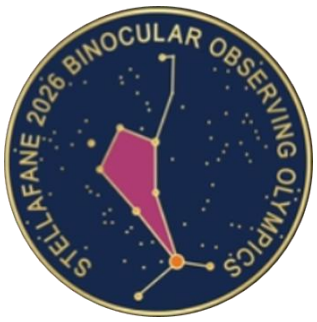


Binocular Observing Olympics VIII

Stellafane 2026 edition

Compiled by Phil Harrington
www.philharrington.net

- To qualify for the BOO pin, you must see 15 of the following 20 binocular targets.
- Check each off as you spot them.
- Chart numbers found on the pages that follow and represent the recommended finding sequence.
- Tougher objects are *italicized*.

Seen	#	Object	Const	Chart	Type*	RA	Dec	Mag	Size	Nickname/Notes
	1	NGC 6231	Sco	1	OC	16h 54m	−41° 50′	2.6	15′	Northern Jewel Box/False Comet
	2	M6	Sco	2	OC	17h 40m	−32° 13′	4.2	25'	Butterfly Cluster
	3	M7	Sco	2	OC	17h 54m	−34° 48′	3.3	75'	Ptolemy's Cluster
	4	Garden Trowel	Sco	3	As	16h 55m	-30° 59'	6 - 8	78'	Created by John Davis
		M62	Oph	3	GC	17h 01m	−30° 07′	6.4	15'	Flickering Globular Cluster
	6	M16	Ser	4	BN/OC	18h 19m	−13° 47′	6.4	70′×50′	Eagle Nebula
	7	NGC 6664	Sct	4	OC	18h 37m	-08° 13'	8	12'	Santa's Sleigh Cluster/Teacup Cluster
	8	IC 4665	Oph	5	OC	17h 46m	+05° 43′	4.2	40′×40′	Summer Beehive
	9	*NGC 5866*	Dra	6	GX	15h 07m	+55° 46'	9.9	5.2	Spindle Galaxy, M102?
	10	Mu (μ) 1+2 Boo	Boo	7	**	15h 25m	+37° 23'	4.3 + 7	108"	Alkalurops
	11	Double Triangle	Lyr	8	As	18h 54m	+36° 55′	4 to 8	15'	Created by Rob Datsko
	12	*Barnard 140*	Aql	9	DN	19h 19m	+05° 14′	n/a	60′×60′	opacity = 3
	13	Barnard 142-143	Aql	9	DN	19h 41m	+10° 57′	n/a	80'x50'	Barnard's E
	14	NGC 6802	Vul	10	OC	19h 31m	+20° 16′	8.8	5'	
	15	*NGC 6543*	Dra	11	PN	17h 59m	+66° 38'	8	22"	Cat's Eye Nebula
	16	NGC 6939	Cyg	12	OC	20h 32m	+60° 40′	7.8	7'	Also try bonus NGC 6946
	17	Little Big Dipper	Cep	12	As	20h 39m	+60° 46'	6	90'	Created by Jim Hendrickson
	18	Dabih (Beta [β] Cap)	Cap	14	**	20h 21m	−14° 47′	3 + 6	3.5'	
	19	*NGC 6934*	Del	14	GC	20h 34m	+07° 24'	8.8	7.1'	
	20	M30	Cap	15	GC	21h 40m	−23° 11′	7.2	12'	Jellyfish Cluster

Key

**	Double star	BN	Bright nebula	Gx	Galaxy	OC	Open cluster
As	Asterism	DN	Dark nebula	GC	Globular cluster		

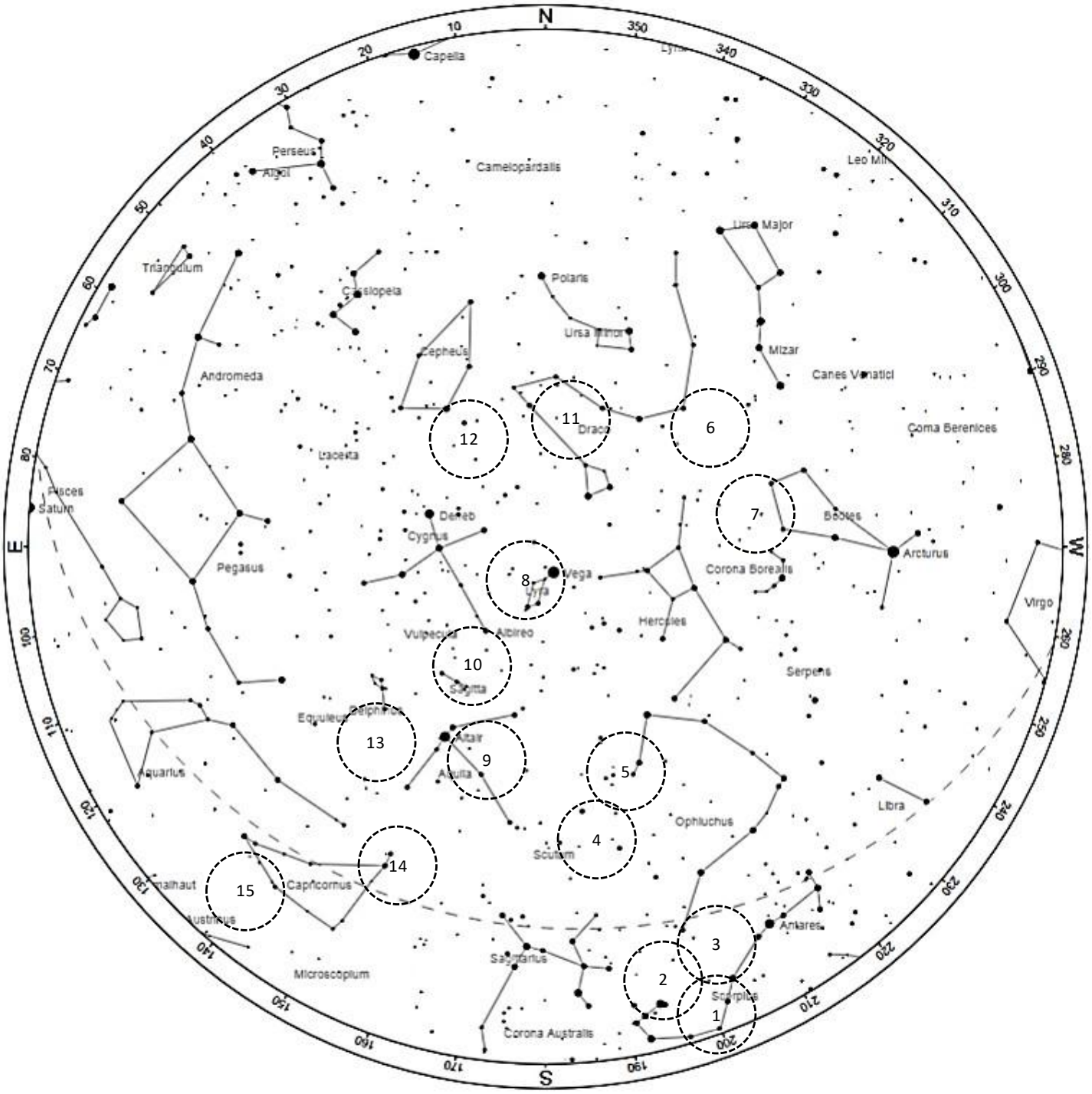
- All charts adapted from Megastar (available for free from https://archive.org/details/mega-star-5)
- Included photos were taken with a ZWO Seestar S30 Pro.

I would enjoy hearing how you make out with this year's list? And would you like to see a new BOO 2025 list next year? Drop me a line through my web site, **philharrington.net**, and let me know. Good luck. And remember, two eyes are better than one!

All-Sky Star Chart

(Chart drawn for August 14 @ 10:00 PM)

1 Circled areas correspond to the chart numbers found on the pages that follow and represent the recommended finding sequence.



Location: Stellafane, 43.2770°N, 72.5109°W
Time: 14 August 2026 22:00 (UTC -04:00)

Chart 1. NGC 6231

NGC 6231 is the bright head of the "False Comet," a comet-shaped naked-eye glow formed by Zeta (ζ) Scorpii, NGC 6231, Collinder 316, Trumpler 24, and nearby haze in the Scorpius Milky Way.

In tonight's sky, it rides low and sets early, so be sure to have a clear southern horizon and catch it as soon as the sky is dark enough.

Start at Zeta, the closest naked-eye marker. Through binoculars, Zeta shows a warm orange star beside a fainter blue-white companion. Glance half a degree north and NGC 6231 snaps into view. Some 120 searingly hot blue-white stars are crammed inside this tight cluster. They look relatively faint through binoculars because we are seeing them from across approximately 5,600 light-years. But if we could somehow magically reduce that distance to the same distance as the Pleiades (444 light years), the brightest stars in NGC 6231 would outshine Sirius in our sky.

