A New Catalog of Stellar Richfields for Binoculars

Bill Dellinges

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Introduction

While observing the night sky over many decades, I have occasionally run into impressive star fields with binoculars. Most have no official designation such as NGC (New General Catalog), IC (Index Catalog I and II), Cr (Collinder), St (Stock), etc. I think some stargazers may be spending too much time looking for the farthest thing out there or seeing how much power they can use on Saturn (not that there's anything wrong with that!). But in doing so, they can miss the big picture, namely the beautiful fields of stars outside their telescope's small fields of view (FOV). My main target criteria were to find interesting fields of stars that can only be appreciated in the wide field of a binocular. At the same time, I wanted to avoid choosing something that possessed an existing catalog designation or number.

To see them at their best, you'll need to abandon your telescope and arm yourself with a binocular with the widest possible field of view, because the areas featured in this series are HUGE. For me, this means using my Nikon Monarch HG 8x42 binocular with an 8.3° FOV. One may consider using the popular 7x50 or 10x50 binoculars too, they give you more light grasp without too much loss of field, usually rendering a 6° or 7° FOV. For two of my Del objects, Del-19 (containing the Orion Nebula) and Del-22 (hosting the beautiful star cluster NGC 6231) a 15 or 16x70 binocular (~4° FOV) is especially useful to zoom in on those special gems (*after* your wide field view!).

I prefer using binoculars mounted on a tripod. This vastly enhances the viewing experience - except when the object is overhead. In that case, consider hand holding the binocular and viewing the object from a lawn chair or catching your target rising or setting. Owners of image stabilized binoculars may not require a tripod if they don't mind hand holding their binoculars for extended periods.

With all this in mind, allow me to introduce you to the 24 objects in A New Catalog of Stellar Richfields for Binoculars. Each object will have a wide field and close-up view locator chart. A small data box will denote Del number, name, constellation location, prime time of month to view and the right ascension and declination of the object's approximate center. I'm confident that you'll be excited to see some of these beautiful star fields in your binoculars.
Bill Dellinges

About the Author

I was born in San Francisco, California in 1943. My interest in astronomy began when I was 12 years old and saw an astronomy book in the junior high school I attended. I was fascinated by the photographs of planets, star clusters and galaxies. One especially impressed me - a photograph of the Andromeda Galaxy, our nearest major galactic neighbor two million light years away. I knew our solar system existed, but the fact that there were other galaxies out there blew my mind. Right there, I was hooked on astronomy. I read everything I could find on the subject. I created a poster of the solar system showing planets' sizes, distances, moons, etc. and even taught a class on astronomy for the neighborhood kids. I managed to talk my father into buying me a telescope, a 4-inch reflector. Thus, a stargazer was born. I thought about becoming an astronomer, but reality hit in high school when I found my brain wasn't wired for higher mathematics. So, I became an amateur astronomer! Anyway, we amateurs can take solace in knowing we are probably more familiar with the night sky than the professionals - they're too busy trying to make a living in astronomy!

As I grew older, more telescopes invaded my home, a Unitron 4-inch refractor, followed by Celestron 5, 8 and 14-inch Schmidt Cassegrain telescopes (and of course 7x50 and 20x80 binoculars). I joined the local astronomy club and for several years gave public stargazing sessions to the public at a local regional park.
In 1993 my wife and I decided to move to Arizona after falling in love with the desert on many vacations there. I wanted darker skies where I could build a backyard observatory. All that came to fruition in 1995 when we found a reasonably dark sky site outside of Apache Junction. I now have a rolling roof observatory in my backyard equipped with an 11" Celestron GoTo telescope to plow the night skies.

Over the years we visited many observatories in the USA and a few overseas. We have been to three solar and two annular eclipses. We have traveled to Australia and Costa Rica to view the southern hemisphere's night sky.

I'm a member of the East Valley Astronomy club (EVAC) where I wrote a monthly column *The Backyard Astronomer*, 1998-2024. I'm also a member of the Superstition Mountain Astronomical League (SMAL) in Gold Canyon and enjoy the public outreach stargazing events we provide at Lost Dutchman State Park (where I also conducted monthly "StarTalk" lectures, 1996-2020). I'm not sure what I like doing more, observing alone or showing people something in my telescope or binocular they've never seen before. It's even better when they tell me it was the first time they've looked through a telescope!

