

# Binocular Observing Olympics VII

Stellafane 2025 edition

Compiled by Phil Harrington

[www.philharrington.net](http://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.
- Tougher objects are *italicized* on the list.

Seen	#	Object	Const	Chart	Type*	RA	Dec	Mag	Size	Nickname/Notes
	1	17 & 18 Librae	Lib	1	**	14h 58m	-11° 10'	6, 6.5	10'	
	2	<i>M108</i>	UMa	2	Gx	11h 12m	+55° 40'	10.0	8'x2'	Surfboard Galaxy
	3	<i>M97</i>	UMa	2	PN	11h 15m	+55° 01'	9.9	3'	Owl Nebula
	4	M106	CVn	3	Gx	12h 19m	+47° 18'	8.4	19'x8'	
	5	M94	CVn	3	Gx	12h 51m	+41° 07'	8.2	11' × 9'	Crocodile Eye Galaxy
	6	M107	Oph	4	GC	16h 33m	-13° 03'	7.9	10'	Crucifix Cluster
	7	Mu <sup>1</sup> and Mu <sup>2</sup> Scorpii	Sco	5	**	16h 52m	-38° 01'	3, 3.5	6'	
	8	NGC 6281	Sco	5	OC	17h 05m	-37° 59'	5.4	12'	Moth Wing Cluster
	9	<i>Barnard 86</i>	Sgr	6	Dk	18h 03m	-27° 53'	n/a	37'	Ink Spot Nebula
	10	NGC 6520	Sgr	6	OC	18h 06m	-22° 58'	8	6'	
	11	M17	Sgr	7	BN	18h 20m	-16° 11'	6	11'	Swan or Omega Nebula
	12	M71	Sge	8	OC	19h 54m	+18° 47'	8.3	7'	
	13	M27	Vul	8	PN	20h 00m	+22° 43'	7.4	8'x6'	Dumbbell Nebula
	14	Cowboy Boot	Vul	8	As	20h 04m	+25°	5	8°	Created by John Davis
	15	NGC 6819	Cyg	9	OC	19h 41m	+40° 11'	7.3	5'	Foxhead Cluster
	16	NGC 6871	Cyg	9	OC	20h 39m	+57° 44'	5.2	20'	
	17	Bucking Bronco	Del	10	As	20h 39m	+13° 16'	9.5	52'	Created by John Davis
	18	<i>Bird's Nest Nebula</i>	Cyg	11	Dk	20h 56m	+45° 32'	n/a	30'x12'	Adjacent to Barnard 353
	19	NGC 7000	Cyg	11	BN	20h 59m	+44° 32'	4	120'x100' ,	North America Nebula
	20	Alessi- Teutsch 5	Cep	12	As	22h 04m	+59° 49'	6 to 8	8'	Brightest star is 15 Cep

## Key

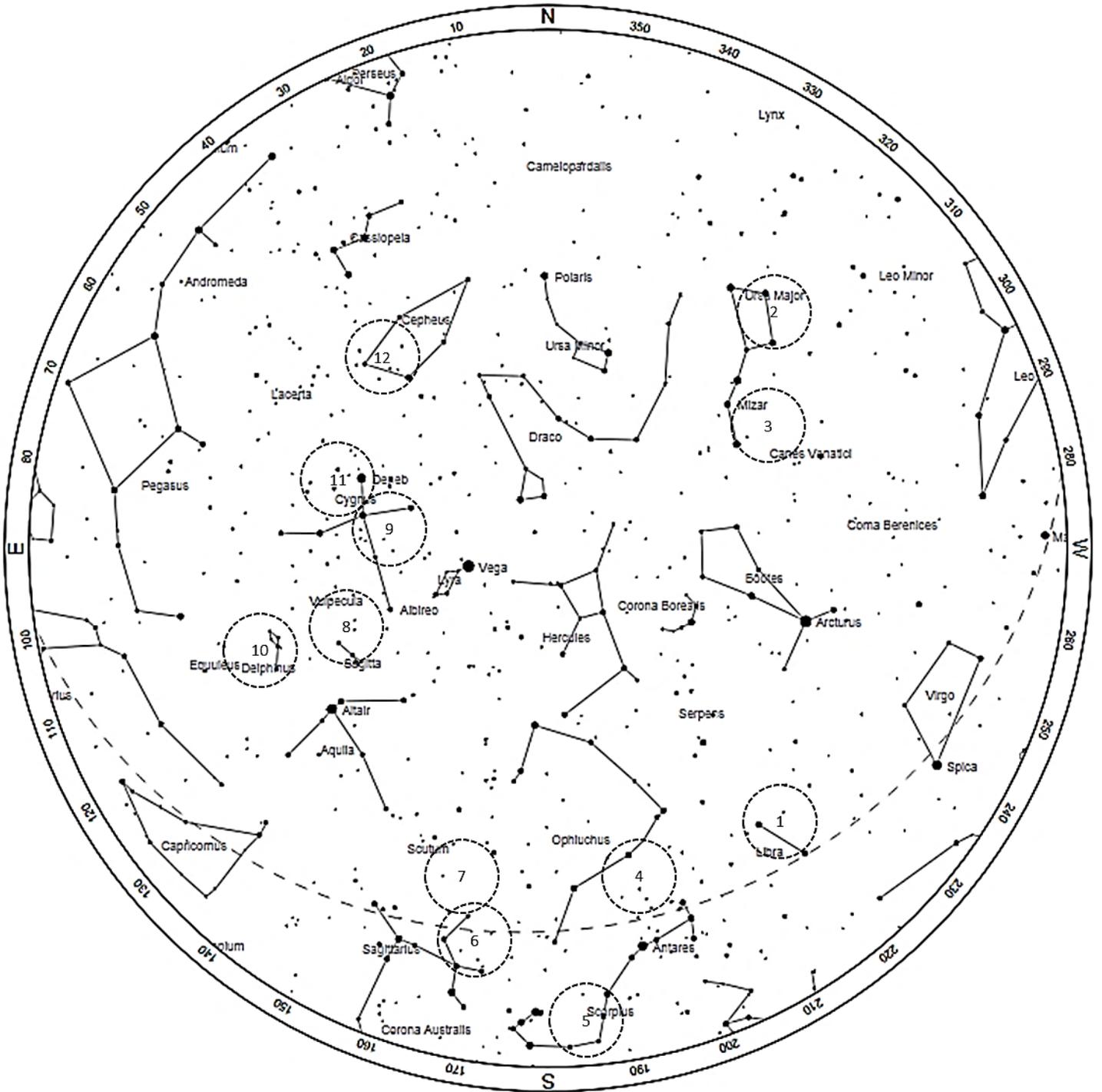
**	Double star	BN	Bright nebula	Gx	Galaxy	OC	Open cluster
As	Asterism	DN	Dark nebula	GC	Globular cluster		

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](http://www.philharrington.net), and let me know. Good luck. And remember, two eyes are better than one!