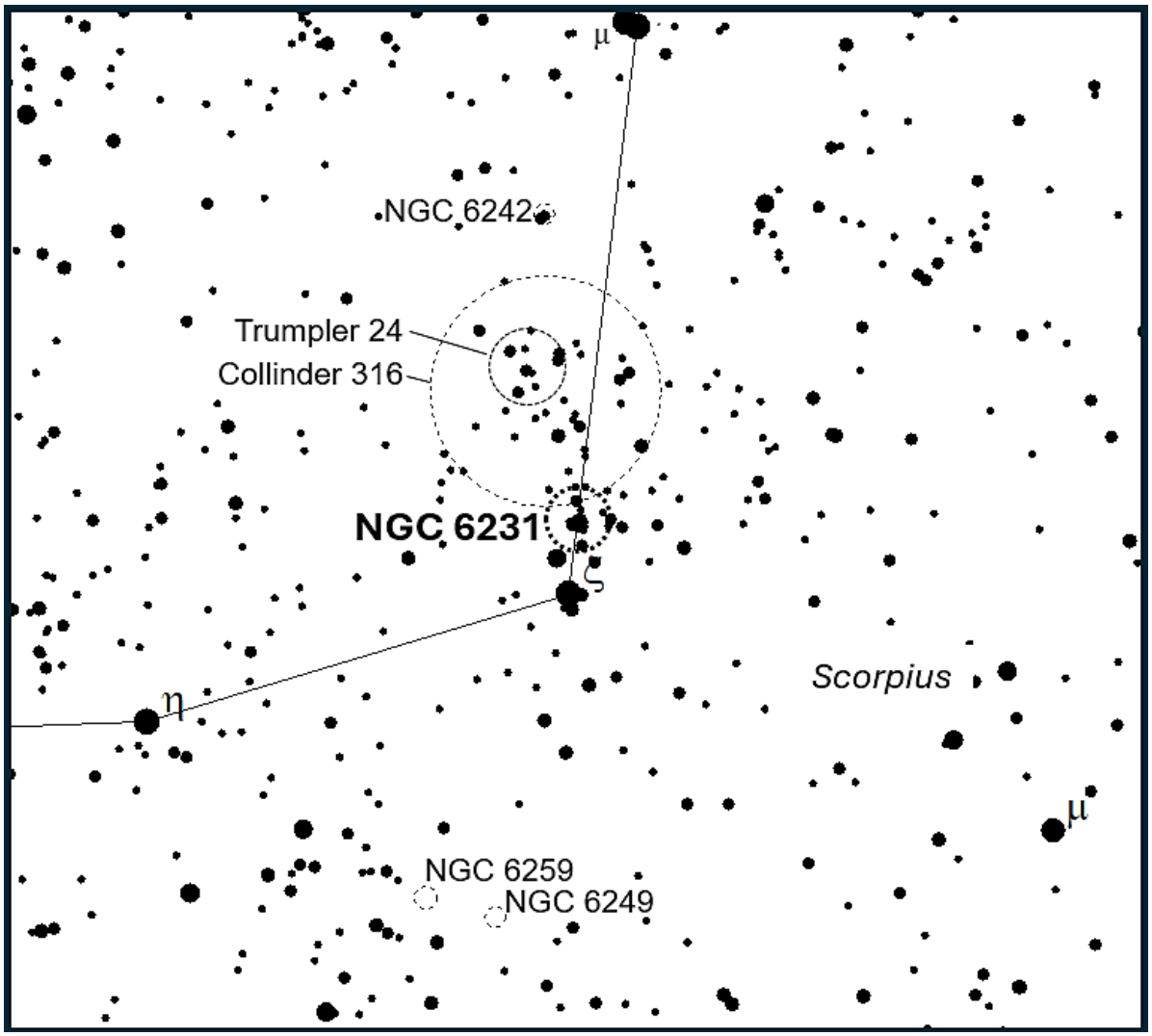
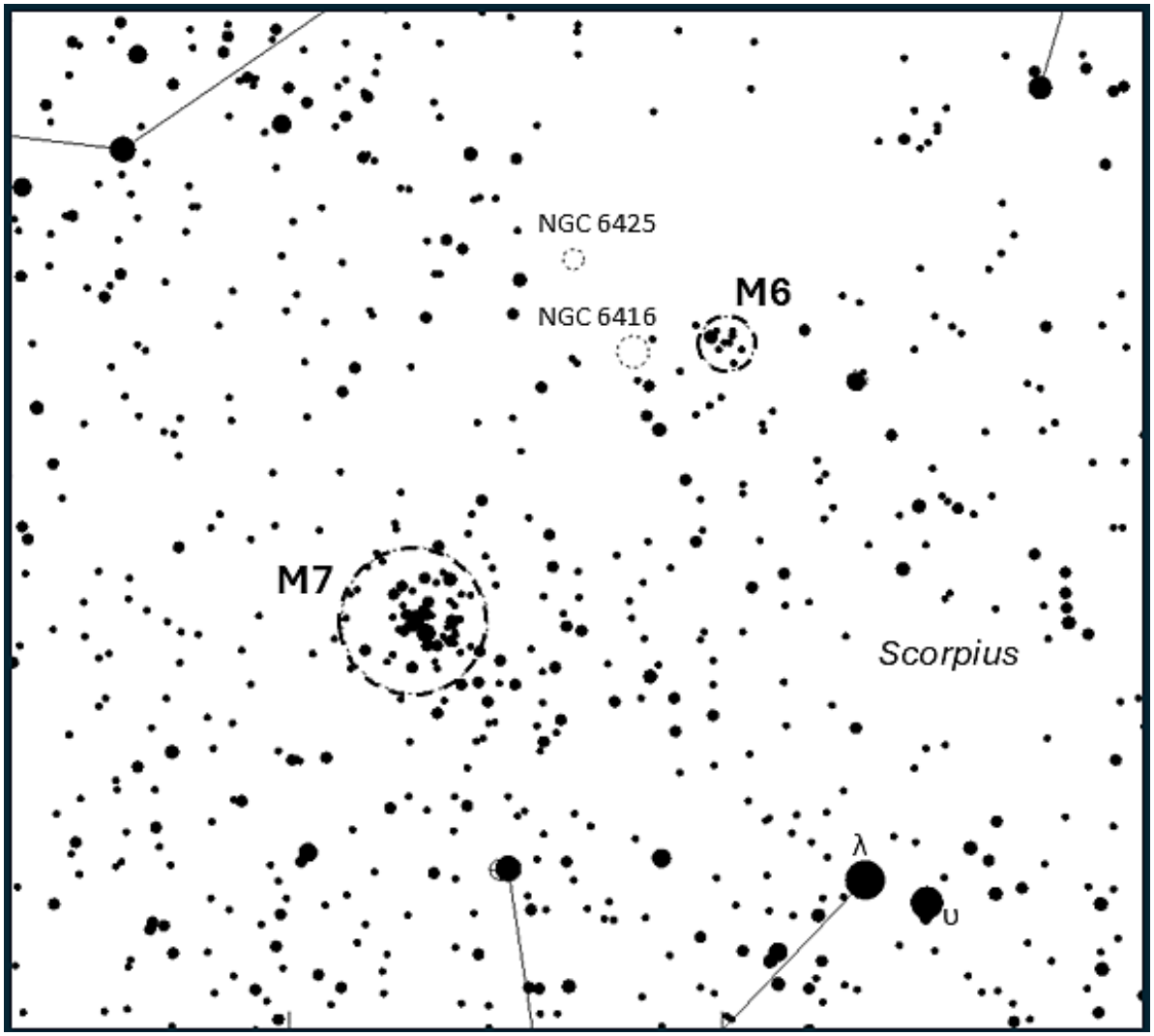


Chart 2. M6 and M7

Two of my favorite summer clusters scrape the southern horizon this month, trailing the stinger stars of Scorpius. M6 and M7 are lovely alone, but together in the Milky Way's rich star fields, they form one of binocular astronomy's finest scenes.

To find them, place Lambda (λ) Scorpii (Shaula) and Upsilon (υ) Scorpii (Lesath) near the southern edge of your binocular field, then look north. If the sky is clear enough, you just might spot both clusters without optical aid.

M6, the Butterfly Cluster, is the smaller of the pair. At first glance it may seem rectangular, but a patient look reveals two wings spread from a central body, the butterfly flying northwest. About 1,590 light-years away and roughly 100 million years old, M6 is dominated by hot blue-white stars. Its standout is BM Scorpii, an orange supergiant variable that contrasts beautifully with its brighter blue neighbors.



Southeast of M6 lies M7, Ptolemy's Cluster. Recorded by Ptolemy around A.D. 130, resolved telescopically by Giovanni Battista Hodierna in 1654, and cataloged by Messier in 1764, M7 is larger and brighter than M6, and the southernmost Messier object. Through binoculars, it bursts into a broad spray of bright stars against a softly glowing Milky Way backdrop.

Chart 3. Garden Trowel asterism and globular cluster M62

The Garden Trowel is a fascinating binocular asterism created by lifelong Massachusetts amateur and longtime Stellafaner, the late John Davis.

From Epsilon, sweep a little more than half a typical binocular field north-northeast. A 7x35 or 7x50 binocular will show the Garden Trowel under decent skies, though 10x50s make it stand out better. Look for three 7th-magnitude stars forming a south-pointing trowel blade, with four or so stars wandering northward as a slightly crooked handle. Most shine white, while a couple show subtle golden tints.

Once the Trowel is centered, look just northeast for M62, nicknamed the Flickering Globular Cluster for its many variable stars. In binoculars, it appears as a small, softly glowing haze, brighter toward the center but unresolved.