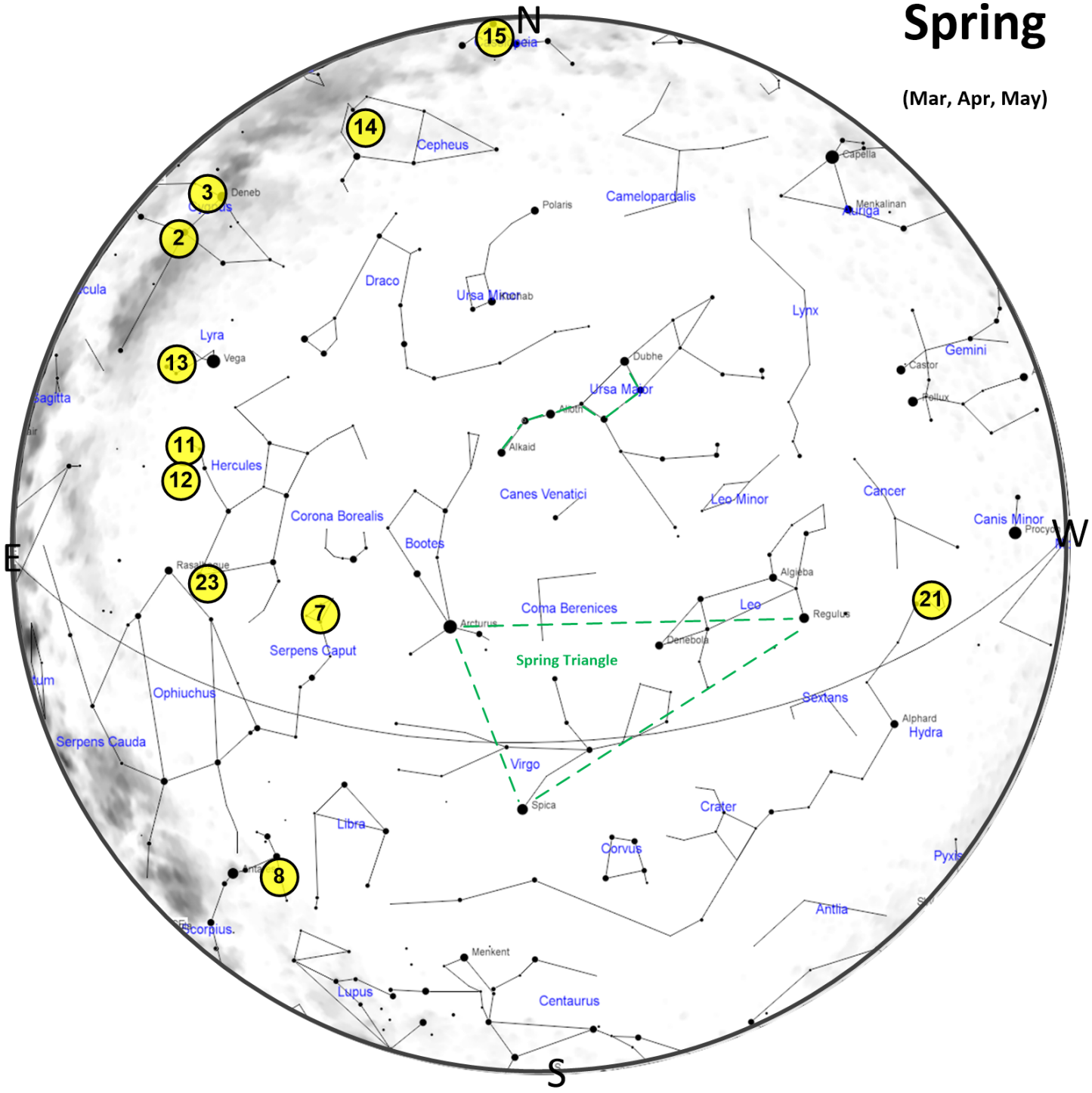
Contributors and Roles

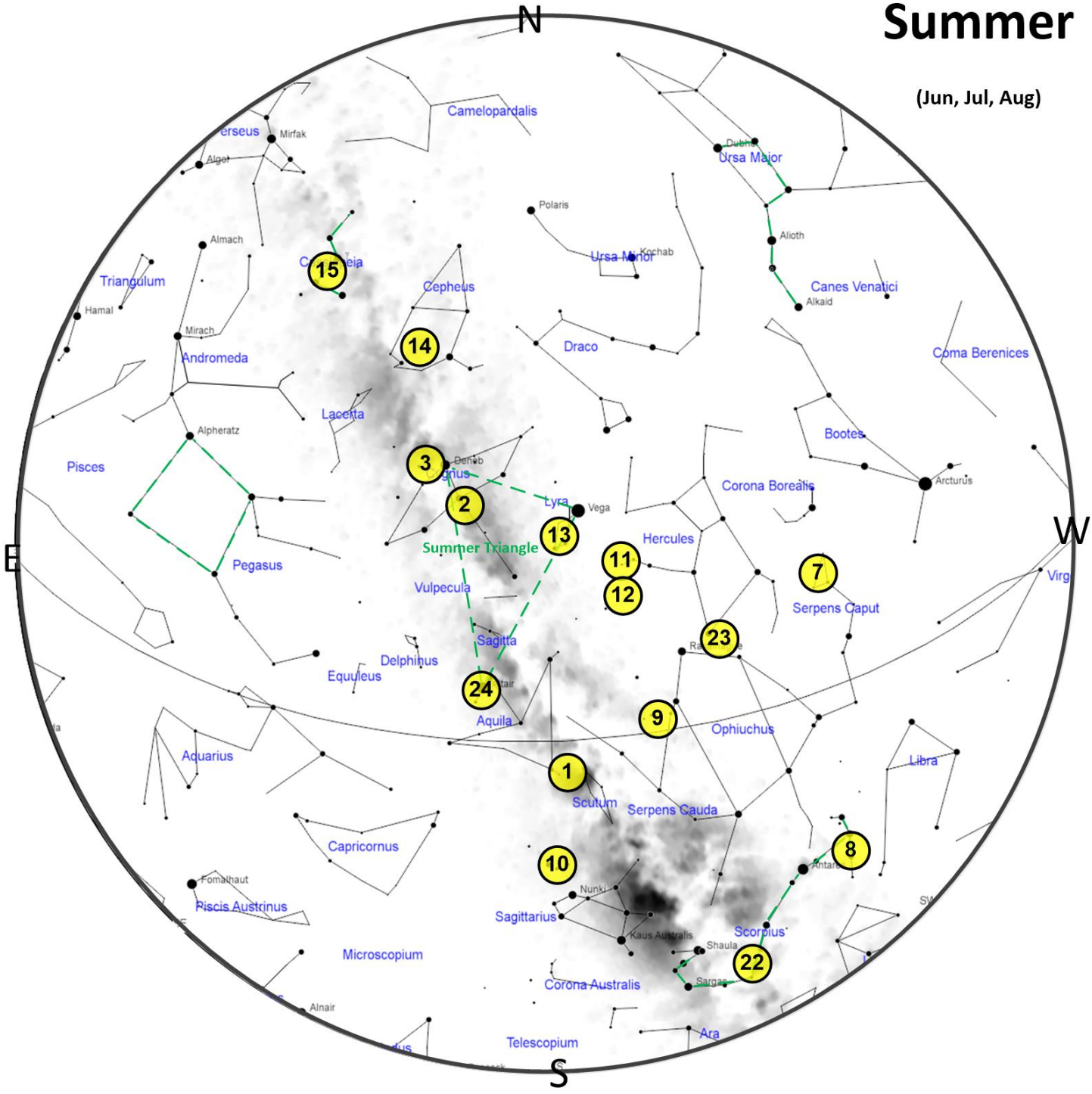
Bill Dellinges: Main author, all objects in this book were discovered and cataloged by Bill. Objects, descriptions, and details were also provided by Bill.