# All-Sky Star Chart

(Chart drawn for 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

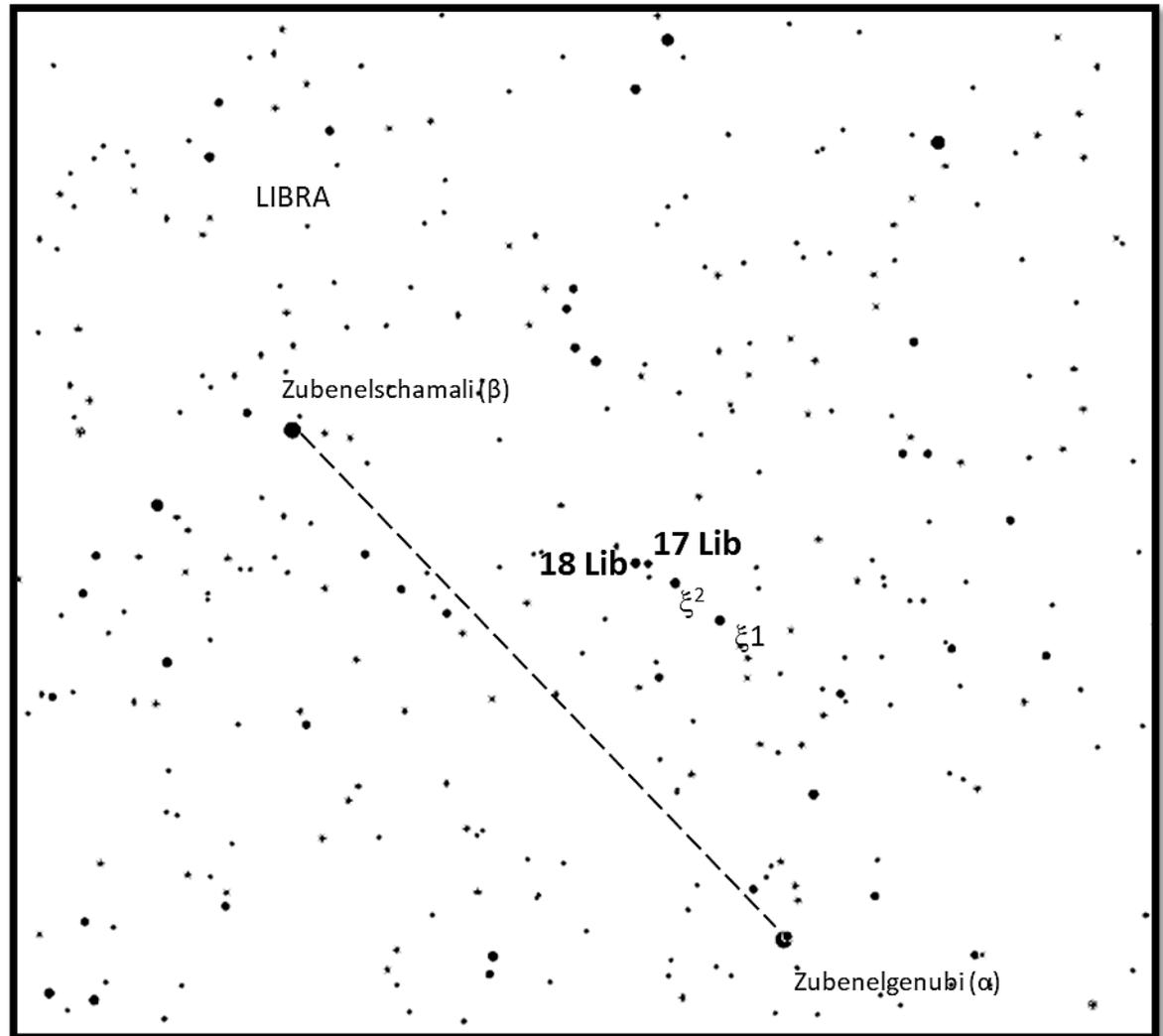
Time: 25 July 2025 22:00 (UTC -04:00)

### Chart 1. 17 and 18 Librae

The stars **17 and 18 Librae** form a striking binocular pair in the constellation Libra. Separated by about  $9'$ , they shine at magnitudes 6.6 and 5.8, respectively — easily visible through  $7\times$  binoculars. To find them, scan about  $5^\circ$  north-northeast of Zubenelgenubi (Alpha Librae).

In binoculars, the two stars appear as a close-set, silvery-white duo of nearly equal brightness, aligned roughly east to west. Their similar magnitudes and tight spacing give the illusion of a true binary, although they are not physically related.

While you're in the area, be sure to swing southwest to check out Xi-1 and Xi-2 Librae—another attractive, more widely spaced, binocular pair.

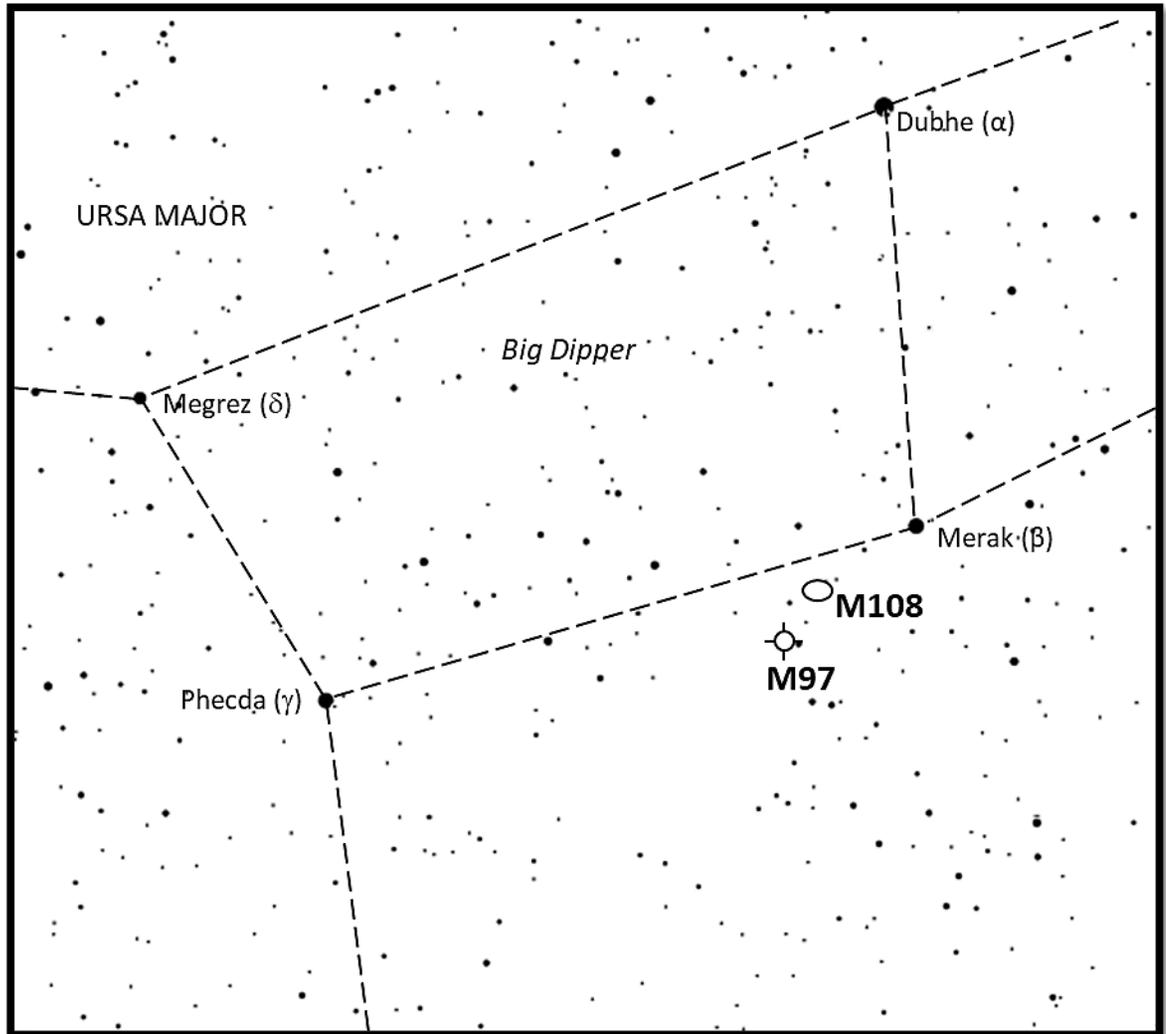


## Chart 2. M97 and M108

**M97**, the Owl Nebula, and **M108**, a barred spiral galaxy, lie just 48' apart in the constellation Ursa Major. Both are faint and require a clear, dark sky to glimpse through most binoculars.