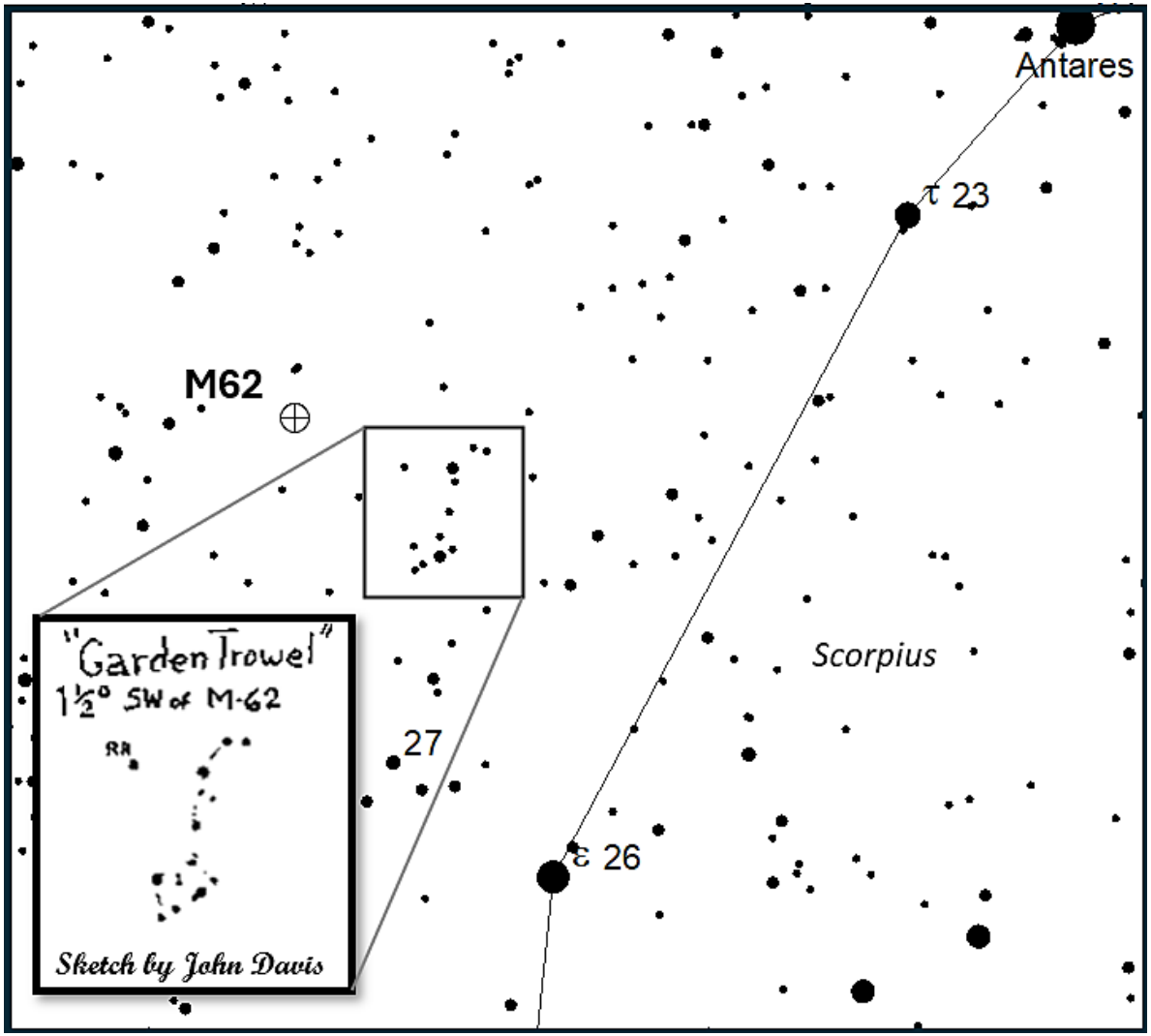
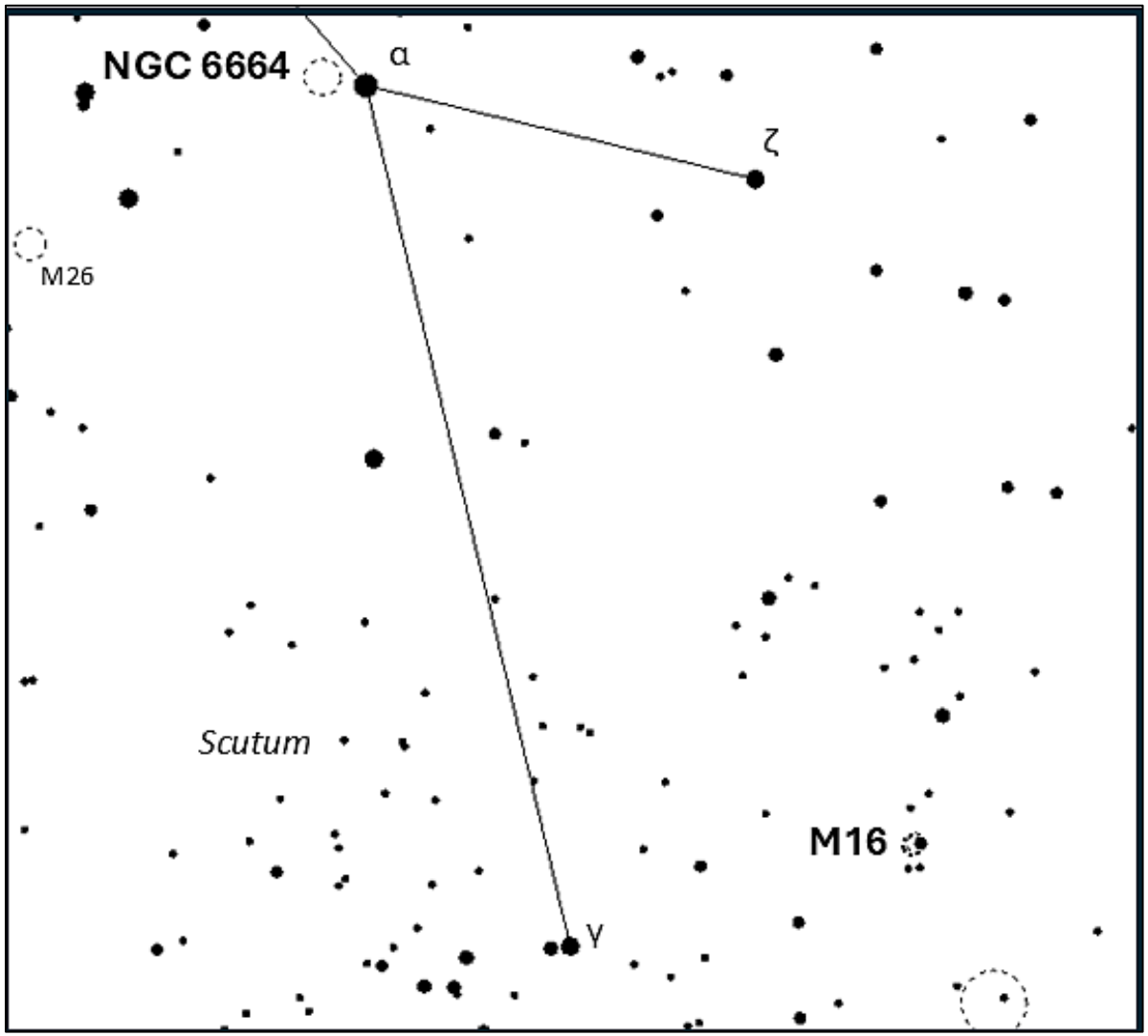


Chart 4. M16 and NGC 6664



NGC 6664 is a modest open cluster set against Scutum's crowded Milky Way fields. Discovered by William Herschel on June 16, 1784, it shines around magnitude 7.8 and spans about 12 arcminutes.

Center 4th-magnitude Alpha (α) Scuti, then glance northeast by less than a degree. In 10×50 binoculars, NGC 6664 appears as a small, misty glow, while larger glasses begin to resolve a sparse scattering of faint stars.

Next, crossing into Serpens Cauda, we come to M16. M16 is commonly known as the Eagle Nebula, but in reality, Messier's entry refers mainly to its embedded open cluster, NGC 6611. De Chéseaux discovered it in 1745 or 1746; Messier later described "a cluster of small stars, mixed with a faint light." The nebula itself is cataloged as IC 4703.

To find M16, head southwest from Alpha to Gamma (γ) Scuti, then glance west about 2-1/2° to a dim patch. That's M16.

Binoculars show about a dozen stars in a soft unresolved glow. The surrounding IC 4703 nebula is elusive at best, while the famous Pillars of Creation remain photographic quarry.

Chart 5. IC 4665

Loose, bright, and easy to spot, IC 4665 is one of Ophiuchus's best binocular open clusters, a broad splash of young suns often nicknamed the Summer Beehive. Its large size and bright member stars make it better suited to binoculars than to high magnification.

To find IC 4665, center Cebalrai (Beta [β] Ophiuchi), then glance about 1° north/northeast. IC 4665 will look like an obvious, loose gathering rather than a compact knot, especially through 7x50s or 10x50s under a clear, dark sky.

Through binoculars, expect about ten bright stars of 7th through 9th magnitude sprinkled among fainter points across roughly a degree of sky. Depending on your imagination, the brighter members may suggest a triangle, diamond, short-tailed kite, or distorted capital H, framed by the rich summer Milky Way.