James Yoder: Charts, document structure, and layout. All charts were generated using the **Cartes du Ciel** application.

Andrea Matthias: Editor, content, and grammar review.

Seasonal Sky Maps




Summer
(Jun, Jul, Aug)
N
E
W
S
Camelopardalis
Mirfak
Algol
Ursa Major
Dubhe
Polaris
Alioth
Ursa Minor
Kochab
Canes Venatici
Alkaid
Almach
Triangulum
Hamal
Cepheus
Mirach
Andromeda
Draco
Coma Berenices
Lacerta
Alpheratz
Bootes
Arcturus
Pisces
Deneb
Corona Borealis
Lyra
Vega
Hercules
Summer Triangle
Pegasus
Vulpecula
Serpens Caput
Sagitta
Delphinus
Equuleus
Aquila
Ophiuchus
Aquarius
Libra
Scutum
Serpens Cauda
Capricornus
Fomalhaut
Piscis Austrinus
Sagittarius
Kaus Australis
Scorpius
Shaula
Microscopium
Corona Australis
Alnair
Telescopium
Ara
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14
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2
13
11
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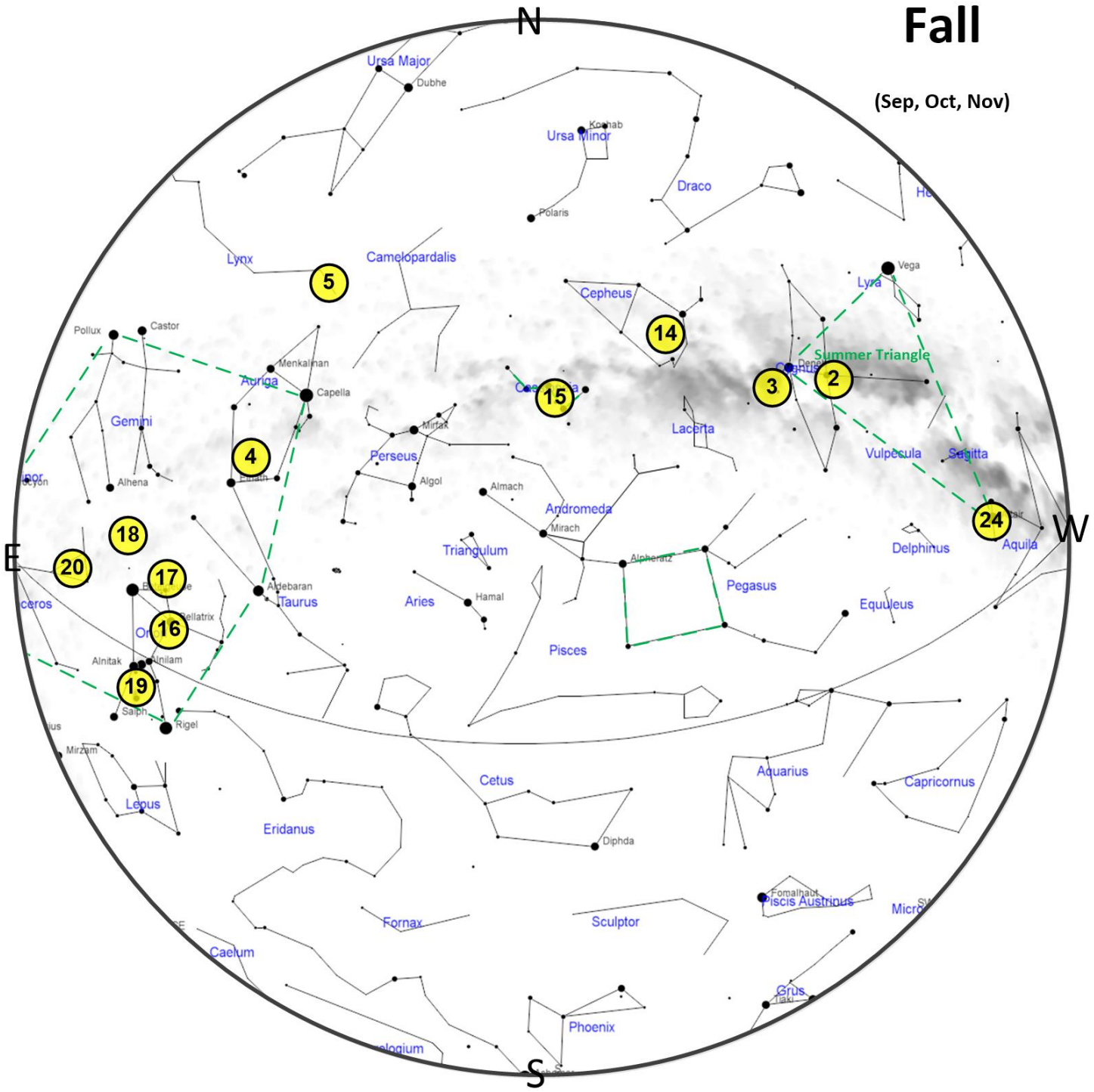
24
9
1
10
8
22