M97 glows at 10th magnitude and appears as a subtle, round haze under pristine conditions. Slightly brighter, M108 shines at 9th magnitude and shows as a slender, spindle-shaped smudge — its edge-on profile just barely discernible.

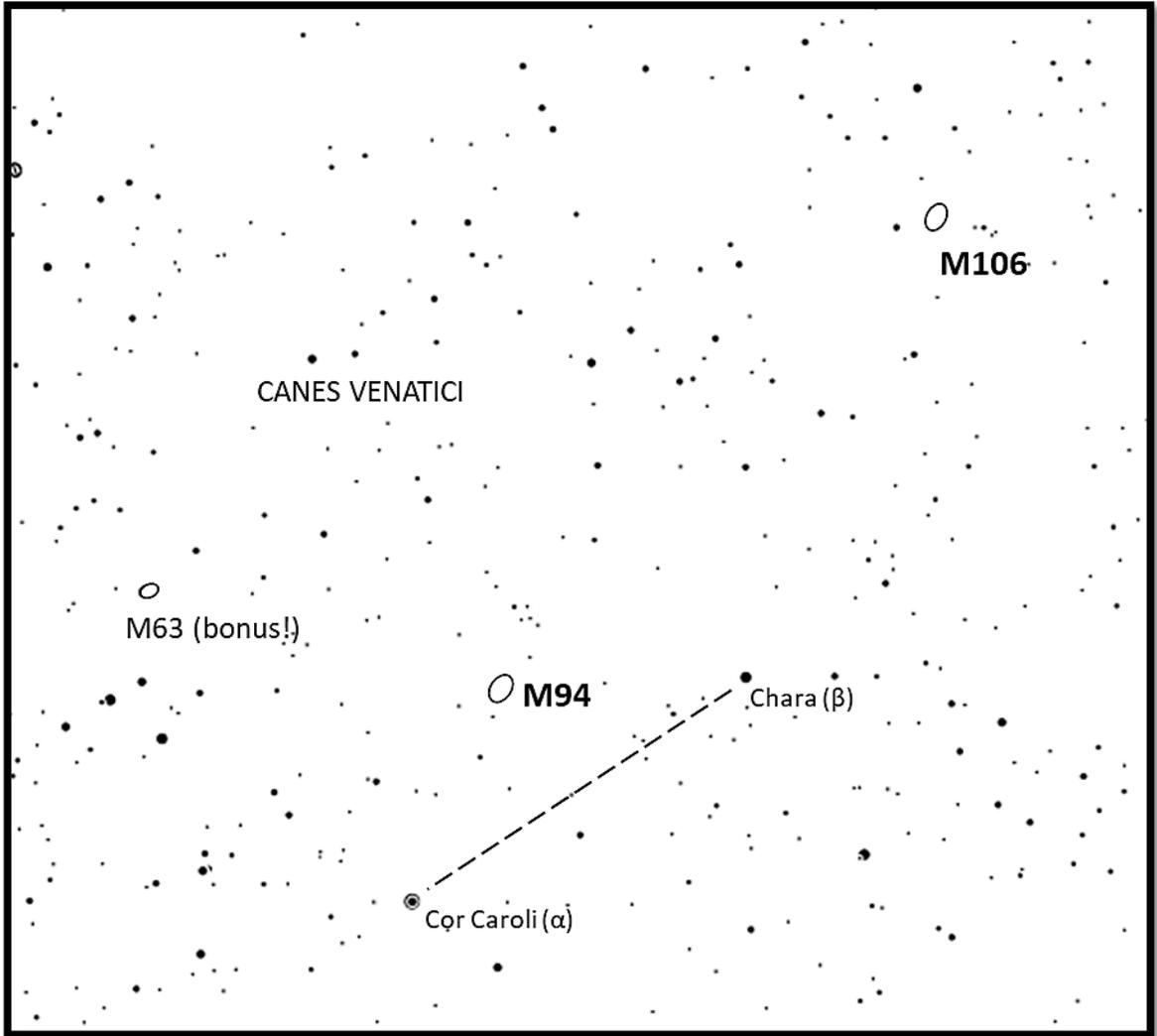
To find them, start at Merak (Beta Ursae Majoris) in the Big Dipper's bowl and scan about 2.5° southeast. In the binocular field, M108 will appear in the northwest corner, while M97 rests near the southeast edge. Both are elusive, best detected with averted vision during the darkest stretches of night.



### Chart 3. M94 and M106

Look about  $3^\circ$  due east of Chara ( $\beta$  CVn) and you will spot a small, faint blur of grayish light. That's the 8th-magnitude spiral galaxy **M94**. Nicknamed the Cat's Eye Galaxy or Croc's Eye Galaxy for its appearance in photographs, M94 is seen nearly face-on from our perspective. As spirals go, it is small, a bit more than half our Milky Way in diameter. Despite its modest size, M94 packs a punch. It is also classified as a starburst galaxy, where internal density waves are compressing interstellar matter into protostars more vigorously than typical spirals.

Another spiral galaxy, **M106**, can be found about a binocular field northwest of Chara. It also shines at 8th magnitude, but its larger dimensions lower its surface brightness further. Look for a relatively large, oval glow less than a degree west of a 6th-magnitude foreground star. In binoculars, it reveals itself as an elongated smudge stretched along a northwest-southeast axis.