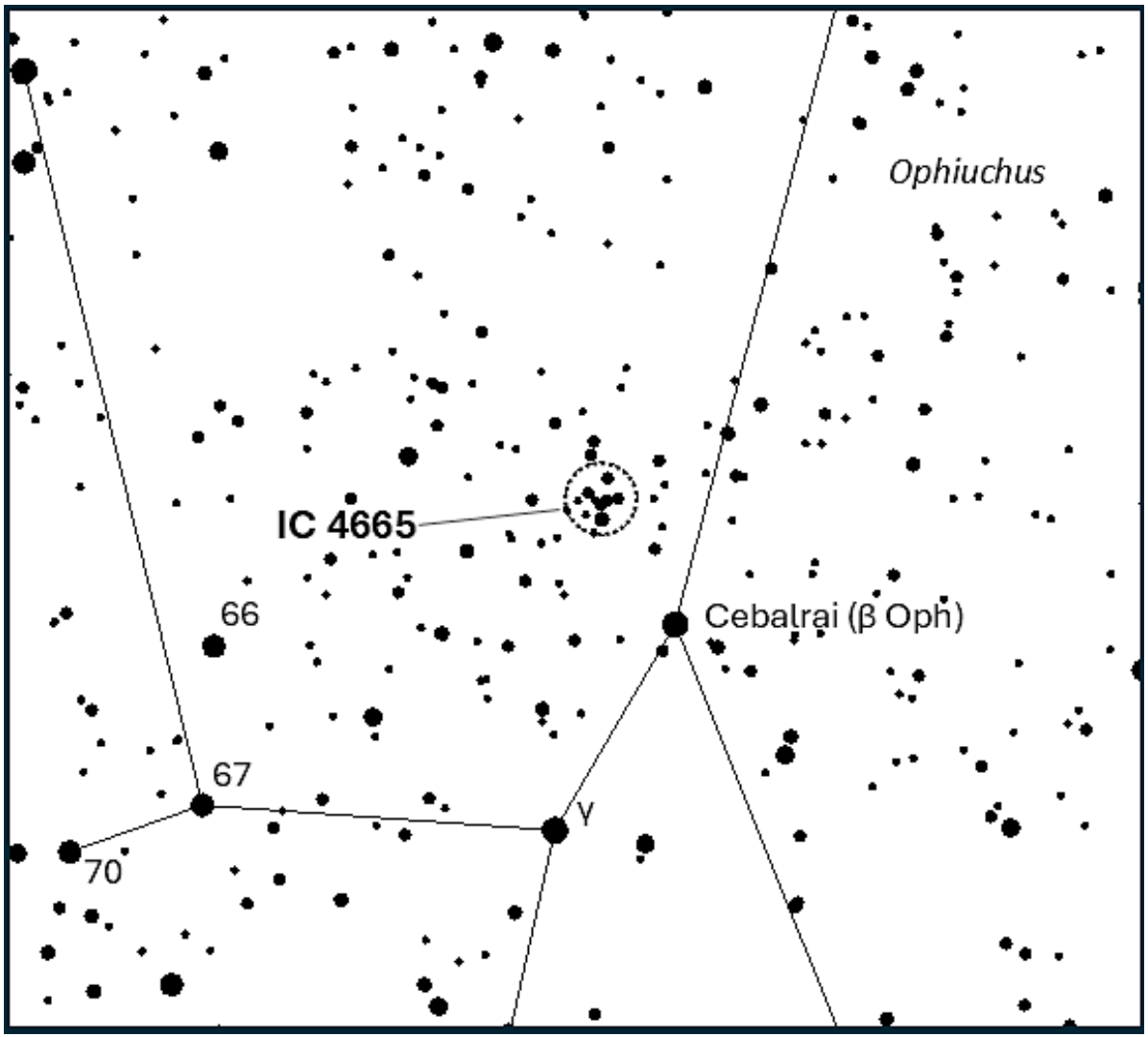


Chart 6. NGC 5866

NGC 5866, the Spindle Galaxy in Draco, is a nearly edge-on S0 lenticular galaxy about 44 million light-years away and roughly 60,000 light-years across. Lenticular galaxies bridge spirals and ellipticals: they have a central bulge and flattened disk, but no obvious spiral arms. In the past, NGC 5866 has been misidentified as Messier 102, although that designation remains historically tangled. Most now conclude that M102 was a mistaken repeat observation by Messier of M101, which lies 9° to the west.

To find it, start at the 3rd-magnitude star Edasich (Iota [ι] Draconis). In binoculars, imagine Edasich as the apex of a slender triangle with Mizar and Alkaid marking the base 17° to its southwest. From Edasich, glance about 3° southwest for a small arc of 7th-magnitude stars. Follow the curve of the arc to NGC 5866, just 1.5° to its south.

At only magnitude 10, NGC 5866 is a challenge for large binoculars, appearing as a faint, narrow spindle with a dust lane that is invisible through binoculars.

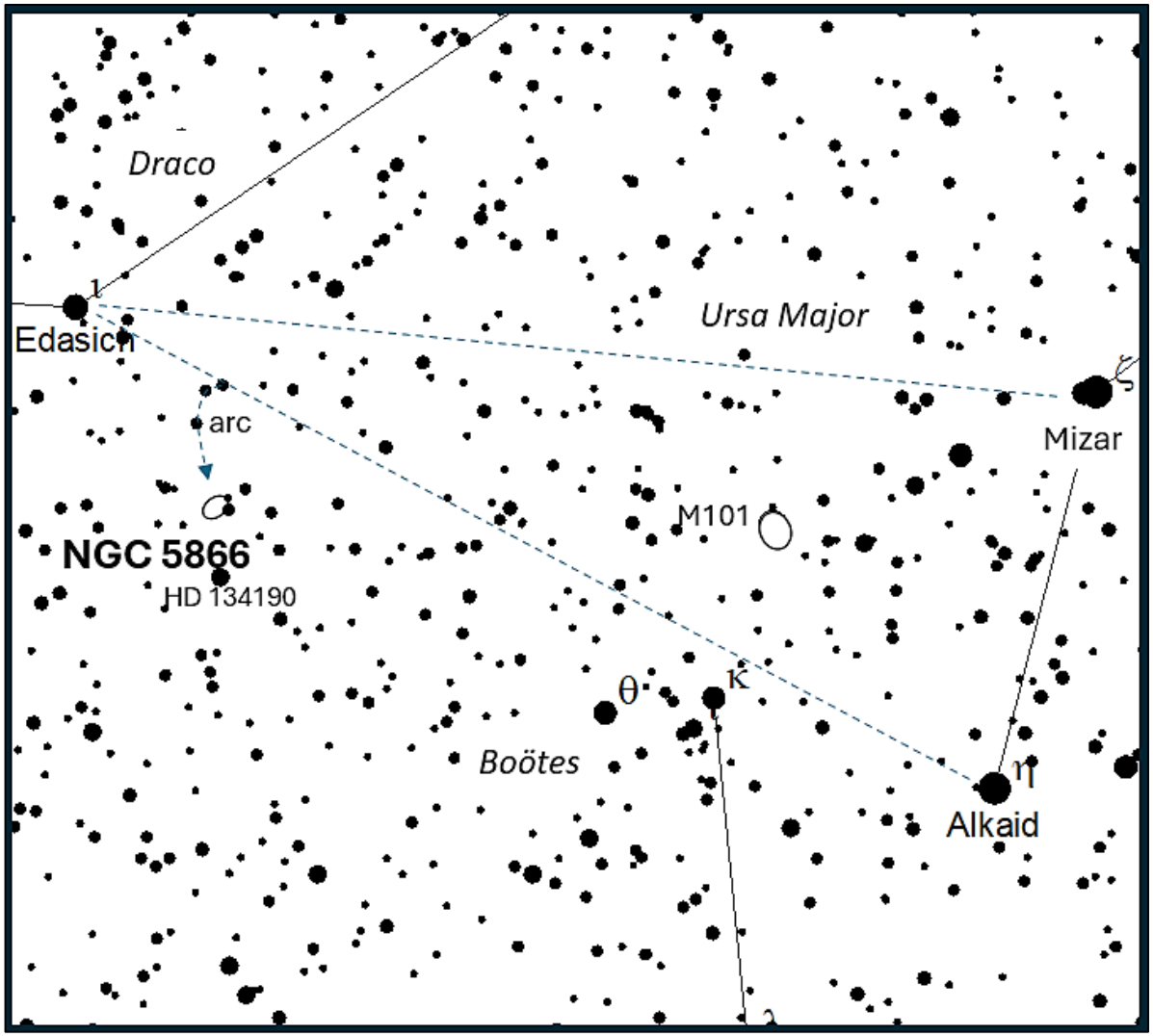


Chart 7. Mu-1 and Mu-2 Boötis

Mu (μ) 1 and 2 Boötis, often referred to collectively as Alkalurops, form one of the most striking binocular doubles in the late spring and summer sky. The pair lies in northern Boötes, about 4½° north-northeast of Delta (δ) Boötis, near the northeastern corner of the familiar Kite outline.

First cataloged by F.G.W. Struve in 1835, the Mu pair is readily visible in most binoculars. Mu-1 appears as the brighter, pale yellow-white primary, while Mu-2 sits 109 arcseconds to its south as a fainter companion.

Telescopes show that each is itself a binary system. Mu-1 is a very close spectroscopic binary, while Mu-2 is a tighter visual pair of 7th-magnitude stars separated by about 2.2 arcseconds.

Although the two systems lie physically close to each other and share similar proper motions, their differing chemical abundances indicate that they are separate systems. Rather than forming a true quadruple star, they may simply be two independent binaries passing near each other.