Fall
(Sep, Oct, Nov)
N
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W
S
Ursa Major
Dubhe
Ursa Minor
Kochab
Polaris
Draco
Lynx
Camelopardalis
Cepheus
Vega
Lyra
Summer Triangle
Deneb
Pollux
Castor
Menkalinan
Auriga
Capella
Gemini
Mirfak
Perseus
Algol
Lacerta
Vulpecula
Sagitta
Procyon
Alhena
Almach
Andromeda
Mirach
Aquila
Triangulum
Alpheratz
Delphinus
Pegasus
Aldebaran
Taurus
Aries
Hamal
Equuleus
Pisces
Alnitak
Alnilam
Saiph
Rigel
Mirzam
Lepus
Cetus
Aquarius
Capricornus
Eridanus
Diphda
Fomalhaut
Piscis Austrinus
Fornax
Sculptor
Caelum
Grus
Phoenix
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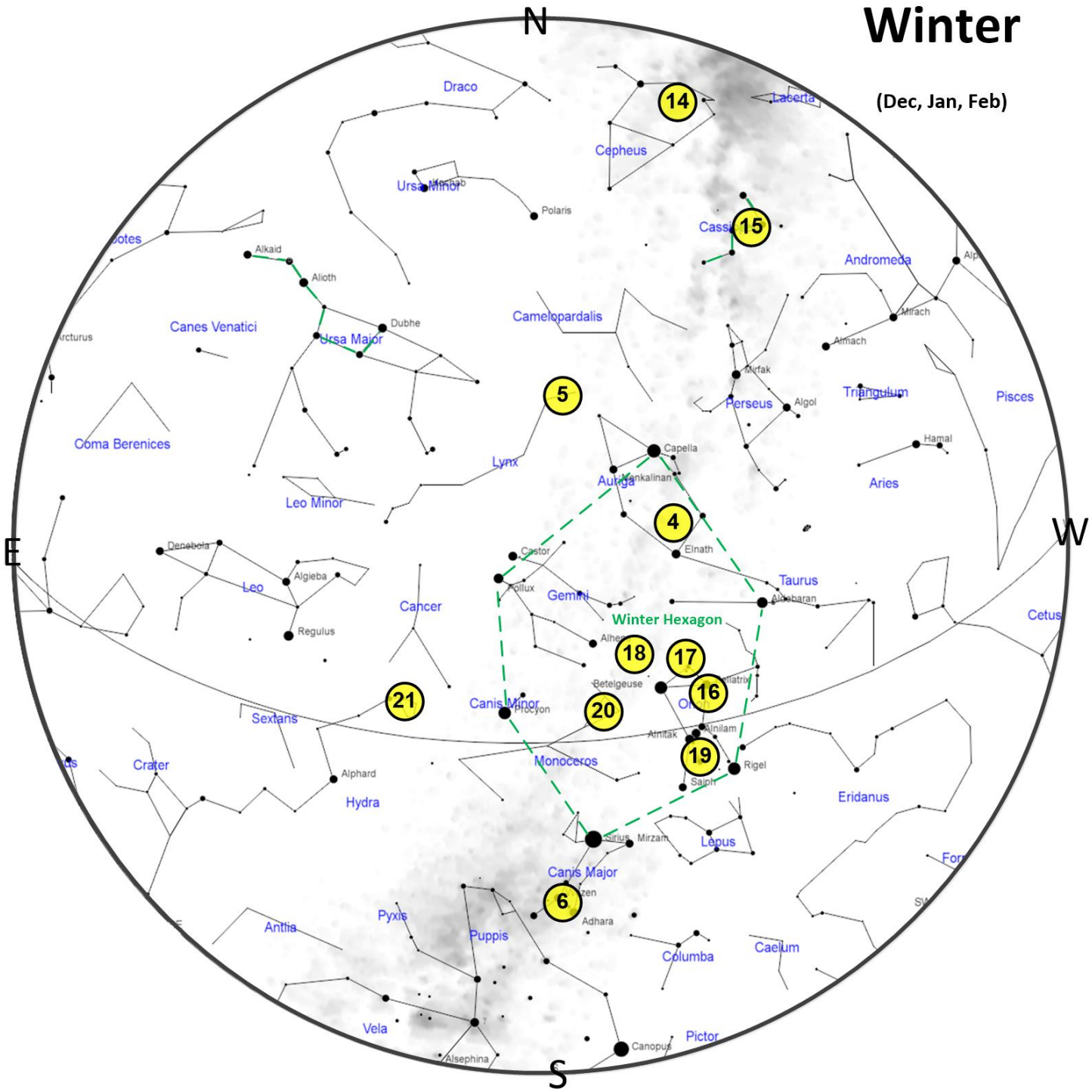
Winter
(Dec, Jan, Feb)
N
E
W
S
Draco
Cepheus
Lacerta
Ursa Minor
Polaris
Cassiopeia
Andromeda
Alkaid
Alioth
Dubhe
Ursa Major
Canes Venatici
Camelopardalis
Mirfak
Algol
Perseus
Triangulum
Pisces
Coma Berenices
Capella
Lynx
Auriga
Hamal
Aries
Leo Minor
Elnath
Denebola
Algieba
Leo
Castor
Pollux
Gemini
Taurus
Aldebaran
Cancer
Winter Hexagon
Cetus
Regulus
Betelgeuse
Rigel
Canis Minor
Procyon
Sextans
Alnilam
Alnitak
Monoceros
Crater
Alphard
Hydra
Eridanus
Sirius
Mirzam
Lepus
Canis Major
Adhara
Antlia
Pyxis
Puppis
Columba
Caelum
Vela
Canopus
Pictor
Alsephina
5
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17
16
21
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19
6