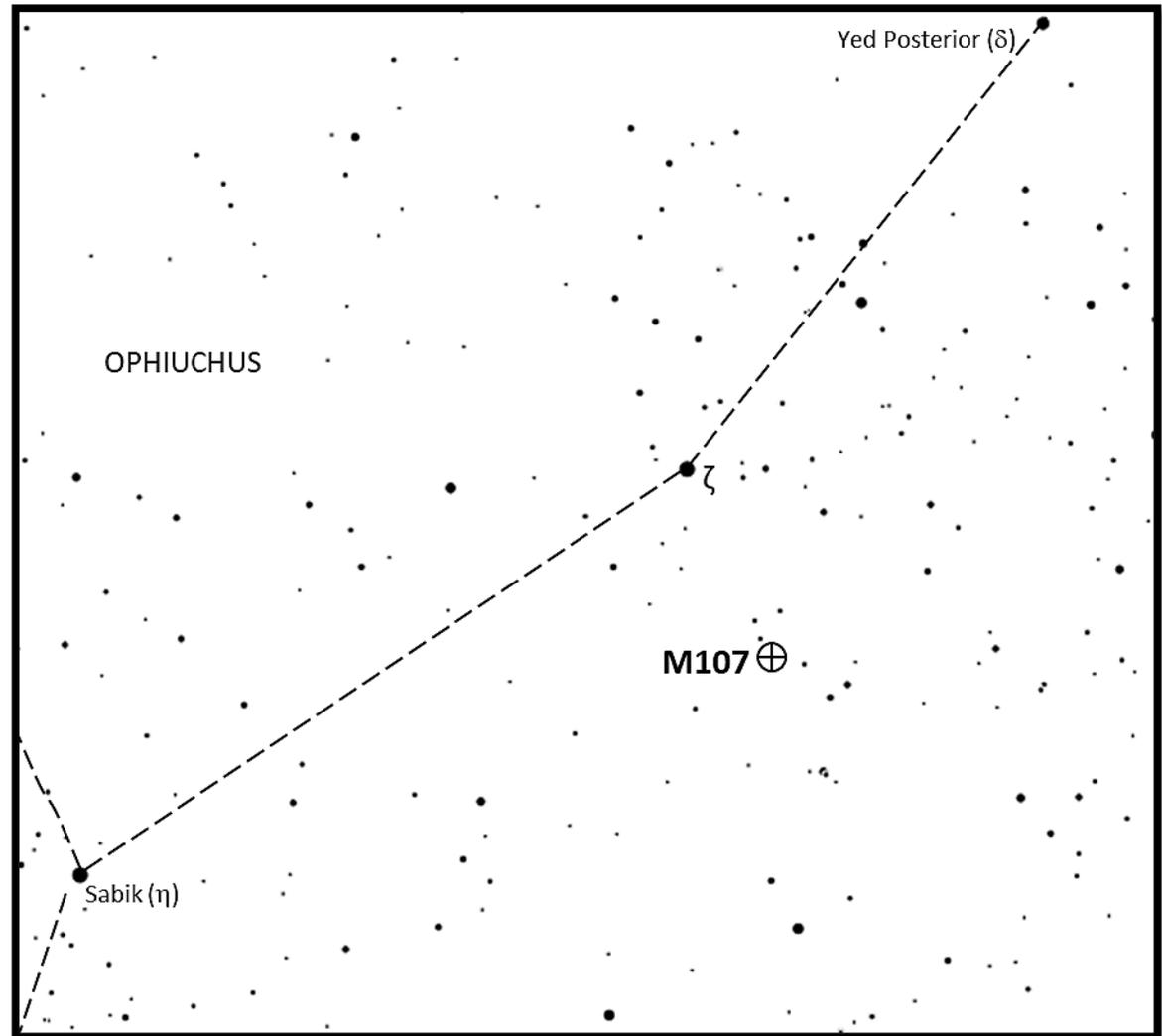
Once you find M94 and M106, try your luck with M63, shown on the chart above. It's not an official BOO object this year, but I offer it at no additional charge.

#### Chart 4. M107

Globular cluster **M107** is a loose, somewhat irregular gathering of stars nestled in the constellation Ophiuchus. At 8th magnitude, it's faint but detectable through even 35mm binoculars under the dark skies of Stellafane.

To track it down, scan about 2.5° south-southwest of the star Zeta ( $\zeta$ ) Ophiuchi. In binoculars, M107 reveals itself as a dim, softly glowing patch of light with no hint of individual stars. Through larger binoculars, however, its core begins to show a subtle graininess, suggesting the presence of thousands of tightly packed suns.

Discovered by Pierre Méchain in 1782, M107 lies approximately 21,000 light-years away and spans about 13' as seen from Earth.



## Chart 5. Mu<sup>1</sup> and Mu<sup>2</sup> Scorpii, and NGC 6281

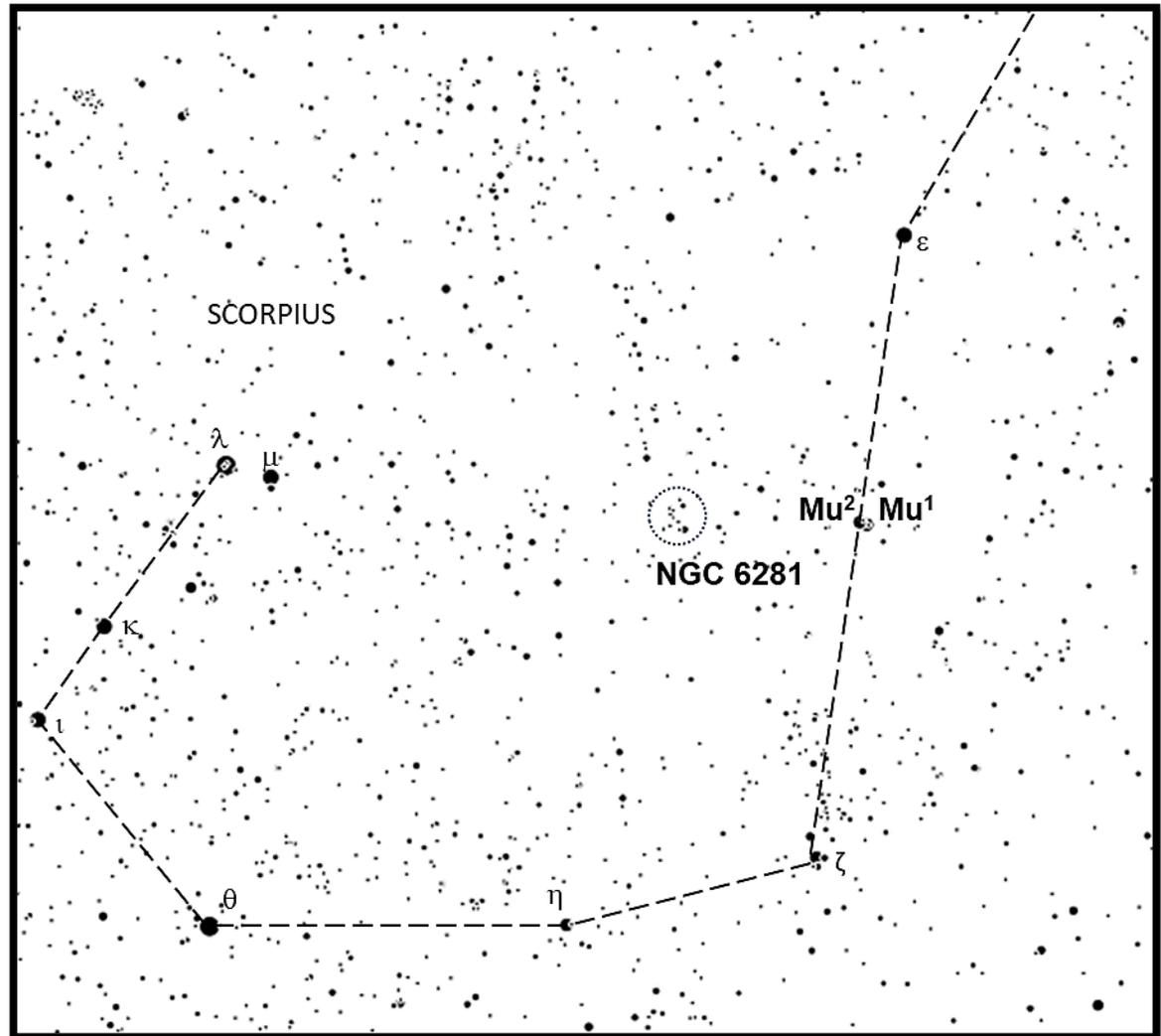
**Mu<sup>1</sup> and Mu<sup>2</sup> Scorpii** form a striking binocular double, separated by about 6 arcminutes — making them easy to resolve even in pocket binoculars.