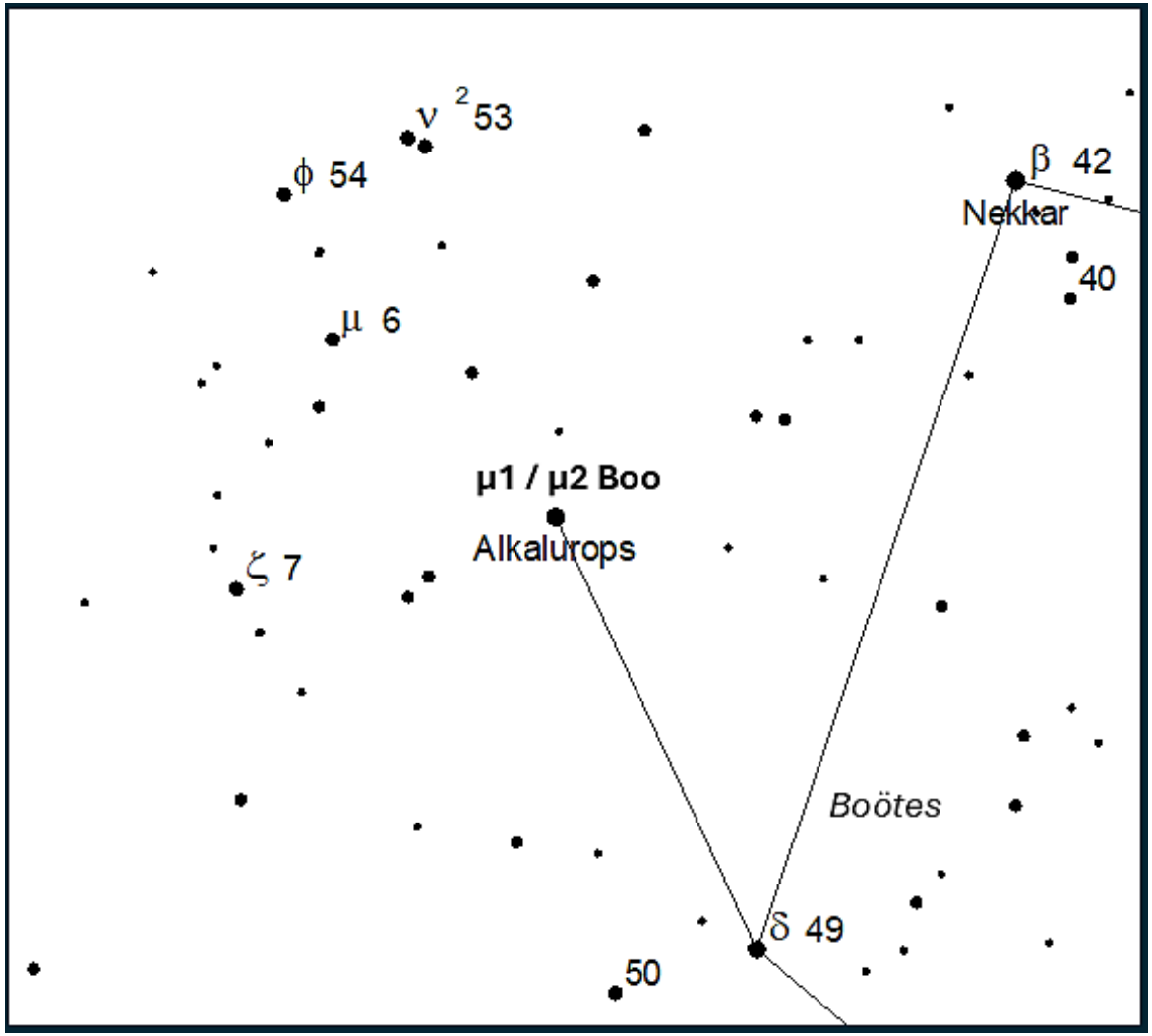


Chart 8. Double Triangle asterism

The northeast corner of Lyra's parallelogram is a busy intersection. There, 4th-magnitude Delta-2 (δ2) and 6th-magnitude Delta-1 (δ1) Lyrae are separated by 10.3 arcminutes, about three times wider than Epsilon (ε) Lyrae, the famous Double-Double.

In 1959, American astronomer Charles Stephenson suggested that the Deltas and surrounding fainter stars form a loose cluster. Debate followed, but in 1968, studies confirmed the group as real, with about 33 members. Today it is nicknamed the Delta Lyrae Cluster, formally known as Stephenson 1.

Several years ago, I heard from amateur astronomer Rob Datsko that there is an intriguing double triangle asterism within Stephenson 1. As he envisioned it, orangish Delta-2 forms the east-pointing apex of an obtuse triangle that includes Delta-1 to the northwest and 8th-magnitude HD 175538 (aka SAO 67550) to the south.

Look inside that triangle and you'll see a smaller, equilateral triangle of 8th- and 9th-magnitude stars. I've glimpsed the Double Triangle through 10x50s, but it is best appreciated through larger binoculars.

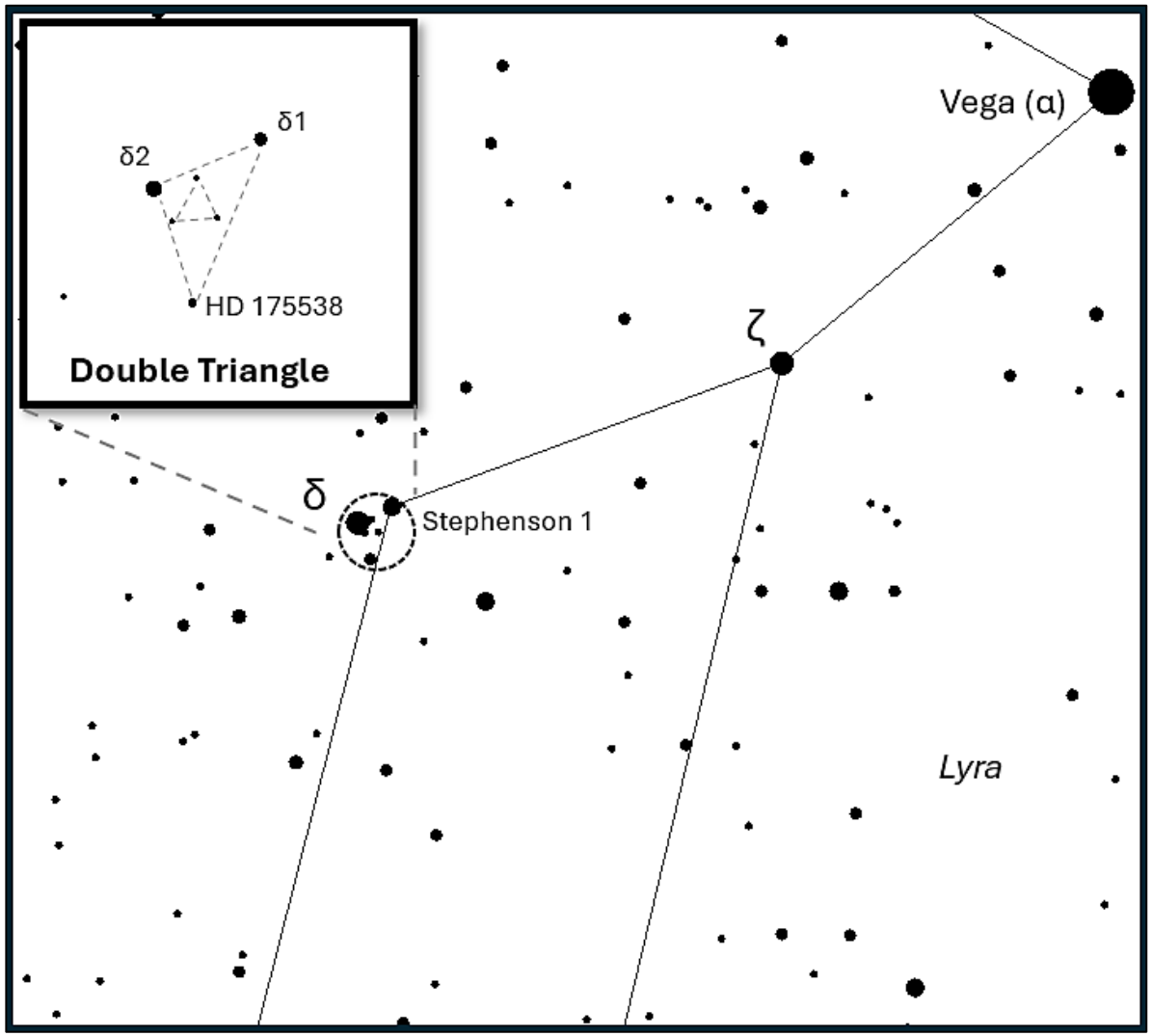
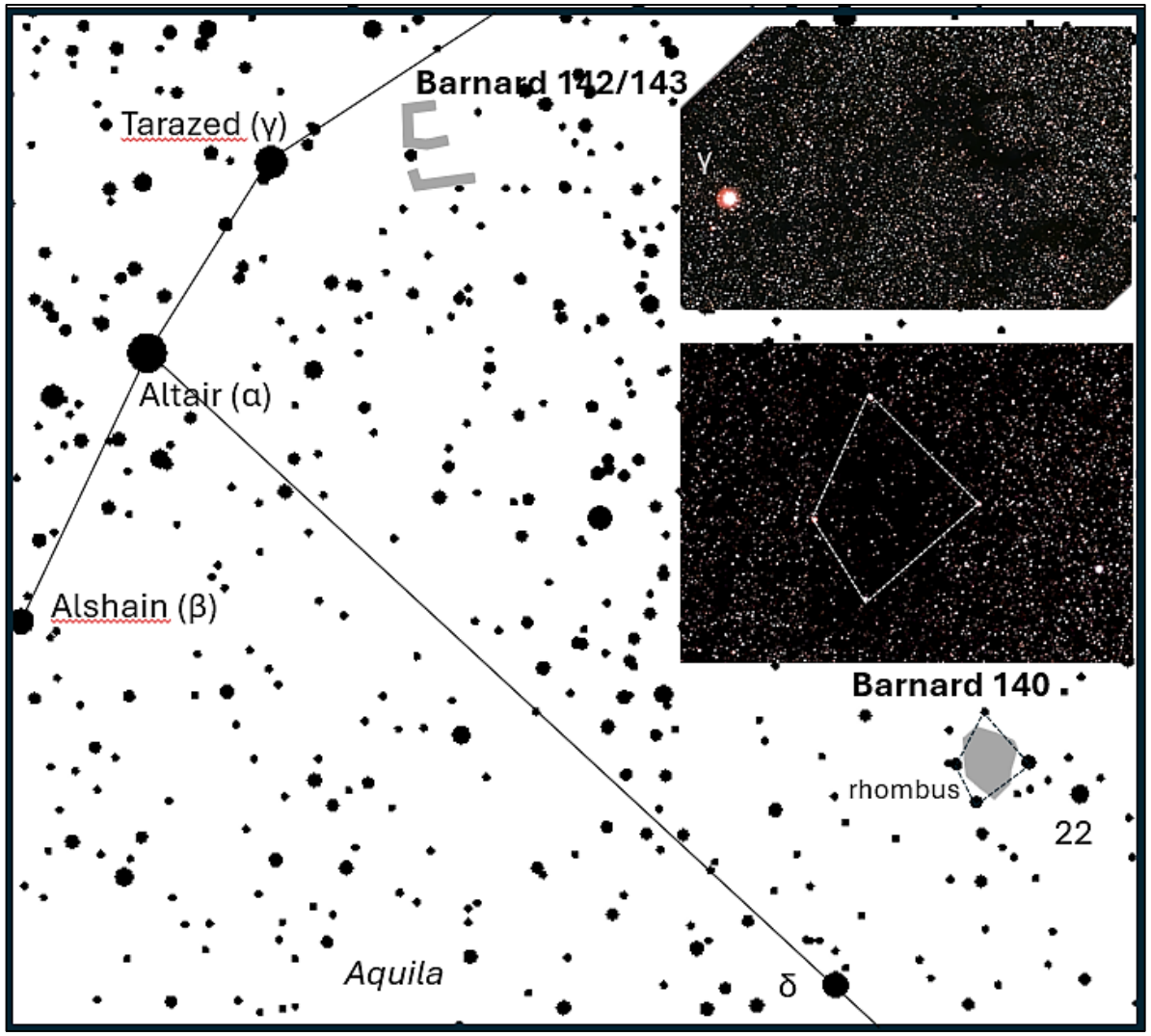