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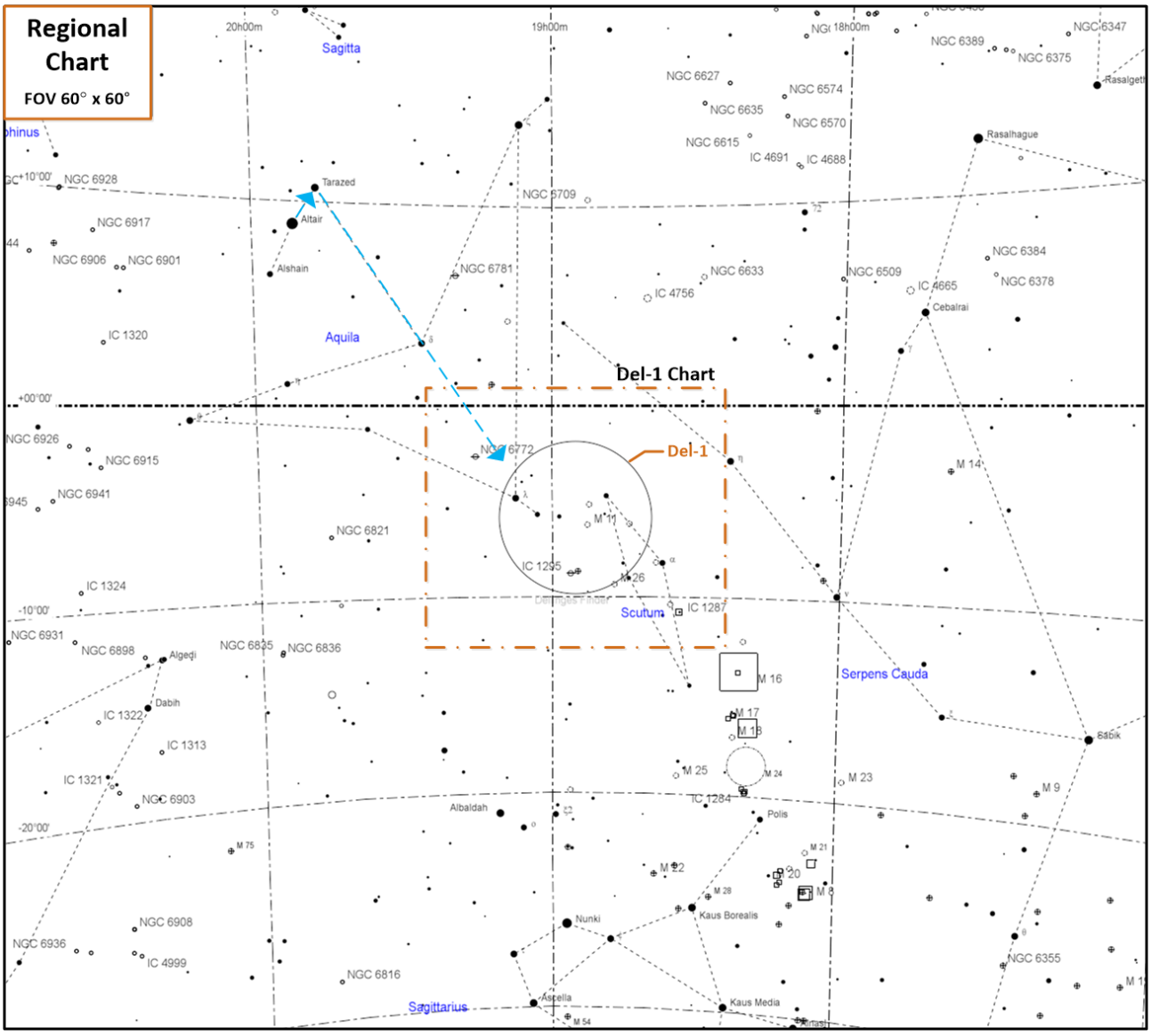
Del Objects Index