Mu<sup>1</sup> shines at magnitude 3.0, while Mu<sup>2</sup>, just to the east, is slightly dimmer at 3.6. Both are hot, blue-white B-type stars that create a visually matched pair.

To find them, trace the Scorpion's body south from Antares to Epsilon (ε) Scorpii at the "hook" of the tail. The Mu pair is the next notch down along the tail.

Through binoculars, Mu<sup>1</sup> and Mu<sup>2</sup> appear as a brilliant duo — a striking sight framed by the glow of the Milky Way.

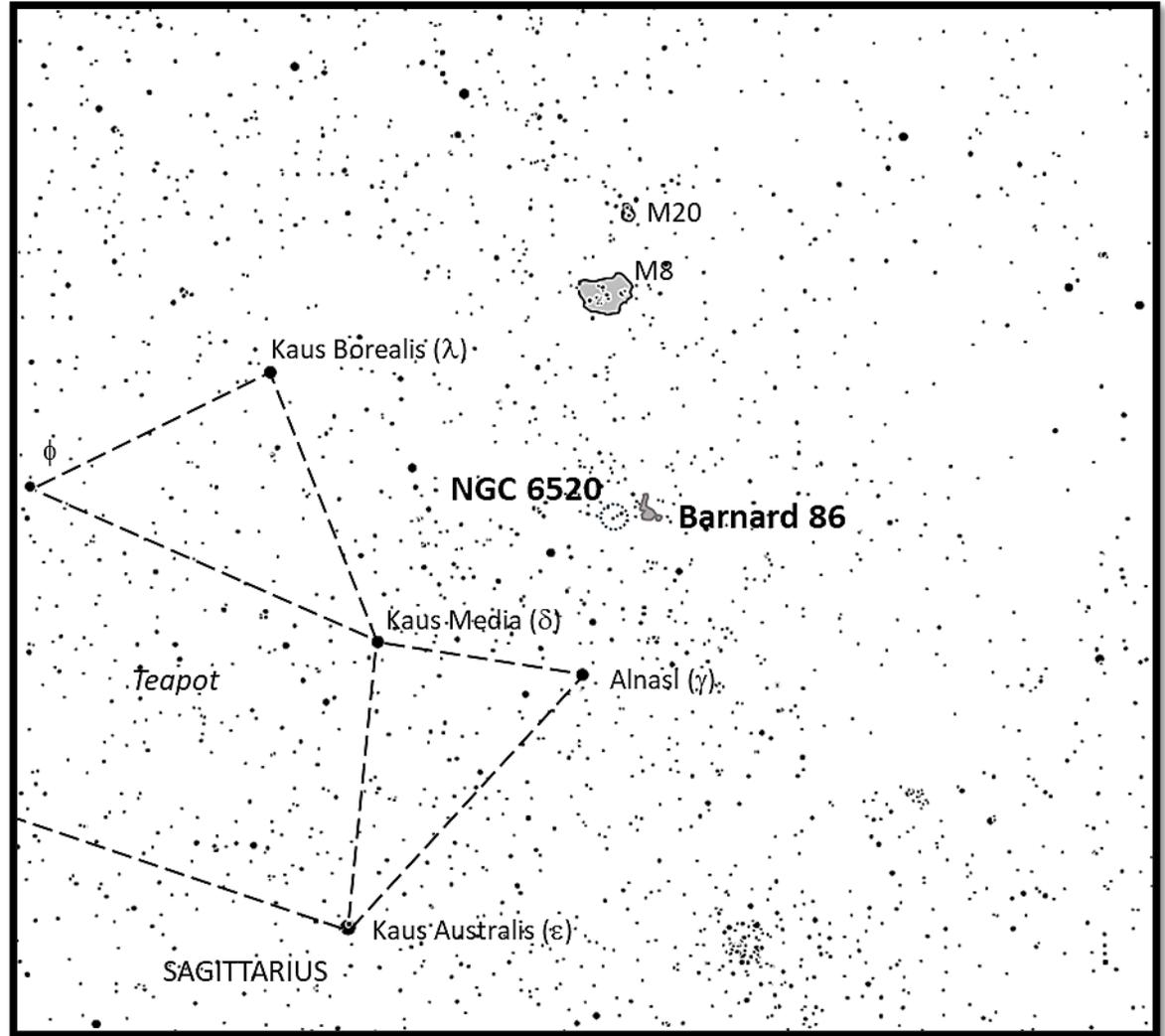
About 2.5° east of the Mu Scorpii pair lies the open cluster **NGC 6281**, a hidden gem often overlooked amid the splendor of Scorpius. Shining at magnitude 5.4 and spanning roughly 8 arcminutes, it's an easy binocular target under dark skies. Through 10×50 binoculars, the cluster appears as a softly glowing, grainy patch, suggesting a rich sprinkling of faint stars. Larger binoculars begin to resolve its brighter members into a group of stellar points.



### Chart 6. Barnard 86 and NGC 6520

From Alnasi (Delta Sagittarii) at the tip of the Sagittarius Teapot, glance half a binocular field (about  $3.5^\circ$ ) north to find the tiny open cluster **NGC 6520**. Despite it being one of the targets in the Astronomical League's Deep-Sky Binocular Club, this is a tough test through most binoculars. Even under dark conditions, my 10x50s only show a faint trace. It takes the extra oomph of my 16x70s to resolve a line of three dim stars across the cluster's oval span.

Those same binoculars hint at the dark nebula **Barnard 86**. As with most dark nebulae, B86 is a tough binocular test under even the best of skies. If you see *nothing* just west of that field star, then you just might be seeing the nebula. Or maybe not.