Chart 9. Barnard 140, and Barnard 142-143

Next, try Barnard 142 and Barnard 143 in Aquila, just 3° northwest of brilliant Altair (Alpha [α] Aquilae) and 1° west of Tarazed (Gamma [γ] Aquilae). Barnard 143, the northernmost of the two, resembles the prongs of a handleless fork opening westward. Barnard 142 lies just south, shaped like an irregular, starless rectangle. Together, they form the unmistakable capital E known as Barnard's E. My best view came here at Stellafane through 10x50s. In 16x70s, however, its impact faded, perhaps from the narrower field.

If you thought Barnard's E was an easy catch, try your luck with Barnard 140. To get there, begin at Altair and slide southwest along the Eagle's back to 3rd-magnitude Delta (δ) Aquilae. Pause there, then look northwest about 3°, roughly half a 10x50 binocular field, for 6th-magnitude 22 Aquilae. From 22, shift less than a degree northeast to a faint rhombus of 7th- and 8th-magnitude stars. The area inside appears less filled with stars than its immediate surroundings. That's Barnard 140.



Photos taken through a ZWO Seestar S30 Pro.

Chart 10. NGC 6802

Everyone enjoys viewing the Coathanger asterism through binoculars. To find it, draw an imaginary line from Altair through the two fainter stars set to either side, then extend that line northwest about twice its length into Vulpecula. There, you should spot a tiny flock of 10 stars. Six form the Coathanger's straight crossbar, while four curve southward to create the hook.

Now glance just east of the eastern end of the crossbar for the phantom open cluster NGC 6802. Phantom, that is, in my 10x50 binoculars. I have never seen it through anything smaller than 16x70s, and then only under very dark skies. Unlike the Coathanger, NGC 6802 is a real open cluster, but faint. Its brightest stars are only around 11th to 12th magnitude, with most cluster members dimmer still. Even through giant binoculars, expect no resolution, only the faintest wisp of blended starlight, slightly oval and easy to miss.

Photo taken with the ZWO Seestar S30 Pro

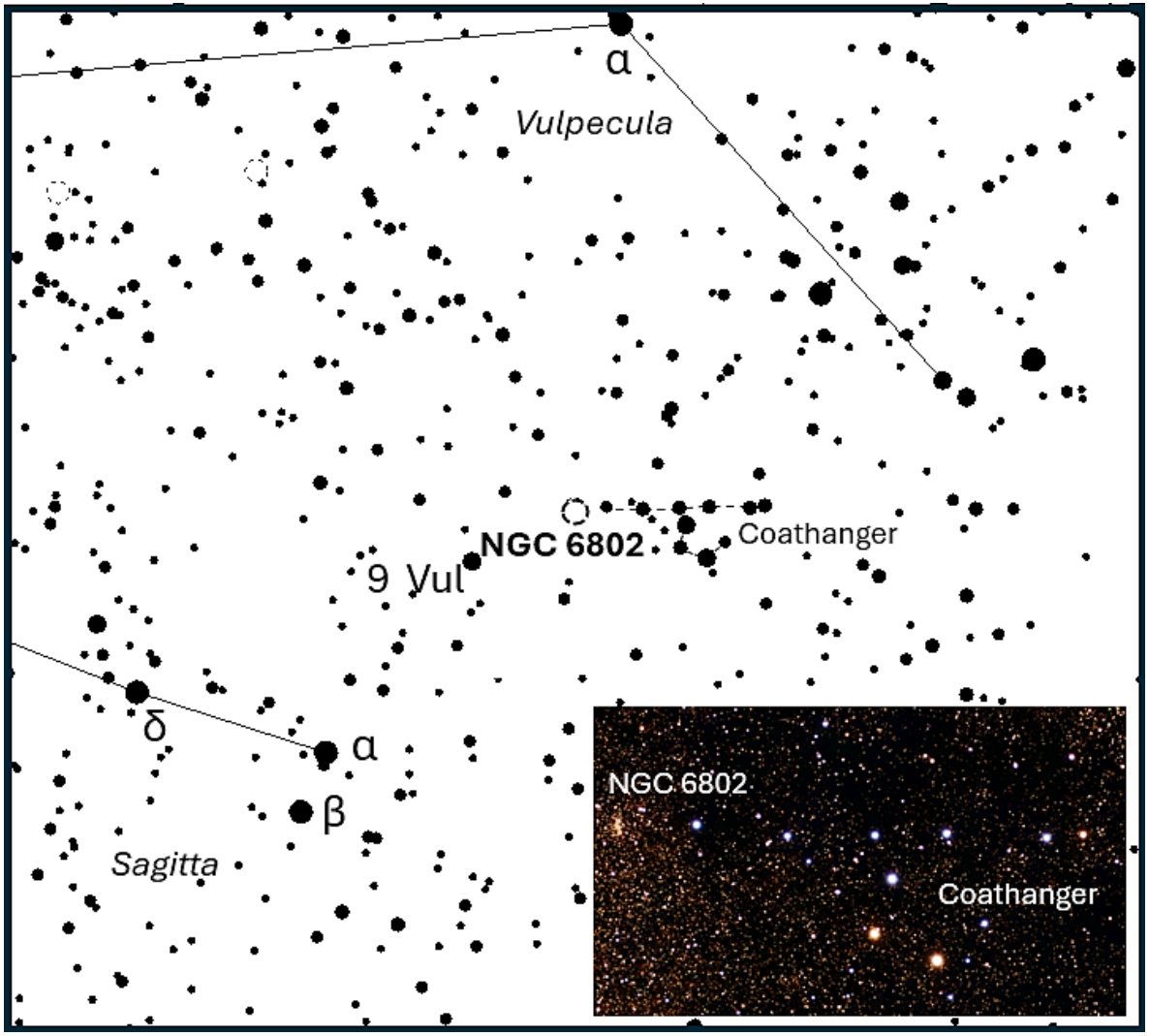


Chart 11. NGC 6543

NGC 6543, the Cat's Eye Nebula, is one of the sky's most distinctive planetary nebulae, a compact, high-surface-brightness target that can masquerade as a star until its color gives it away. It lies in Draco, about midway between Delta (δ) and Zeta (ζ) Draconis, and sits in a rather barren field near the north ecliptic pole. Under a dark, transparent sky, 50mm binoculars can reveal it as a stellar point; 60mm or 70mm glasses make the identification easier.

To find it, start at Delta, then sweep toward Zeta. NGC 6543 lies near the middle of that line, close to the center of another imaginary line between 36 and Omega (ω) Draconis.

