Newsletter of the Bella Vista area Radio Club

Arkansas' Largest Amateur Radio Club

- June Program – Contact With the ISS
- Tribute to BVRC Silent Keys
- 10 Uses For A Multi-meter
- EXPERIMENTER'S CORNER –
- The Importance of Phonetics in Amateur Radio
- BALUNS – What they are, what they do
- A Mini-POTA Adventure (on the side)
- DXCC DEN – Palau

ARRL SPECIAL SERVICE CLUB

July 2025

Monthly Meetings: 1st Thursdays @ 7 p.m.
Arkansas Law Enforcement Training Academy (ALETA)
3424 S. Downum Road, Springdale AR

(HAM 101 Workshop for Newcomers @ 6pm preceding meeting)

Club Calls: N5BVA / W5NX

(Repeater Nets) *(Contesting & Special Events)*

Repeaters: 147.255 +600 khz offset, pl 162.2

444.100 + 5 MHz offset, pl 162.2

Website: www.bellavistaradioclub.org

WEEKLY NETS:

BVRC HAM 101 Net
Tuesdays @ 7 pm on the
WX5NAS Skywarn Link System:

Bentonville – 146.865, -offset, pl 103.5
Springdale – 147.315, +offset, pl 97.4
Fayetteville – 147.315, +offset, pl 110.9
Huntsville – 443.625, +5 MHz, pl 97.4
Green Forest – 145.310, -offset, pl 103.5

BVRC Legacy Net
Wednesdays @ 7 pm on the
BVRC Dual Linked Repeaters:

N5BVA/Bella Vista
147.255, +offset, pl 162.2

N5BVA/Springdale
444.100, +5 MHz, pl 162.2

BVRC 3830 Roundtable
Sunday Afternoons
4 pm during CST
4:30 pm during CDT
3.830 MHz

NEXT BVRC MONTHLY MEETING

Thursday, July 3, 2025 @ 7pm
Arkansas Law Enforcement Training Academy
3424 S. Downum Road
Springdale, AR

July Meeting Information

HAM 101 Workshop, 6pm preceding monthly meeting – Newcomer hams will find the July workshop very interesting and helpful to them in the world of VHF. NW Arkansas Skywarn repeater system owner Jon Williams – K5DVT will conduct the topic "A Simple 2-Meter Ground Plane Antenna". Jon always provides super interesting presentations, so don't miss out on this one.

BVRC July meeting, 7pm – A super July meeting program will be in store for the June meeting, as Murray Harris – W5XH, Vinson Carter – WV5C, and Miles Boomer – KJ5ANC will be on hand to share their presentation and story on the outstanding event they coordinated at Lakeside Junior High in Springdale in March, when they used sophisticated tracking and communication equipment to conduct a QSO with the International Space Station. This was one of the biggest amateur radio events to ever occur in the state of Arkansas. Be sure and be on hand to enjoy their sharing of this great event. Field Day Coordinator Tom Northfell – W5XNA will also give a review of BVRC's 2025 Field Day event.

BOARD MEMBERS

President
Jan Hagan - WB5JAN
wb5jan@arrl.net

Vice President
Joe Hott - W5AEN
joe.hott@gmail.com

Secretary
Dana Hill - W5DGH
dana.hill1979@gmail.com

Treasurer
Marc Whittlesey - WØKYZ
almarc11@yahoo.com

Technical Officer
Tem Moore - N5KWL
temmoore@gmail.com

N5BVA Trustee
Roger Dickey - KJ4QIS
dickeyr@gmail.com

Member At Large & Public Information Officer
Tom Northfell - W5XNA
w5xna@arrl.net

APPOINTED OFFICERS

Education & Elmer 911 Committee
Chair: Vinson Carter - WV5C
vinsoncarter@gmail.com

Nets Committee
Chair: Dana Widboom - KI5TGY
dcwidboom@gmail.com

Membership Committee
Chair: Tom Northfell - W5XNA
w5xna@arrl.net

Social Media Committee
Chair: Alex Smith - KI5EQK
ki5eqk@gmail.com

W5NX Trustee
Jay Bromley - W5JAY
jayw5jay@outlook.com

Webmaster
Roger Dickey - KJ4QIS
dickeyr@gmail.com

VE Testing Committee
Chair: Don Banta - K5DB
arsk5db@gmail.com

Newsletter Editor
Don Banta - K5DB
arsk5db@gmail.com

From The Desk of the President

The Magic of BVRC's Field Day Experience

To paraphrase author John Steinbeck's opening lines of Cannery Row, Bella Vista Radio Club's Field Day is very much like "a poem, a stink, a grating noise, a quality of light, a tone, a habit, a nostalgia, a dream."

But BVRC's Field Day experience is also much more. It encompasses the laughter that comes from the wonderful camaraderie of club members, the tasty smells that come from burgers on the BBQ and the side dishes laid out on serving tables, the wonderment and amazement that comes to visitors seeing the shear technology of amateur radio, and, finally, it encompasses the joy of transforming a blank open park pavilion into a living, breathing command center filled with exciting communications with other amateur radio operators around the country and the world.

This magic of Field Day happens once a year and lasts for twenty-four exciting hours where communications are established around the world by club members operating several different modes of communication through radio equipment and antenna systems that just a day before were neatly packed away, ready for deployment at a moment's notice.

Of course, Field Day at its core, is meant to be a dress rehearsal of sorts for establishing an instant communications infrastructure, in a disaster setting where all other established communications have been rendered unusable through natural disasters. Field Day is also an opportunity for the Amateur Radio community to present an "open house" to the public about the capabilities of our hobby to provide community support with communications. It certainly provides the opportunity to share in the shear fun of our hobby.

Bella Vista Radio Club's Field Day experience involves all of this and more. This year's slate of activities involved an antenna building workshop, mini "hamfest" shopping opportunities, amateur radio license testing, radio games such as fox hunts for finding hidden radio signals, competitive-type operating, and of course wonderful meals and fellowship.

We hope you were able to share in the magic of BVRC's Field Day experience!

73! – Jan, WB5JAN

June Meeting Features Field Day Review/Preparations & Outstanding HAM 101 Workshop

BVRC members once again provided an excellent attendance with packed rooms for both the regular June meeting and June HAM 101 Workshop.

In the regular monthly meeting session, BVRC past President, Membership Coordinator, and Field Day Coordinator Tom Northfell – W5XNA, shared his annual Field Day review of last year along with current FD preparations that are complete, and those areas still needing volunteers.

Tom shared the excellently produced video by Adnan – KDØKCY from last year's Field Day, along with preparation items that have been completed, and those still needing completion. (In case you haven't seen it, last year's FD video is available for viewing on the BVRC YouTube Channel...check it out.)

In addition, Tom shared the results from the club's results from the past two years, showing the tremendous gain from 2023 to 2024, and why BVRC surpassed the 2nd-Place club by over 500 points last year in the 3AC category.

Tom – W5XNA

He also highlighted a new feature that will be present at this year's 2025 BVRC Field Day: For the past two years BVRC has hosted a Fox Hunt event during Field Day, with last year conducting two Fox Hunts, one in the afternoon and one at midnight. Both were excellently attended and all the participants stated it was a blast.