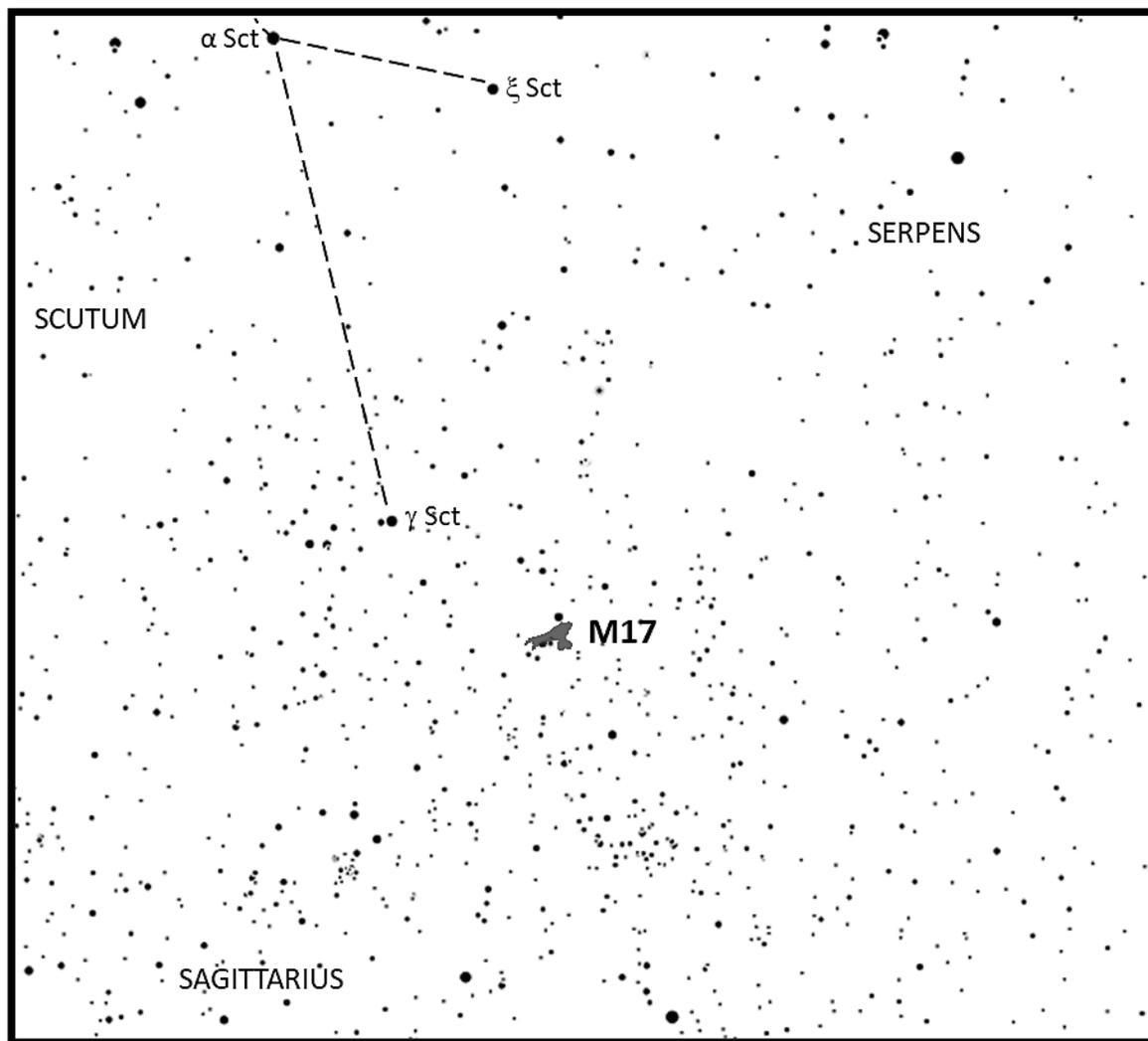
## Chart 7. M17

**M17** is one of my favorite summertime targets and is an easy catch through nearly all binoculars.

To find M17, begin at Delta Scuti at the tail end of the small constellation Scutum. From Delta, sweep about 5° southeast. You'll find it just to the south of a yellowish 5th-magnitude star, maybe half a binocular field north of the Small Sagittarius Star Cloud, M24.

If you're viewing through 50-mm and smaller binoculars, look for a straight "bar" of grayish light oriented southeast-northwest. Larger binoculars add a faint hook-shaped appendage curving off the western end of the bar. It's this hook-and-bar shape that has given rise to one of M17's nicknames, the Swan Nebula.

Through telescopes, the bar represents the swan's floating body, while the hook turns into its long, graceful neck and head. My 16x70 binoculars portray the swan as floating upside down, which I find worrisome. Many telescopes, of course, invert the view to show that the swan is alive and well.



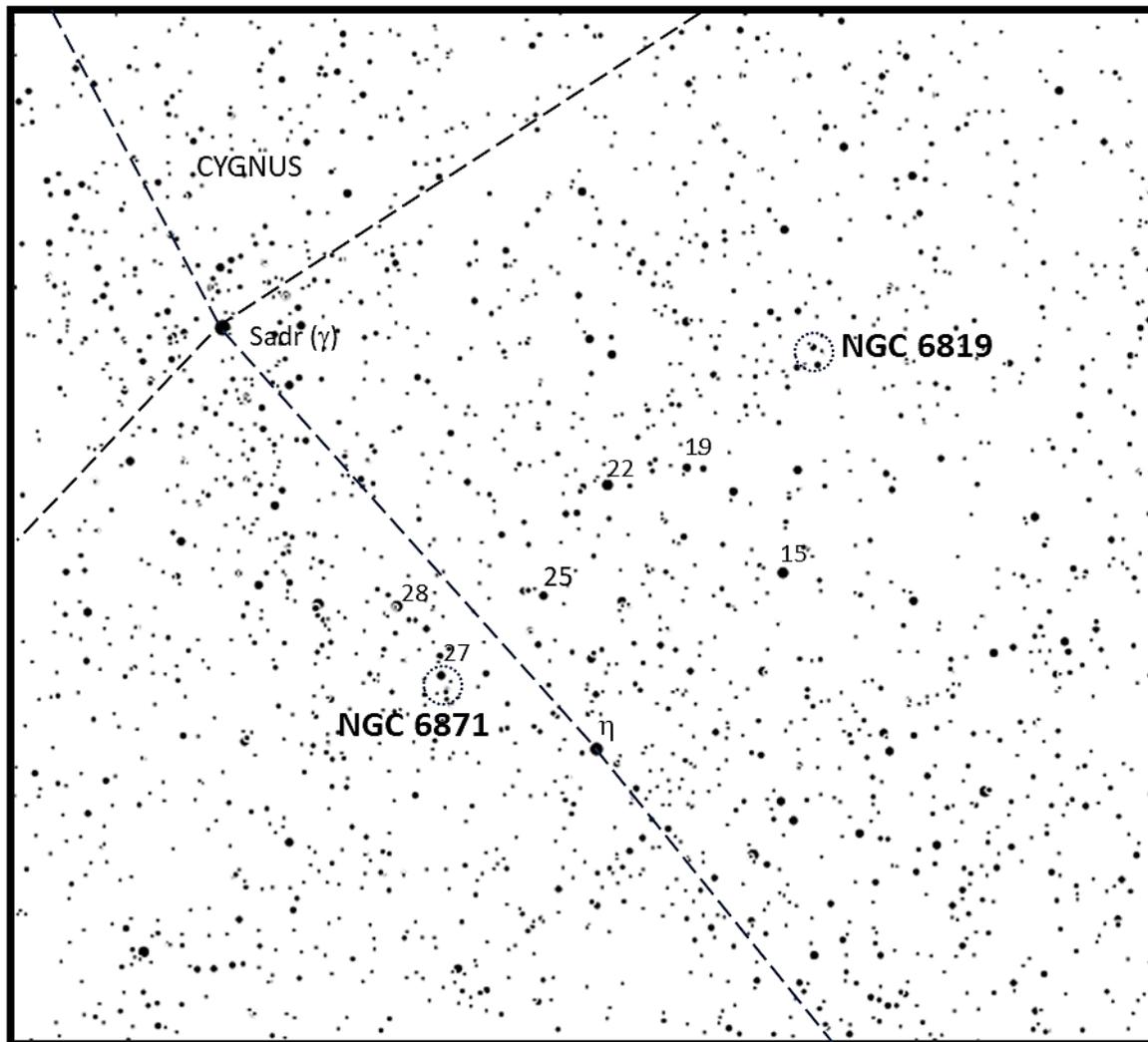


### Chart 9. NGC 6819 and NGC 6871

**NGC 6819** lies in the rich star fields of Cygnus, about  $8^\circ$  due west of Sadr ( $\gamma$  Cygni) at the center of the Northern Cross.

At low magnification, NGC 6819 appears as a small, faint, hazy patch of light among the dense Milky Way backdrop. The cluster is moderately compact with a subtle concentration of stars that give it a slightly fuzzy or grainy texture through binoculars. The brightest stars in the cluster form a dim right triangle. In giant binoculars, fainter stars form a V-shaped pattern, leading to the cluster's nickname of the Foxhead Cluster.