Through binoculars, expect a tiny blue-green point rather than an obvious disk. Larger binoculars may also show a 10th-magnitude companion-like field star just west of the planetary, giving the pair a false double-star appearance.

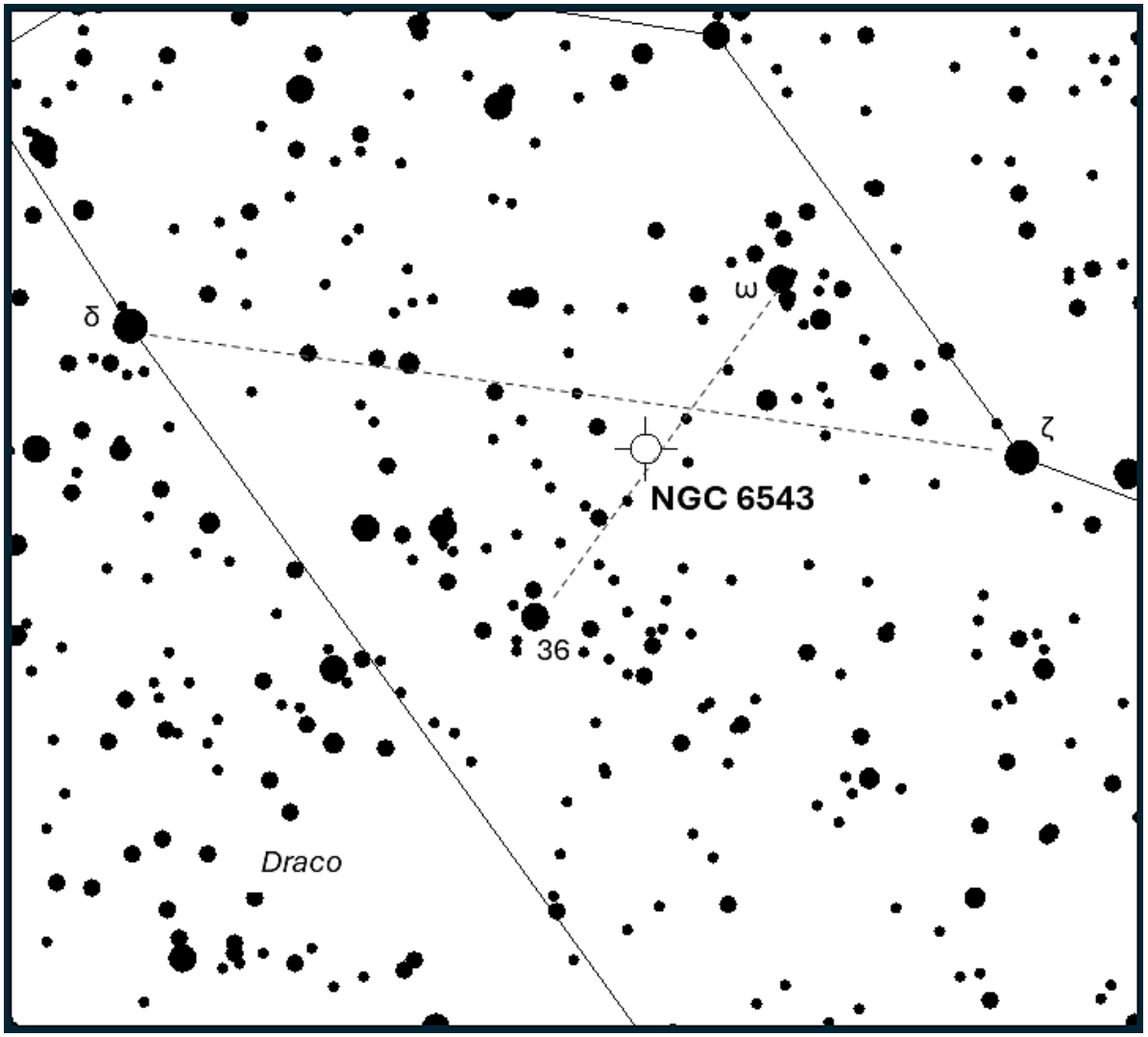
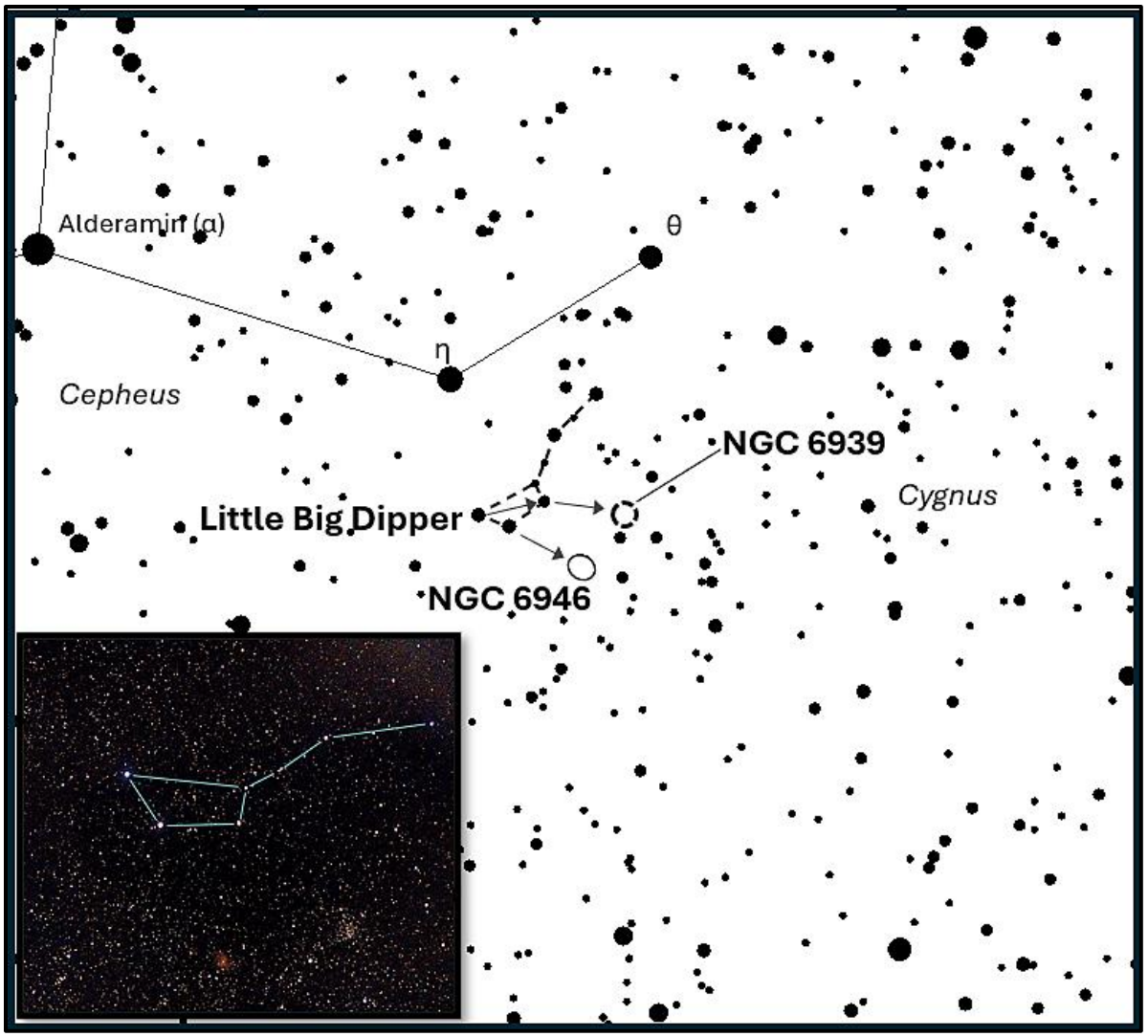


Chart 12. NGC 6939, Little Big Dipper asterism (Bonus NGC 6946)



Aim at Alderamin (Alpha [α] Cephei and then shift 4° west-southwest to Eta (η) Cephei. Your first stop lies just over 1° to its southwest: the Little Big Dipper. This asterism was first spotted (to my knowledge, anyway) and christened by Rhode Island amateur Jim Hendrickson in 2010. Spanning 1.5°, the pattern is made up of 6th- and 7th-magnitude stars set in a slightly bent miniature of its famous namesake.

The Little Big Dipper's two brightest members serve as the "pointer stars" at the end of the bowl, while fainter suns trace the rest of the pot and its northwestward handle. Though subtle, it can be spotted in 50mm binoculars if held steadily.

We can use the bowl stars as a guide. Draw a line from the bowl's upper-left corner through its lower-right corner, then continue about 3/4°. That brings you to NGC 6939, a delicate open cluster that remains an unresolved glow in most binoculars. Giant glasses may begin to show a few faint points.

Return to the Little Big Dipper, then extend a line through the pointer stars beneath the bowl for 3/4°. That brings you to our bonus object, the Fireworks Galaxy, NGC 6946. NGC 6946 is a tough, but doable challenge through steadily supported 50mm binoculars.

Chart 13. NGC 6934

NGC 6934 is one of Delphinus's quieter binocular challenges, a remote globular cluster glowing at magnitude 8.8 from roughly 50,000 light-years away. Discovered by William Herschel in 1785, it rewards patient sweeping under a dark, transparent late-summer sky.

NGC 6934 lies in southern Delphinus, about 4° south of Epsilon (ε) Delphini, the star marking the tip of the Dolphin's tail. Center on Epsilon and then shift southward until the cluster's field enters the view. Look for a right triangle of 7th-magnitude field stars about half a degree south-southeast of the globular.