Tom said the club will add to the excitement of the Fox Hunts for this year by adding a 2-meter direction finding antenna construction class! All interested participants, after building it, will use their newly constructed antenna for the Fox Hunt! It's a BVRC first, and should be really fun and exciting.

Another highlight will be the return of Bella Vista Mayor John Flynn to Field Day, to open the event and make BVRC's first FD QSO, the ceremony being held at 12:30.

BVRC's HAM 101 Workshop experienced a first since the club began the workshops, when BVRC Hospitality Director Dr. Bill Durham – KG5ZCI conducted the first "hands-on" event to a 97% packed room of attending participants. The workshop Bill conducted focused on Ohm's Law and how to use a multi-meter to determine resistor values.

He reviewed Ohm's Law, which was formulated by German physicist Georg Ohm *in 1826!* Next year will be the bicentennial of his valuable and famous electrical theory and formula. Bill then went over some simple schematic diagrams as a refresher on diagram symbols for attendees. One piece of information he shared, that most attendees did not know, concerned the color bars on a given resistor. The bars are actually a code, each bar standing for a respective number. By knowing the code, or having a conversion chart, the value of the resistor can be determined. Everyone not knowing this responded with some "Wows!".

Workshop participants then began to use the multi-meter stations that Bill provided for some hands-on resistance measuring. They had an excellent time discovering how to use the meter, breadboard, and measure different types of resistors.

The response to this Workshop was so positive that a "Part 2" multi-meter class is in the works.

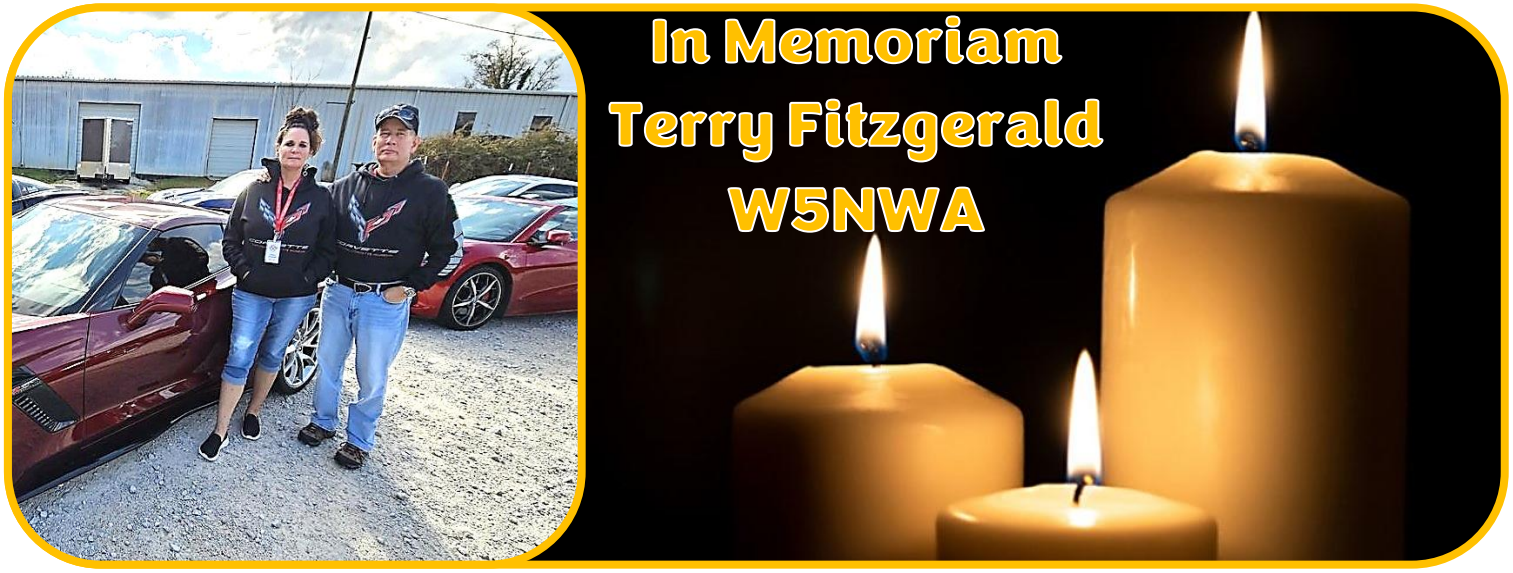
THANKS FOR A GREAT WORKSHOP, BILL!!!!!!!!!!


BELLA VISTA
RADIO CLUB
ARKANSAS
ARKANSAS
ARKANSAS' LARGEST AMATEUR RADIO CLUB
You are a part of it !
Thanks for your support !
Get involved with Club meetings and events !

The Signal deeply regrets reporting the passing of these BVRC club members:

Don was a resident of Bella Vista, moving here from Seattle in 2018 where he was a systems analyst for Costco. He joined BVRC after becoming a NW Arkansas resident. Shortly after joining the club, Don assumed the position of BVRC VE Coordinator, and did a stellar job in that capacity since that time.

Don also coordinated the exam sessions for BVRC Technician and General license classes, along with administering special exam sessions at Field Day. Don loved working DX, was a member of the Arkansas DX Association, and was nearing the 250 level of countries confirmed. Don will be sorely missed and his tremendous service to the club will be long remembered. Don became a Silent Key in the early morning hours of June 2. Thoughts and prayers go out to Don's XYL, Kim, and their family. RIP Don.



Terry was a resident of Bella Vista and joined BVRC in February 2023, shortly after achieving his Technician license and callsign – KJ5GIR – in one of BVRC's Technician mega-classes. Terry then acquired the vanity call W5NWA for which he was very excited to obtain (NWA – North West Arkansas). Terry was progressing toward his General license, and had a full HF station ready to go when he achieved that goal. He was a great guy and will be missed. Terry became a Silent Key on May 20. Please remember his XYL, Heather, and their family in your thoughts and prayers. RIP Terry.

BVRC VE REPORT
From Don Banta – K5DB
BVRC VE Coordinator
June 2025

Carla Sloan – KJ5LTG – Bella Vista – New Technician!
Matthew Gerstner – KJ5LTE – Springdale – New Technician!
Wade Courtney – KJ5LSU – Bella Vista – New Technician!
Luke Buzzard – Call Pending – Bella Vista – New Technician!
Anthony Miles – KB1WTF – Bella Vista – New General!
Michael Kimes – KJ5HOR – Bella Vista – New General!
J.C. Biggs III – KJ5IWB – Prairie Grove – New General!
Nate Stevens – KF5RPK – Fayetteville – New Amateur Extra!

NOTE: Due to a schedule change at the Shiloh Museum this month, the Springdale VE exam session will be held on the *FIRST* Saturday in July instead of the second Saturday.

Also, due to a scheduling conflict at the Bella Vista Library, the Bella Vista July exam session will be held at an alternate location on the regular 2nd Saturday of July.
See below.