**NGC 6871** is located roughly  $3^\circ$  northeast of Eta ( $\eta$ ) Cygni. Look for it at the southern end of a meandering line of stars that includes 27 and 28 Cygni. The cluster contains four stars (including 27 Cyg) shining between 7th and 9th magnitude set in an arc and surrounded by the faint glow of other cluster members.

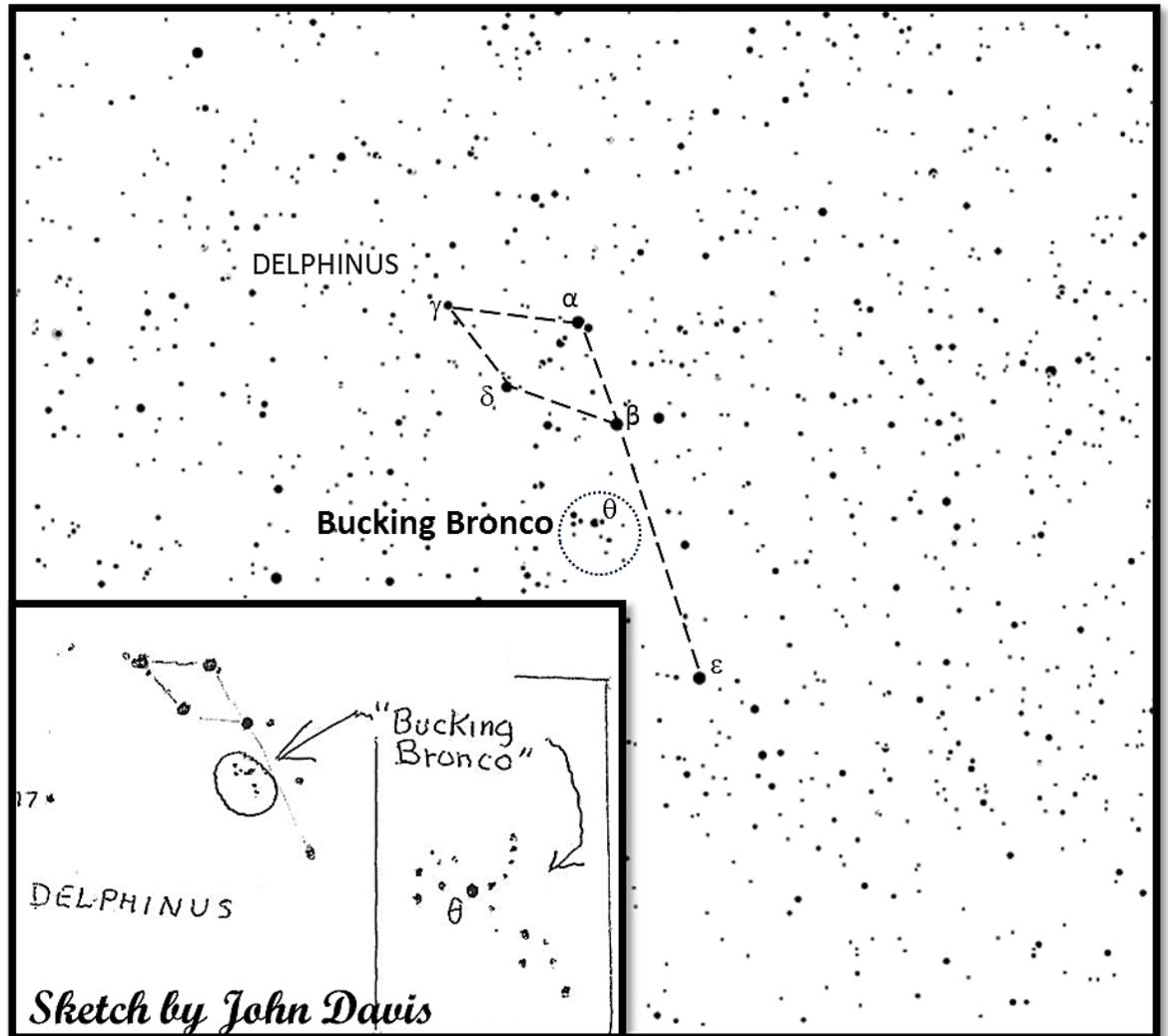


## Chart 10. The Bucking Bronco

The Bucking Bronco asterism in Delphinus was also created by the late John Davis of Amherst, MA. Spanning about  $1.5^\circ$ , it fits comfortably within the field of most binoculars. The stars that make up the asterism range in brightness from Theta ( $\theta$ ) Dephini at about 4th magnitude to others at 6th magnitude. This makes them bright enough to be seen easily under dark skies.

To find the Bucking Bronco, start by locating the small constellation Delphinus. The asterism lies just off the constellation's kite- or diamond-shaped main figure. With binoculars, the pattern reveals itself readily.

The brighter stars of the Bucking Bronco trace the head and forelegs of the leaping figure, while fainter stars sketch out its arched back and hindquarters. Its tidy, well-contained shape makes it a charming sight.



## Chart 11. North America Nebula and the Bird's Nest Nebula

The **North America Nebula (NGC 7000)** is a large expanse of glowing hydrogen gas mixed with opaque clouds of cosmic dust just 3° east of Deneb ( $\alpha$  Cygni). This celestial continent spans 2°, or four times the width of the Full Moon. That's too large to squeeze into a single eyepiece field in most conventional telescopes. But it's ideal for the wide fields of our binoculars.

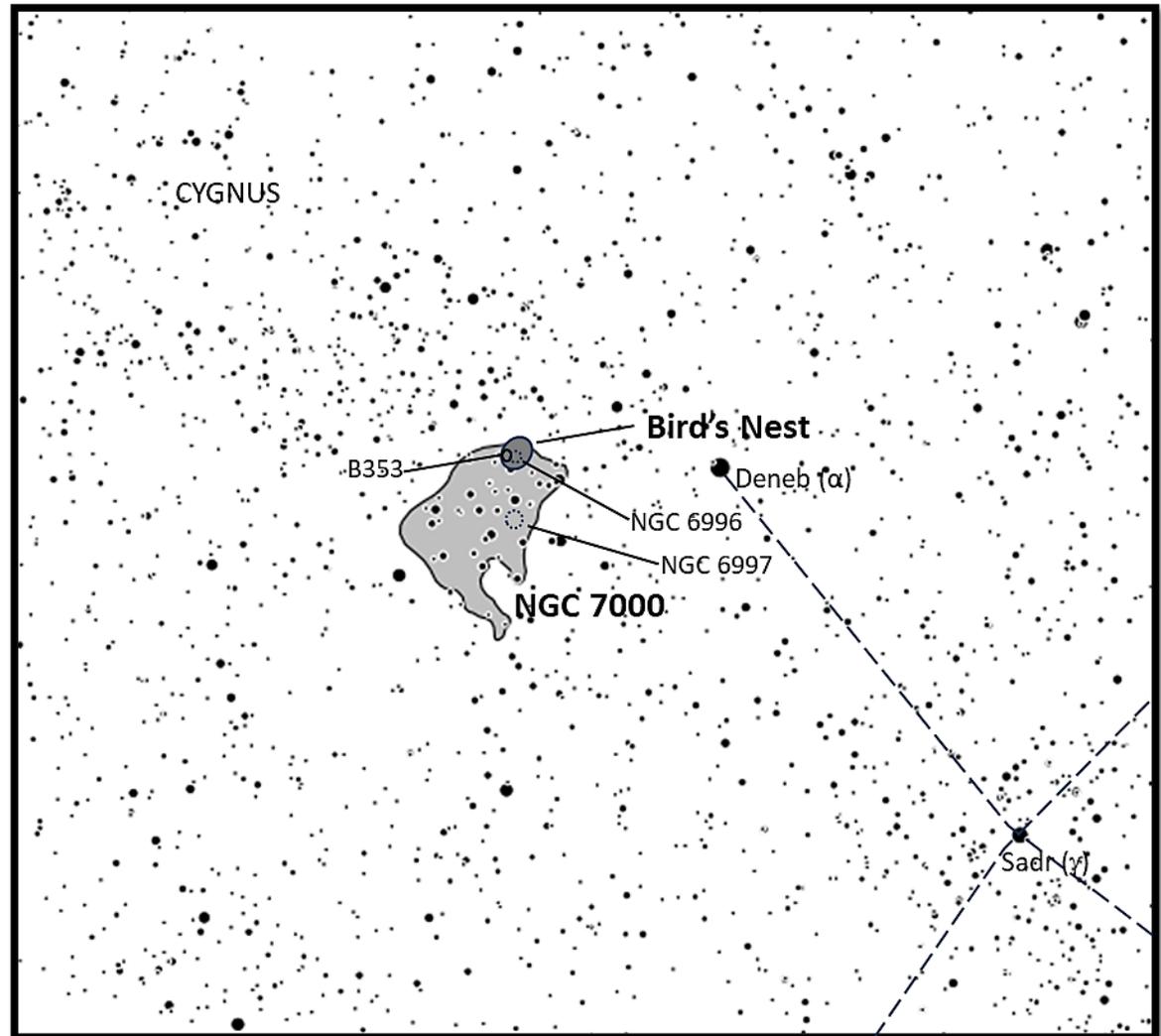
The brightest parts of the North America Nebula are "Mexico" and "Florida." Both jut into an "empty" expanse of dark nebulosity just east of Deneb in much the same way as their earthly counterparts mark the Gulf of Mexico's shoreline.