Under dark, transparent skies, 50mm binoculars may just catch NGC 6934, but 70mm or 80mm glasses make the attempt far more comfortable. Do not expect resolution. Even in large binoculars, it shows as a small, round, grayish haze that is easy to overlook.

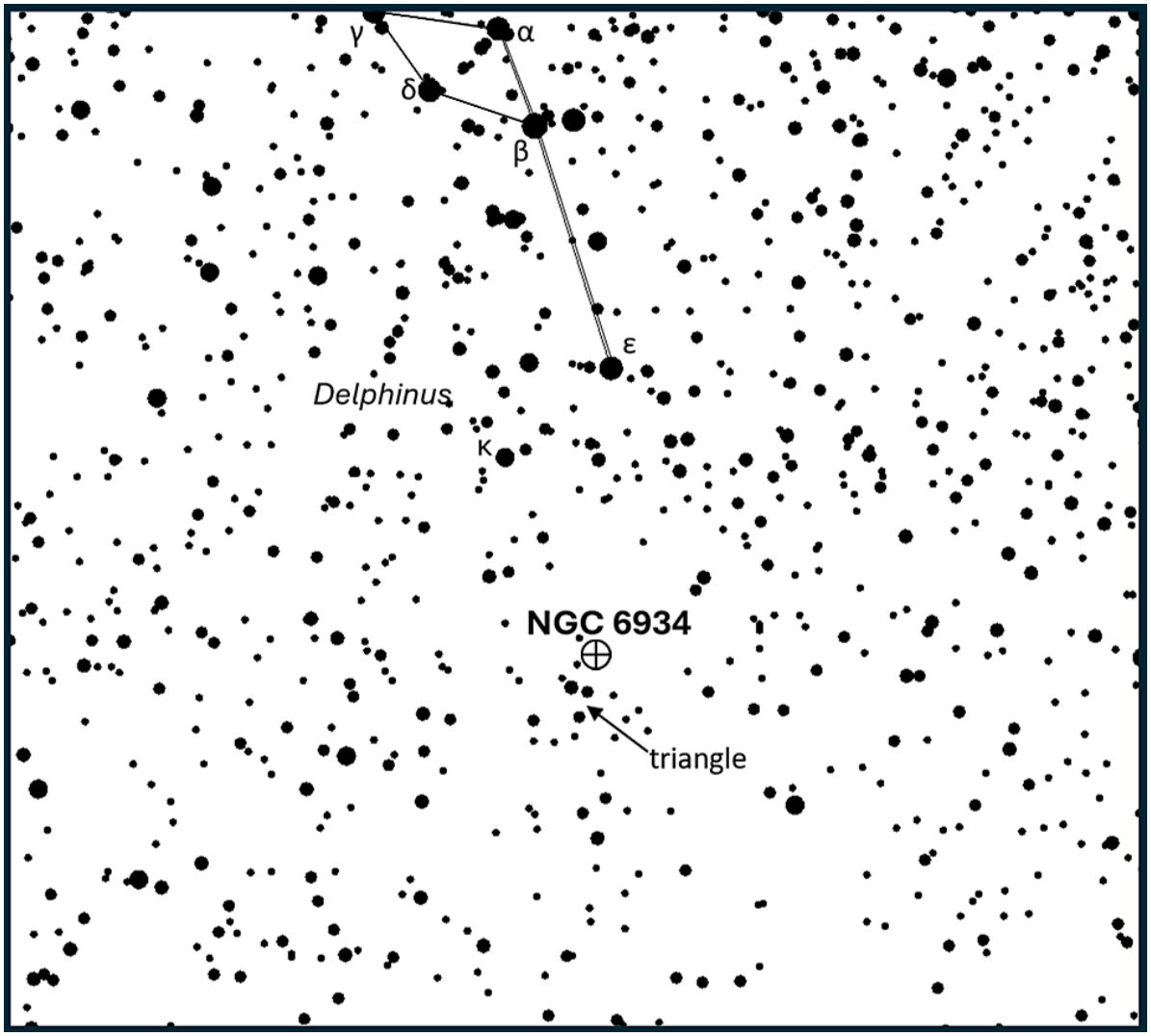


Chart 14. Dabih (Beta [β] Capricorni)

Dabih (Beta [β] Capricorni) is one of the finest binocular doubles of late summer and early autumn, a lovely unequal pair set at the western corner of Capricornus's broad triangle. Look for Dabih not far southeast of Algedi (Alpha [α] Capricorni). Both are naked-eye stars and fit easily in the same binocular field. Since Algedi is also double, the view gives you two pairs for the price of one.

Dabih resolves into a bright 3rd-magnitude primary, named Dabih-Major, and a much fainter 6th-magnitude companion, Dabih-Minor, separated by about 3.5 arcminutes. The Dabih system includes at least three other stars that go unseen through binoculars, making this a quintuple star family.

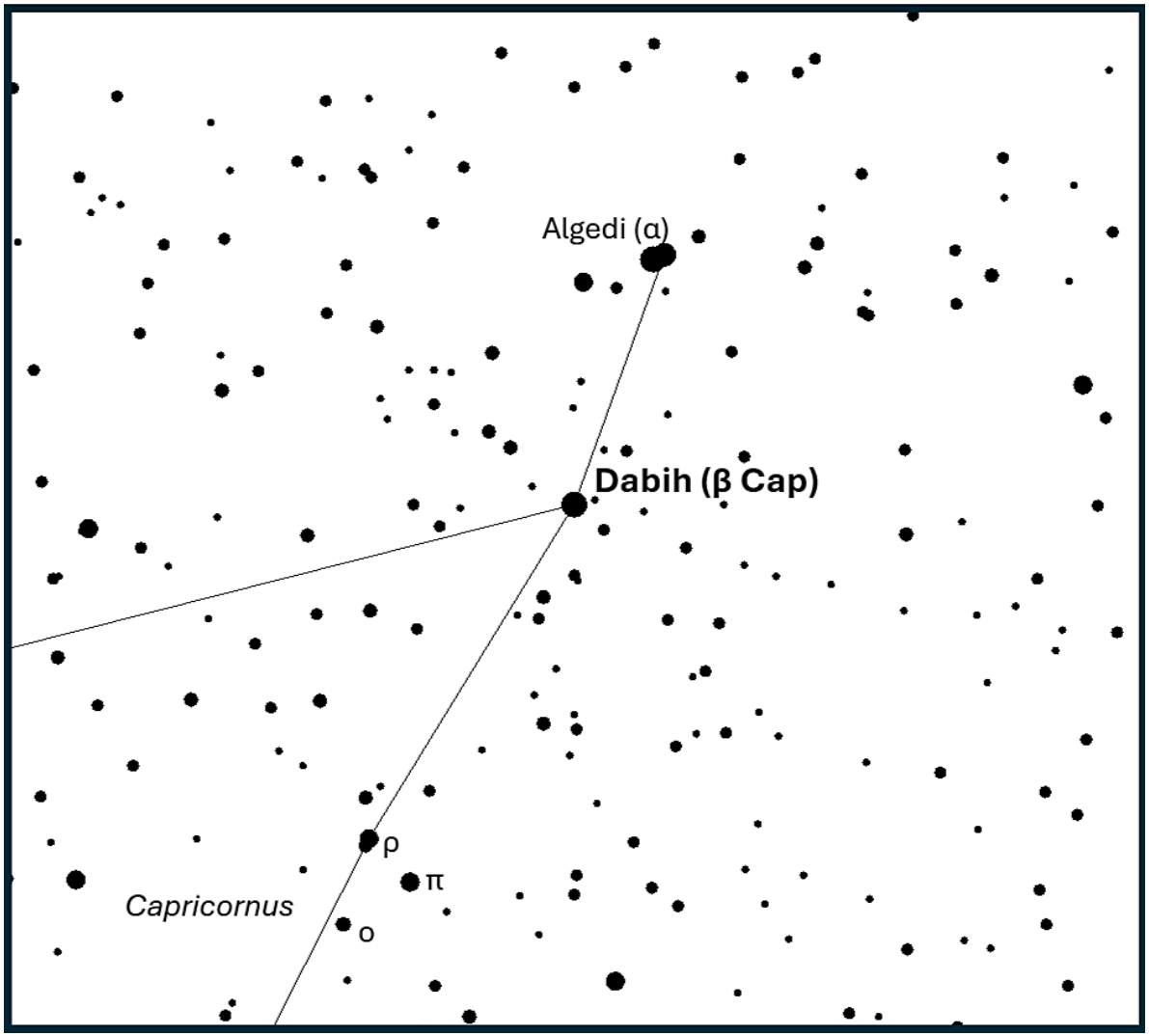


Chart 15. M30

M30 is one of the finest compact globular clusters in the early autumn sky. Discovered by Charles Messier in 1764, this densely packed swarm of ancient stars is located an estimated 27,000 light years away in the southern reaches of Capricornus, near the border of Aquarius.

To find M30, begin at 4th-magnitude Zeta (ζ) Capricorni. From there, sweep about 3° east to the 5th-magnitude star 41 Capricorni. M30 lies right next door.

Under dark skies, experienced observers using 10×50 binoculars can detect M30 readily, while 7×35 glasses reveal it as a faint, condensed glow.

M30 appears small but intensely concentrated, with a bright central core fading quickly into a softer halo. Larger binoculars hint at a granular texture around the edges, especially under steady, transparent skies.