Next month's exam sessions:

- ***July 5, 10 am – Shiloh Museum, 118 W. Johnson Ave, Springdale***
- ***July 12, 2 pm – Coldwell Banker building, 2nd floor 3113 N. Walton Boulevard Bentonville***

A Mega Salute to BVRC's Volunteer Examiners

Without our ARRL Volunteer Examiner teams, there would be less resources for persons wishing to take their amateur radio exams in our area, in addition to furthering the growth of BVRC.

Volunteer Examiners (VEs) must be willing to devote their time and talent to a commitment of being dependable and trustworthy by serving at our monthly VE exam sessions. They must possess a spirit of cordiality and calmness when administering amateur radio exams.

BVRC is blessed with just these types of individuals as is evidenced each time a VE exam session is held.

The Signal would like to acknowledge and salute these dedicated individuals:

First and foremost, we salute Silent Key, Don Cooper – KC7DC. We are all still stunned by the loss of Don. He will be greatly missed and his unrelenting and dedicated service as BVRC VE Coordinator will always be greatly appreciated and remembered.

BVRC VE Team - North

Robert Hill – K5NZV, Team Leader (new leader, and thank you Robert!)
Jessie Costulis – KG5YJV
Ryan Wolfe – KEØCZQ
Zachary Wolfe - KEØCZP
Tom Harris – W5BNR
Marc Whittlesey – WØKYZ
Joe Hott – W5AEN
Brandon Gage – W5BNL
Dale Locander – W5DSL
Cade Petersen – KC7MDT

BVRC VE Team - South

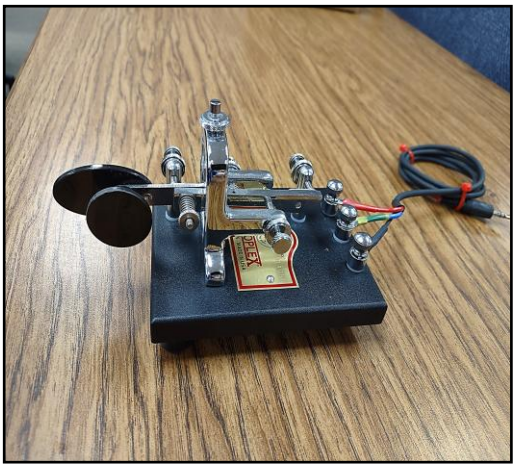
Mark Whatley – K5XH
Tom Northfell – W5XNA
Richard Thibodeaux – K5OTH
Stephen Ponder – N5ZE
Tom Harris – W5BNR
Vinson Carter – WV5C
Nate Stevens – KF5RPK
Michael Kemper – W5KMK
Jay Bromley – W5JAY
Kathy Bromley – WQ5T
Joe Dunn – WA5JD
David Gilbert – KB5SEZ
Wayne Pearson – AI5WC

(Don Banta – K5DB, BVRC VE Coordinator)

WELCOME NEW BVRC MEMBERS!

Matthew Gerstner – Springdale
Oso Wood – KD5JPK – Fayetteville
Wade Courtney – KJ5LSU – Bella Vista

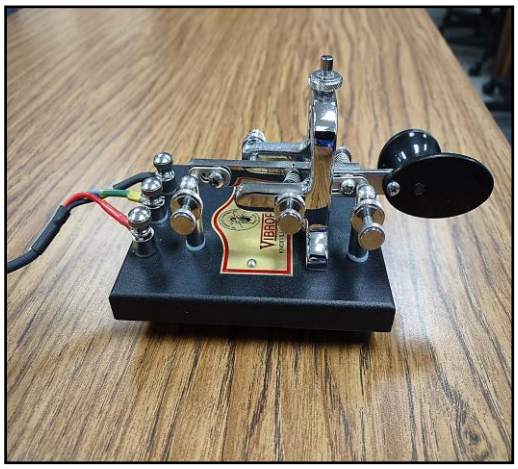
For Sale: Vibroplex Vibrokeyer CW paddle. Has had hardly any use. Like new/mint condition. Currently sells new for $189.95 @ DX Engineering. Asking $130.00



If interested, contact:

Timothy Hagquist – N5TEH
2310 Brook Lane
Siloam Springs, AR

Phone: 320 – 469 – 0079



10 Uses For a Multi-meter

(Courtesy Bob Witte – KØNR)

The handheld digital multimeter (DMM) is a basic tool for ham radio applications. It is called a multimeter because it combines multiple meter functions into one unit: voltmeter, ammeter and ohmmeter. These days, almost all of these meters are digital, which makes them very easy to use.

Being a bit of a test equipment junkie, I own quite a few DMMs. One of my favorites for hobby use is the Equus 3320, with a price tag of about $20. In addition to the normal current, voltage and resistance ranges, the 3320 has auto-ranging, diode check, continuity check and battery test mode included. A great little meter for twenty bucks.

Here is a list of 10 things you can do with a DMM:

1) Check the power supply voltage on the new power supply you just purchased.

2) See if your HT battery pack is fully charged.

3) Measure the current that your transceiver draws to estimate how long your emergency power system will last during a blackout.

4) Sort the bag of resistors you purchased at the swapfest.

5) Check a fuse to see if it is blown.

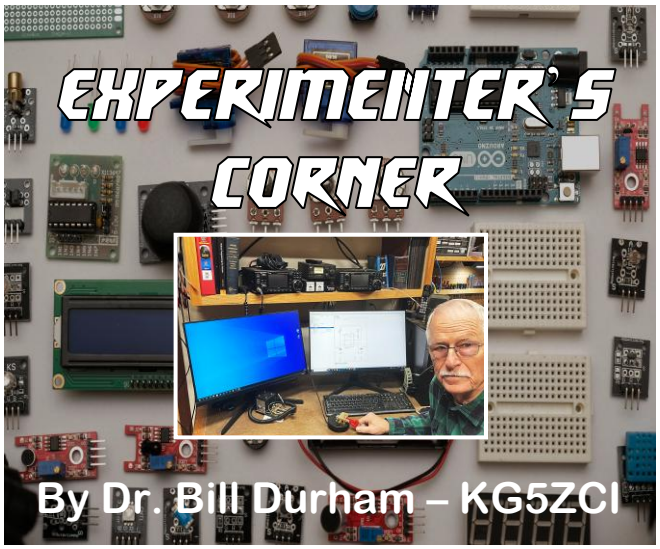
6) Troubleshoot your broken rig by checking the bias voltages against the service manual.

7) Figure out if the AA batteries the kids left for you are dead.

8) Verify that your coax is not shorted between the shield and center conductor.

9) Check the level of the power line voltage in the ham shack.

10) Check for good DC continuity between the ends of the TNC cable you just soldered.



This Month's Topic:

A 2-meter Yagi Fox Hunting Antenna

I was asked to put together some kits from which fox-hunt antennas could be made during Field Day. The starting point was plans published by N5DUX. The plans are very detailed and the product appears to be in high regard.

The antenna is a three element Yagi made from a tape measure and some PVC tubing.

The first step is cutting the tape measure into the various elements. The tape measure was purchased from Harbor Freight. Since I was going to make 5 or 6 antennas, I bought two 33ft long tapes, 1 inch wide and made from spring steel. The director is 35.125", the reflector is 41.375" and the driven element consists of two pieces 17.25" long. To cut the tape measures, I used aviation shears which are currently sold at many box store locations. A good pair of strong scissors might actually work as well. The metal is fairly thin and offered little resistance to the shears. Be careful with the raw edges. I rounded the ends and removed all burrs with a bench sander.