***This next one, the Bird's Nest, is this year's toughest BOO object!***

**Barnard 353** is a compact dark nebula found on the northern edge of the North America Nebula, where Hudson's Bay would be. Cataloged by E.E. Barnard, B353 consists of dense, cold dust and gas, rendering it opaque at optical wavelengths.

B353 overlaps the eastern edge of the **Bird's Nest Nebula**. Also known as **Morehouse's Ring**, the Bird's Nest spans about 23'  $\times$  18' and may be glimpsed through binoculars under very dark skies. Any faint stars seen there are likely to belong to the star cloud **NGC 6996**.

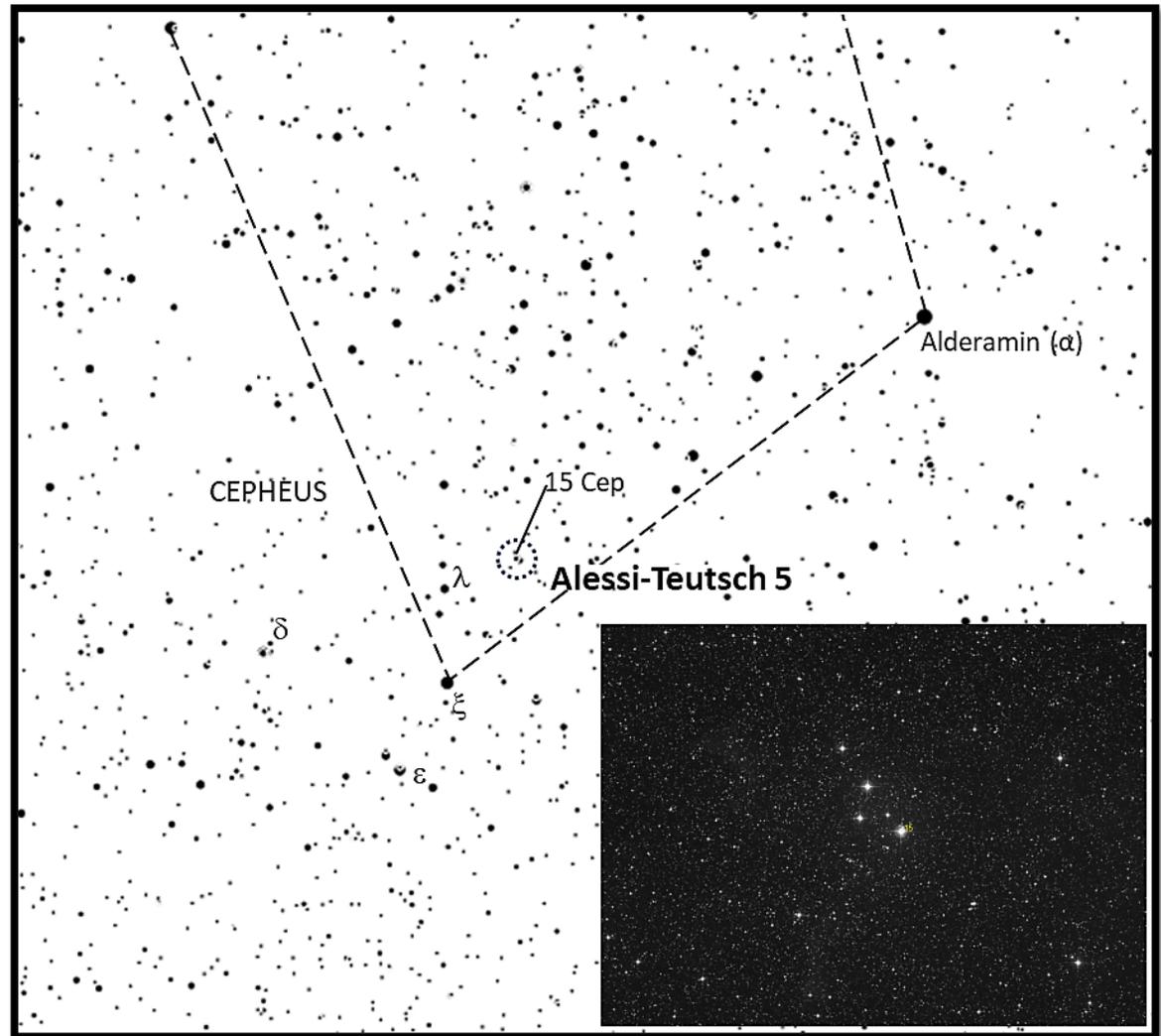
**Fair warning:** You won't see a sharp edge to the Bird's Nest. Instead, look for a faint, incomplete ring where the background star field appears slightly thinned.



## Chart 12. Alessi-Teutsch 5

**Alessi-Teutsch 5**, first identified by amateur astronomers Bruno Alessi and Wolfgang Teutsch, is a sparse but distinctive binocular asterism located in the constellation Cepheus. The group consists of four moderately bright stars, the most prominent being 6th-magnitude 15 Cephei. Although set against a dense starfield, the stars stand out well against the Milky Way's glow. Three of them, including 15 Cephei, form a compact line reminiscent of a miniature Orion's Belt, spanning just 7 arcminutes. The fourth star lies slightly southeast of the trio. Together, they create a small but striking pattern in 50mm binoculars under Stellafane's dark skies.

I first learned about Alessi-Teutsch 5 from Bob King's article "[Treasure Hunting in the Hall of the Deep-Sky King](#)" on [Sky & Telescope's website](#). He referred to it as "a neat sight in a pair of binoculars or your finderscope." I'm sure you'll agree.



# Seahorse Nebula B150