Three pieces of ½" PVC are needed, 11.5", 7" and 8". I cut mine with a chop saw but a hack saw will work fine. PVC cutters may work but not very well on heavy wall tubing.

A mating PVC "T" and two "crosses" cover most of the remaining parts, excluding hardware.

At this point I varied from the published plans which called for hose clamps to attach the elements to the PVC. This is by far the most expensive part so I decided to go with sheet metal screws instead.

The director must be attached to the "T". I centered the section of tape measure on the "T" and decided that I could place two sheet metal screws 1 inch on either side of the center of the "T". I used a metal punch (see photo) to make the two holes in the tape measure. In my case I set up a jig in my milling machine vice that held the punch and die because I needed to make 6. I wanted the holes to be precisely located the same on all 6 elements. This way the parts would be completely interchangeable.

If you are using a hand drill, once the holes are made in the tape measure, you can just use the tape measure to locate holes on the "T". Hold the tape securely and drill the two holes with a 7/64" drill bit. I typically will put in the first screw before drilling the second hole.

I used some self-drilling, self-tapping screws out of the shop stock but any ½" #6 sheet metal screws will work (I bought a few pounds at Layman's Hardware going out of business sale a few years back). The punch was 5/32" which gave holes large enough to provide a bit of play for alignment.

The reflector was done in the same way except a PVC Cross was used instead of a "T". The fittings are very similar, so the hole dimensions and location were the same as for the director.

The driver is slightly different in that it consists of two pieces. I punched the two halves to provide the usual one inch from center holes with a ½" separation between the two pieces. I drilled two slightly larger holes (9/64), completely through the fitting to hold two 1 3/8" 6 x 32 bolts. The holes in the tape measure were ¾" inside (toward the near end) from the other holes. These through holes will hold the shunt and the coax connections. This is another departure from the published plans done to avoid soldering on steel.

The shunt was made with 5" 14 gauge solid copper wire (the ground lead in a piece of Romex). I made the loop by bending the wire over a piece of the PVC tubing. I soldered some crimp-on ring connectors on each end. Just crimping is a good option here. Keep in mind that I was building kits to be assembled in the field, quickly and with as few tools as possible.

The coax connection also used crimp-on connectors.

I also made a short cut here by purchasing sets of 6 ft premade cables, some with BNC and some with SMA connectors. This way the antenna could be tailored to the receivers. Each antenna needs only a half of the 6 ft cable, so sets of 2 cables gave me 4 usable coax pieces.

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The Importance of Phonetics in Amateur Radio Voice Communications

We featured this article in a Signal issue of several years ago. Since that time, BVRC has experienced many new hams joining the club. So, we'd like to feature it once again to help our new members to the club and hobby on this topic as well as a refresher article for our other members, and for those who may not have seen it.....

When you engage in a two-way amateur wireless conversation for the first time in your life, you will probably come across some words that you've never heard before,

You may even mistake those words to be some kind of secret code! These words, in fact, are not a secret code (and by the way, conversation in secret code language is not allowed in amateur radio communication). They are actually words that are internationally used to convey plain language conversation and are known as *phonetics*.

There are many different terms for the phonetic alphabet used in ham radio: The ICAO phonetic alphabet, the military phonetic alphabet, the NATO phonetic alphabet, and the ITU phonetic alphabet. All these different names basically refer to the same phonetic alphabet, as shown below left.

A	Alfa	N	November
B	Bravo	O	Oscar
C	Charlie	P	Papa
D	Delta	Q	Quebec
E	Echo	R	Romeo
F	Foxtrot	S	Sierra
G	Golf	T	Tango
H	Hotel	U	Uniform
I	India	V	Victor
J	Juliett	W	Whiskey
K	Kilo	X	Xray
L	Lima	Y	Yankee
M	Mike	Z	Zulu

Now, in case you didn't know – there is nowhere in the FCC rules that states an amateur radio operator MUST use phonetics. However, there is a section in the rules that interestingly does mention them:

Rule 97.119 addresses the requirements of proper station identification. In sub-paragraph (b) it addresses the required method by which the callsign must be sent, using the different modes available in our hobby.

Concerning voice transmissions in sub-sub-paragraph 97.119 (b)(2) it states that station identification on any voice mode must be made: **"By a phone emission in the English language. Use of a phonetic alphabet as an aid for correct station identification is encouraged."**

Why would the governing communications body of this country add such a clause encouraging the use of a phonetic alphabet?

The answer is actually pretty obvious: A ham radio operator has to face many hurdles during an ongoing communication. There may be static, band noise, signal fading, interference from other stations operating at close frequencies, local noises in the radio room, local rf

interference (line noise), unusual voice accents of the other operator, improper pronunciation of words, and many other variables. During these many difficulties, it has been proven – again and again – that ***the use of phonetics*** improves the intelligibility and, most importantly, the accuracy of communication.

For example, in phonetics the letter 'D' is represented by the word 'Delta', while the letter 'B' is represented by 'Bravo'. To distinguish 'M' from 'N', hams use the words 'Mike' and 'November' respectively.

The phonetic alphabet is useful when calling distant stations, when the band is crowded, or when for any reason the station called is expected to have difficulty in copying voice signals. For example, 'radio' can be spelled out using the phonetic alphabet as "Romeo-Alpha-Delta-India-Oscar". A person who is accustomed in listening to such phonetics gets habituated in spontaneously writing down the exact word from those phonetics! They feel more comfortable at writing down a message ***spelled-out in phonetics*** rather than *the simple mentioning of letters.*

Even though this phonetic alphabet has been regularly challenged by those who think they have a better idea, it is *still used* in ham radio today. And, it is the phonetic alphabet that is still universally considered to be THE WAY to identify letters in radio communication. The fact that practically every commercial communications radio operator in the entire world references these exact twenty-six words when identifying letters, truly makes the worth of this system priceless!

Perhaps an even more invaluable reason for adopting a specific universal phonetic alphabet has to do with a universal characteristic of the human brain……

In researching this subject, there is some very interesting information. – Numerous studies have shown that all humans have a phenomenal natural ability to instantly fill-in missing sounds in known words with expected information, even when those sounds are not there!

This ability is often termed *Phonemic Restoration*. It happens without effort, it happens without your knowledge, and you've done it all of your life.

For example, if someone says the word "Whiskey" (for "W") on the radio, and the band happens to fade out completely eliminating the "s" in the word, the receiving station will usually never even notice it! You don't hear "Whi-(blank)–key". But, your mind thinks that it clearly heard the word "Whiskey" even though the "s" was never actually heard. This phenomenon enables you to easily recognize familiar words, both on the radio when listening conditions are poor, and also in routine everyday life. It's pretty amazing when you think about it.

Using phonetics improves on-air communication *hands-down*, whether you're working stateside stations, DX stations, contests, operating in Worked-All-States nets, DX nets, traffic nets, local HF nets, and VHF/UHF nets whether simplex or through a repeater.

And concerning that last one – VHF/UHF communication – I have heard many times that it is not necessary to use phonetics on a local simplex QSO or a repeater net. I respectfully disagree with this ideology.

Whether you're operating on the low bands of 160- or 80-meters, or on the high bands of 2-meters or 70-centimeters, if listening conditions are poor, then they are poor. For example: A mobile (in motion) station's signal can fade in-and-out through a repeater just as it has the potential to do on HF frequencies. The use of a phonetic alphabet *exponentially* aids the operator in accurately understanding call signs and/or special words in a transmission. Even if conditions are good, phonetics STILL ensure that important elements of a transmission are correctly received and understood. The use of phonetics is also *paramount* in emergency communications.

In my many years of repeater and HF net operation – both as a net participant and as a Net Control Station (NCS) – I have experienced hearing a station check-in to a given net, but <u>*not*</u> using phonetics.

The NCS (it's happened to me and others many times) – by honest mistake – misconstrues one or more letters of the station's callsign that is checking-in, due to one or more of the potential problems we have previously listed in this article. Then, wasted time ensues as the station checking-in and the NCS go back-and-forth in an attempt to correct the callsign of the station checking-in. This causes participating net stations to have to stand by while this cluttering is untangled, the progress of the net is stymied, and other various negative aspects occur. In addition, I have sometimes heard the station checking-in get offended because their callsign was not recognized correctly. Guess how this dilemma is usually and quickly resolved? – With phonetics.

The station that was checking-in actually shouldn't be getting upset at the NCS in a scenario such this, as they were, in fact, the <u>root cause</u> of the problem – *failure to use phonetics*. Had they done so, their check-in would have taken place like clockwork (under nominal conditions, of course), and the net would have proceeded smoothly and in a timely manner.

The use of phonetics is to <u>avoid</u> confusion – not to <u>create</u> confusion!

Many letters of the alphabet sound similar unless very clearly heard – "B" may be heard as G or D or V. "S" might be heard as F or X. The word 'bed' may be heard as 'bet' or 'pet'. But, if we spell it out with phonetics – Bravo-Echo-Delta – the confusion is instantly and easily eliminated!

All veteran DXers, contesters, and Net Control Stations use phonetics to safeguard against incorrect callsigns and other important information from being erroneously entered into the logbook or net report.

Many of you have operated in Field Day. Did you ever notice that when you – participating in a BVRC Field Day, for example – call "CQ Field Day, CQ Field Day, this is Whiskey-Five-November-Xray", then standby for a call from other participating stations, 98+% of the time, the replying station will answer your "CQ" with their callsign *phonetically*. These are either veteran operators or a somewhat newcomer to the hobby who has been schooled by a veteran mentor/elmer. They're doing it the right way and ensuring that you both have the call signs correctly in the log. In a situation such as Field Day, or any on-air situation,

with accidental (or even deliberate) carriers, fading band conditions, crowded frequencies, static, and "white noise", ***YOU NEED PHONETICS***.

They are the undoubted mainstay of avoiding confusion and increasing accuracy.

So, be encouraged to develop and discipline yourself to always use phonetics in voice communications – in *any* situation and on *any* band.

BVRC CLUB ACCESSORIES!

Show you're a proud BVRC member with club accessories from our supplier, Embroidered Memories!

- *Club Caps*
- *Name Badges*
- *Key Tags*
- *Club License Plates*
- *Mouse pads*
- *Ceramic Mugs*
- *Luggage/Bag Tags*

To order your personalized club product, click here !

Attention all newly licensed amateurs and the Bella Vista area Radio Club!

HAM 101 WORKSHOP

Each month before BVRC's regular monthly meeting at 7:00 pm, we offer a unique benefit for all new hams –

The HAM 101 Workshop

HAM 101 Workshop is a special meeting that convenes at 6:00 pm, one hour before the regular monthly meeting, <u>just for you</u>. Each month, one of our veteran hams moderates the meeting with a 'newcomer to ham radio' type topic, followed by a Q&A session on any and all topics of amateur radio. It is a fun and educational time of discussion, learning, fellowship, and fun. If you're new to our hobby, these meetings are geared for *you*. Be ready to ask questions and we'll see you there!

TIME: 6pm, before each regular BVRC monthly meeting at 7

PLACE: Arkansas Law Enforcement Training Academy (ALETA)
3424 S. Downum Road
Springdale, AR

The BVRC HAM 101 Net

The BVRC HAM 101 Net meets each Tuesday evening at 7:00 pm local time on the WX5NAS Skywarn Link System. ***This net is geared especially for newcomers to the hobby.*** Make notes on any questions or problems you have, then check-in to the net each week and have your question(s) ready. We have experienced Elmer/mentor hams on frequency to help you with any problems or issues that you may have in getting started on the right foot in the hobby. Mark your calendar each week and join us! (The list of the repeaters used in the Skywarn Link System for the HAM 101 Net are on page 2 of this issue of The Signal.)

All licensed operators – and especially newcomers – are invited to check-in with questions or issues regarding amateur radio, and a panel of our veteran Elmer/Mentor operators will be on frequency to field those questions and help you with answers and solutions. This net complements our HAM 101 Workshops that precede the regular monthly club meetings.

See you then!

BALUNS

What are these oddly named devices, and why do hams seem to talk about them so much?

What they are, What they do

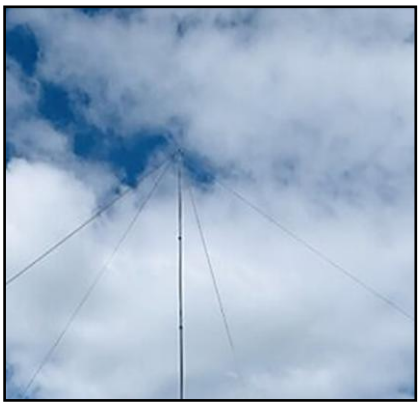
(Reprinted with permission from ARRL On The Air magazine, May 2022, ©ARRL)

A typical multi-dipole antenna can offer reliable performance on almost any HF frequency band. But, if you want an optimal performing dipole the "secret weapon" to incorporate into it is the balun.

The feedline that connects the antenna to your station is known as a *balanced line*, and it has some interesting properties.

Balanced and Unbalanced

The type of feed line you see most often in amateur radio applications is known as *coaxial cable*, or simply coax. It is a cable with a single wire that carries the voltage surrounded by a grounded outer shield. Engineers refer to this an electrically *unbalanced* condition. Being unbalanced sounds like a bad thing, but that isn't always the case. Coax functions perfectly fine most of the time, and it is easy to work with. Installing coaxial cable is just a matter of routing it from the antenna to your radio, over gutters, through drywall holes, inside partitions, under flooring, or wherever it needs to go. It also helps that all modern transceivers are specifically designed to work with coaxial cables.



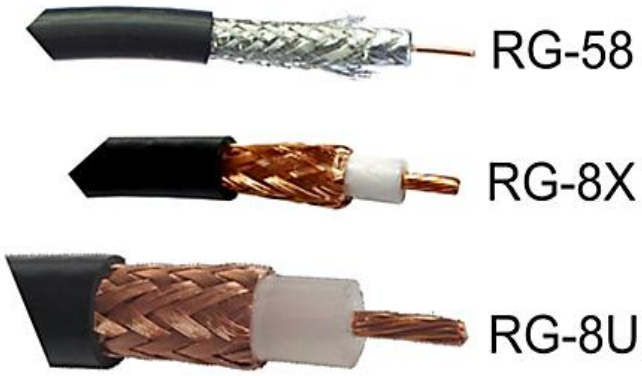
Unbalanced coaxial line feeding an inverted-V dipole

Balanced line is a vastly different creature. Unlike coaxial cable, a balanced feed line uses two parallel wires that both carry voltage – but the signal on one of them is inverted compared to the other. The advantage of a balanced line is that the inverted-signal relationship between the two wires acts to cancel the electromagnetic fields that would otherwise surround the cable. This means that a balanced line doesn't radiate energy and it doesn't pick up energy from its surroundings, like coax tends to do.

Balanced feedline. – Note how a standoff is used to keep the feed line away from the metal mast

When it comes to getting RF power to an antenna, balanced lines are terrific because, thanks to their electrical balancing acts, they lose very little energy. In terms of loss, a properly installed balanced feed

Enlarged view of balanced feed line, also known as 'ladder line'



Some of the different types of coaxial cable feed line

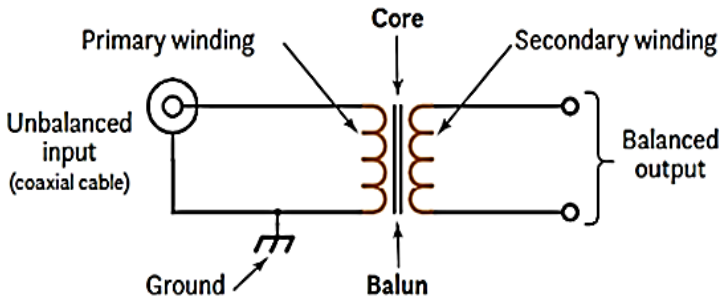


Figure 1: This is a diagram of a classic balun. Notice that the balanced and unbalanced circuits never come into direct physical contact. Instead, the wires are wound onto a core material, creating coils that transfer energy via electromagnetic fields.

is superior to almost any type of coax.

However.....balanced line is more challenging to install. You must keep it a few feet or more away from large pieces of metal that might disturb the electrical balance. You can't bend it at sharp angles or wind it into coils because doing either will also upset the balance. Copious amounts of ice or water on a balanced line can cause similar problems.

Coaxial cable is the overwhelming favorite for most hams because it doesn't suffer from these issues, but it still has that troublesome loss problem. If you want the best of both worlds – the ease of use that coaxial cable offers and the low-loss benefits of a balanced line – you need a *balun.*

Balun Basics

The word "balun" is a combination of the words "balanced" and "unbalanced". There are many types of baluns, but the ones you're most likely to encounter in amateur radio are used to isolate the connections between balanced and unbalanced feed lines. In this way, the ground connections of the unbalanced cable is not directly connected to the balanced, and which means it cannot upset the electrical balance that makes balanced line so desirable.

See the diagram of a simple balun in Figure 1 at left. Can you tell what's going on? The two coils generate electromagnetic fields that effectively transfer energy between them, and between the balanced and unbalanced feed lines to which they connect. This transfer occurs *without the balanced and unbalanced lines ever touching each other*! It is a simple, yet ingenious, concept.

Baluns as Transformers

In a balun transformer, the ratio of the turns between the primary and secondary windings determines the ratio of the input and output impedances.

So, not only can you use a balun as a bridge between balanced and unbalanced lines, it can also function as an impedance transformer if needed. This can be particularly useful when the antenna or feed line has a high impedance that must be converted to a lower impedance. With a multi-band dipole (or off-center fed dipole) a 4:1 balun is used to convert the higher impedance of the balanced line to a much lower impedance for use with the coaxial cable and transceiver. Look at the example in Figure 2 below.

Baluns as Antennas

You may also see baluns installed at the feed points of antennas fed with coaxial cable, such as dipoles. The balun is there to electrically isolate the dipole – a balanced antenna – from the unbalanced coax. By providing this isolation, the balun helps reduce the amount of energy flowing on the outside of the coaxial cable. When too much RF energy is present on the outside of a coaxial cable, it can find its way back into your station and cause problems such as strange behaviors in your station computer. You may also notice a fluctuating standing wave ratio (SWR) reading if you move the cable while transmitting. That's another sign of trouble.

A balun at the feed point can also help ensure that the antenna itself is balanced and, as a result, that it is sending and receiving signals in reasonably uniform patterns, rather than concentrating energy in one direction or another. But when it comes to dipoles and similar antennas, most amateurs don't worry much about antenna patterns unless they have a need to send and receive signal from a particular area of the world.

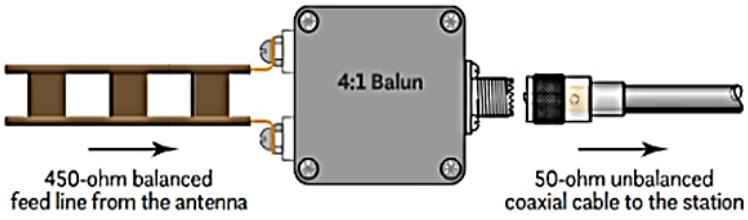


Figure 2: This balun is being used not only to keep the balanced and unbalanced lines isolated from each other, it also converts the 450-ohm impedance of the balanced line to a lower impedance for the coaxial cable and transceiver. Because it is a 4:1 balun, if the impedance is 450 ohms, the impedance conversion is 450 / 4 = 112.5 ohms.

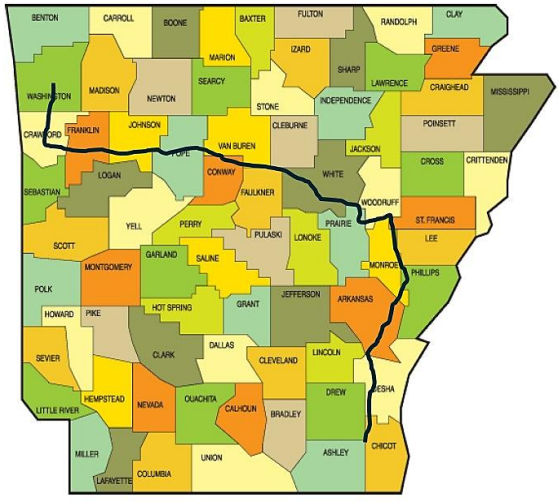
A typical 4:1 impedance balun for amateur radio use. This balun acts as a transformer, converting a higher impedance to a lower impedance, or vice versa. It is a key part of any multi-band or off-center fed dipole.
(Photo courtesy Balun Designs)

Baluns like these are used at the center connection of some dipole antennas to keep the signal pattern uniform and reduce the amount of RF energy flowing on the outside of the coax. This balun is shown connected to the wires of an antenna that is about to be installed.

Along with many other BVRC members, and in addition to my enjoyment of DXing, contesting, and activating special event stations, I am also a POTA park activation enthusiast. I am more of an activator than a hunter, as when I am at the home station I am usually hunting DX. However, I do also enjoy traveling the backroads, seeing new countryside, and activating POTA parks.

The 2025 Arkansas QSO Party took place this past May 17, which was a Saturday. For this year, and after about a 5 year absence from operating in the category, I returned to running HF mobile for the event.

If you divide Arkansas into 4 quadrants – NW, NE, SW, and SE – the southeast quadrant has some very rare counties that, when activated, make all QSO Party participants very happy to work due the ham population in that area of the state being rather sparse. Most of the southeast hams are either Technicians with limited HF and digital privileges, or they are veteran hams who do not get on the air very much, or not at all. I have activated a lot of those counties down there before. In fact, over the years I have activated 74 of Arkansas' 75 counties (for some reason, never made it to Poinsett County).



This year I decided to return one last time to southeast Arkansas for the QSO party and once again activate some of those rare counties. I would drive down the Friday before the event, May 16, spend the night in a motel in that area, then on Saturday start my ARQP mobile route at 9:00 am local time, working my way back home to NW Arkansas. My route for this year is at left. Keeping up with my pace of 5 years ago, I activated 21 counties in 12 hours, with about half of those hours involving drive time, of course.

Since this was the first time since I was traveling to the southeast region of the state since becoming a POTA activator enthusiast, and since I was going to go past a *bunch* of POTA parks on Friday, why not have some extra fun and activate a few parks on the way down? I checked the POTA database and chose 3 parks that had not been activated as much as others. Not only would that make for bigger pileups for me, it would of course also provide the POTA hunters at home with some new parks to work.

My first stop was in Pine Bluff at Byrd Lake Natural Area, US-7151. Byrd Lake NA is a densely wooded area on the south side of the Pine Bluff city limits – right there in town. I was surprised it had not been activated more than it had as there are quite a few hams in Pine Bluff...but perhaps not that many 'POTA hams'. Even though it is dense, it has a great sidewalk/bicycle route through the park. It borders a residential area, but is still a nice, quiet park to visit.

The upper HF bands were just coming in when I arrived around 10:00 am, but I did work 12 CW and 3 Phone QSOs. – Enough to get credit for the activation. (POTA rules state you must make at least 10 contacts from a park to get activator credit for it.)

Back on the road again, and this time heading for a park that I was particularly interested to see, as it was a historical park. – Rohwer Relocation Center Memorial Cemetery National Historic Site, US-11233. This park is in Desha County, just off Arkansas Highway 1, about 10 miles north of the biggest town near it, McGehee. It sits right in the middle of a huge soybean field, but is separated from the farmland being a National Historic Site and administered by the National Park Service.

It is one of only three Japanese American confinement site cemeteries in the United States. Japanese Americans incarcerated at Rohwer from 1942 to 1945 designed and built the cemetery which has several monuments, including one honoring Japanese American soldiers who died fighting in Europe during World War II.


Approach to Rohwer Cemetery NHS

For our younger generation BVRC members who may not be that familiar with the happenings here at home during WWII, allow me to share this brief history I found when I researched this park: President Franklin D. Roosevelt signed Executive Order 9066 on February 19, 1942, just a couple of months after the attack on Pearl Harbor. The Order authorized the establishment of military areas encompassing most of the West Coast of the United States, "from which any or all persons may be excluded." This allowed for the forced removal of Japanese Americans and those of Japanese ancestry from these areas. This was done because of fears that they might support Japan in the war.

Monument at cemetery entrance


Graves of Japanese American confinement center incarcerees

In March 1942, President Roosevelt signed Executive Order 9102, which established the War Relocation Authority, the federal agency responsible for the forced removal and incarceration of Japanese Americans and the construction and administration of confinement sites throughout the United States. The U.S. military supported Executive Order 9066 by forcibly removing Japanese Americans from states on the West Coast. Through Executive Order 9066, approximately 120,000 Japanese Americans and those of Japanese ancestry were moved to 10 confinement sites across the nation, Rohwer being one of them. (There are actually 3 confinement historical sites in Arkansas, all in the southeast.)

While in Rohwer Relocation Center, some incarcerees volunteered to enlist in the U.S. Army. The volunteer soldiers from Rohwer and other confinement sites received assignment to the 100th Infantry Battalion, a unit within the United States Army's 34th Infantry Division, later activated into the 442nd Regimental Combat Team. This all-Asian unit of Japanese Americans born in the U.S., received recognition as one of the most highly decorated and respected in the U.S. Army. While the Japanese American men who enlisted left Rohwer Relocation Center to fight for their country, their families remained behind as incarcerees, several of them being interred in this cemetery.

Although it sits right in the middle of a soybean field, within the park boundaries is a nice stand of oak and hickory trees. I chose a spot to park the pickup on the west side of the cemetery in which I was in total shade under the huge canopy of this grove of trees, With the wind blowing about 20-30 mph, I rolled the back windows down and enjoyed a great breeze through the cab while operating without having to idle and run the a/c. It was great!

I had a little better luck with propagation this time around, making 41 phone QSOs and 11 CW in about 30 minutes for a total of 52 for the park.

From Rohwer National Historic Site it was onward to my 3rd and final stop for the day, Seven Devils Swamp State Natural Area, US-7186. Like many state natural and wildlife management areas, this park is 'back in the boonies', although getting to it is fairly easy as the roadway is [roughly] paved all the way from the main highway to the park. Most roads going to parks such as this are dirt and also very tough to navigate at times.

Operating from this park was very pleasant and quiet. The parking area for it lies on the outskirts of the main park, the main park being where great bald cypress trees grow out of the swamp. (See picture in the title of this article). Not as many mosquitoes, too! It was getting late and I was ready for supper and relaxing on a motel bed to prepare for the QSO party the next day, so I only spent about half an hour here, but did make 31 CW and 6 phone QSOs.

I then headed for the motel in McGehee for the night, for a good night's rest and was 'rip snortin' ready to go' for the Arkansas QSO Party the next morning. Activating these parks sure took out the boredom of just driving the 300 or so mile trip down to the southeast to begin my ARQP mobile route the next morning.

Activating POTA parks is a fun and relaxing operation, and many times educational. Personally, I only active POTA parks from my mobile HF rig. You pull into the park, find a place to operate, and go to it. However, there are quite a few BVRC members who enjoy portable operating and there's not a thing wrong with that either. Either way, try 'trekking the trails' with your own POTA activation sometime. But beware, you'll get hooked!

Info about the Parks On The Air program can be found here: https://docs.pota.app /

Info on being a POTA activator is here: https://docs.pota.app/docs/activator.html

In the future when I go on another POTA activation trip, perhaps I'll share that one with you also.

Robert Hill-K5NZV wrote an exciting POTA article for The Signal just a few months ago where he activated 15 POTA parks in a 24-hour period to achieve the POTA Cheetah Award. If you missed it, check it out. Go to the Newsletter tab on the BVRC website, then go to the April 2025 issue. The article begins on page 10.

Our President Jan-WB5JAN also submitted a superb POTA story in the September 2024 issue of The Signal, page 13.

And for you other BVRC POTA aficionados, if you go on a POTA activation excursion, take some pics and send me the details. You may think it would be a boring story, but there's many of us in the club who would think otherwise! Send it in! (Or any other ham radio activity you're involved in: antennas, QSL cards, radios, anything!)

THE DXCC DEN

By Don – K5DB

This month's featured country: Palau

Primary Call Sign Prefix: T8

This month, our DXCC travels take us to the entity of Palau. Palau, officially the Republic of Palau, is an island country in the Micronesia subregion of Oceania in the western Pacific Ocean. The Republic of Palau consists of approximately 340 islands and is the western part of the Caroline Islands, while the eastern and central parts make up the Federated States of Micronesia.

It has a total area of 180 square miles, making it the sixteenth smallest country in the world. The most populous island is Koror, home to the country's most populous city of the same name. The capital, Ngerulmud, is located on the largest island of Babeldaob.

The country was originally settled approximately 3,000 years ago by migrants from Maritime Southeast Asia.

Location of Palau

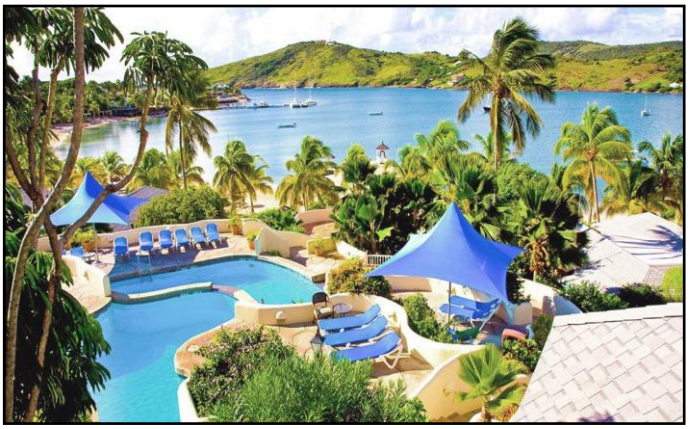
the majority of the population.

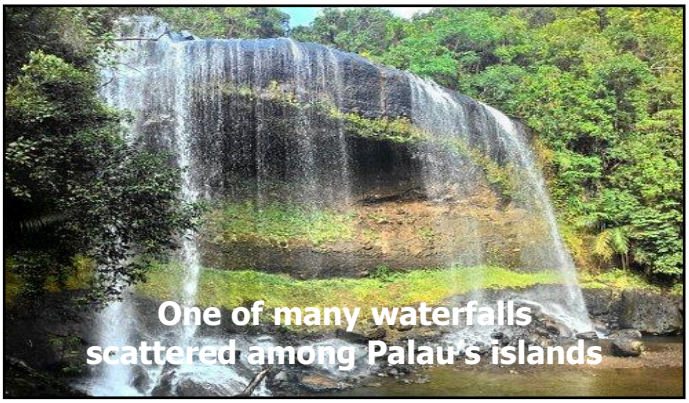
During World War II, the United States captured Palau from Japan in 1944 after the costly Battle of Peleliu, when more than 2,000 Americans and 10,000 Japanese were killed, and later the Battle of Angaur. In 1945–1946, the United States re-established control of the Philippines and managed Palau through the Philippine capital of Manila. By the latter half of 1946, however, the Philippines was granted full independence with the formation of the Third Republic of the Philippines, shifting the U.S. Far West Pacific capital to Guam. Palau was passed formally to the United States under United Nations auspices in 1947 as part of the Trust Territory of the Pacific Islands established pursuant to U.N. Security Council Resolution 21.

Four of the Trust Territory districts joined and formed the Federated States of Micronesia in 1979, but the districts of Palau and the Marshall Islands voted against the proposed constitution. Palau, the westernmost cluster of the Carolines, instead opted for independent status in 1978, which was widely supported by the Philippines, Taiwan, and Japan. It approved a new constitution and became the Republic of Palau on January 1, 1981.

Politically, Palau is a presidential republic in free association with the United States, which provides defense, funding, and access to social services. Legislative power is concentrated in the bicameral Palau National Congress. Palau's economy is based mainly on tourism, subsistence agriculture and fishing, with a significant portion of gross national product (GNP) derived from foreign aid. The country uses the United States dollar as its official currency. The islands' culture mixes Micronesian, Melanesian, Asian, and Western elements. Ethnic Palauans make up

▲ Palau resorts ▼





One of many waterfalls scattered among Palau's islands

Palau could be termed "semi-rare" on the ham bands. It is currently #130 on the Club Log Most Wanted List. Generally, it is activated by visiting hams mainly from Japan and other various Asian nations. Activations can occur several times a year. However, Palau can be a challenge to work due to its location in the southeast Asia region and, of course, when band conditions aren't favorable. It's not impossible to work, though, and under decent conditions can be worked with a simple wire or vertical antenna.

Capitol building in Ngerulmud

National Bird:
Palau Fruit Dove

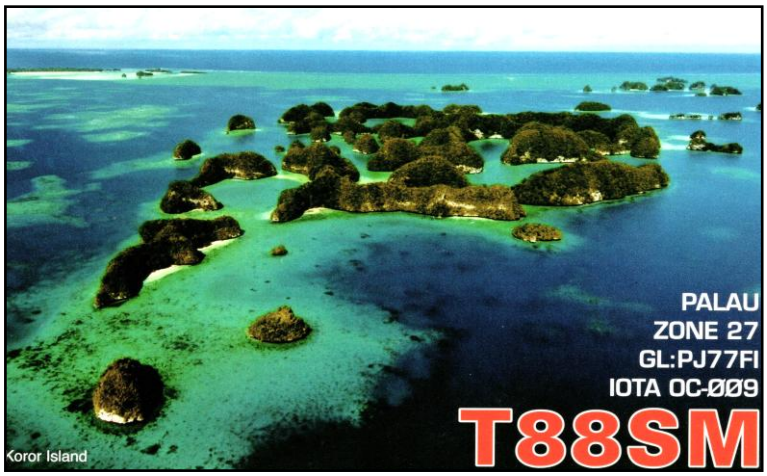
Amateur radio is regulated in Palau by the International Telecommunication Union (ITU) and the national authorities.

Although Palau is frequently activated by visiting hams from other countries, native operators are also on the air from time to time and use most all modes of communication including CW, SSB (Phone), RTTY (Radioteletype), SSTV (Slow Scan Television), WSPR (Weak Signal Propagation Reporter), and FT8 (digital mode for weak signals).

One of the recent "standout" activations in Palau was conducted by a YL from Japan, Miyo – JO3LVG. She operated under the call sign T88MK. Other major activations have occurred fairly frequently, some of the notables in 2002 2009, 2016, 2017, 2019, and 2023.

So, if you haven't worked Palau as yet, just keep watching the DX websites and outlets, the NG3K coming DXpeditions website, and, of course, keep your eye on the DX Summit, DX Watch, and DX Heat spotting websites.

QSL card from Miyo-JO3LVG's 2023 activation as T88MK



One of my Palau QSLs from a 2019 activation

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