Del Number	Page	Name	Constellation	Season
Del-1		Bracelet and Chain	Aquila, Scutum	Summer/Fall
Del-2		Sadr Region	Cygnus	Summer
Del-3		Region of Deneb	Cygnus	Summer
Del-4		Inside Auriga	Auriga	Winter
Del-5		Head of Lynx	Lynx	Winter
Del-6		Hip of the Great Dog	Canis Major	Winter
Del-7		Head of Serpens (Caput)	Serpens	Summer
Del-8		Scorpion's Claw	Scorpius	Summer
Del-9		False Hyades	Ophiuchus	Summer
Del-10		Teaspoon in Sagittarius	Sagittarius	Summer
Del-11		Hercules Mini-Keystone A	Hercules	Summer
Del-12		Hercules Mini-Keystone B	Hercules	Summer
Del-13		Region of Southern Lyra	Lyra	Summer
Del-14		Inside Cepheus	Cepheus	Fall
Del-15		Starry Cassiopeia	Cassiopeia	Fall
Del-16		Beyond Orion's Belt	Orion	Winter
Del-17		Stars Over Betelgeuse	Orion	Winter
Del-18		Stars Northeast of Betelgeuse	Orion	Winter
Del-19		Sword of Orion	Orion	Winter
Del-20		Head of Monoceros	Monoceros	Winter
Del-21		Head of Hydra	Hydra	Spring
Del-22		Scorpion's False Comet	Scorpius	Summer
Del-23		Starry Fan	Hercules	Summer
Del-24		Head of Aquila	Aquila	Summer

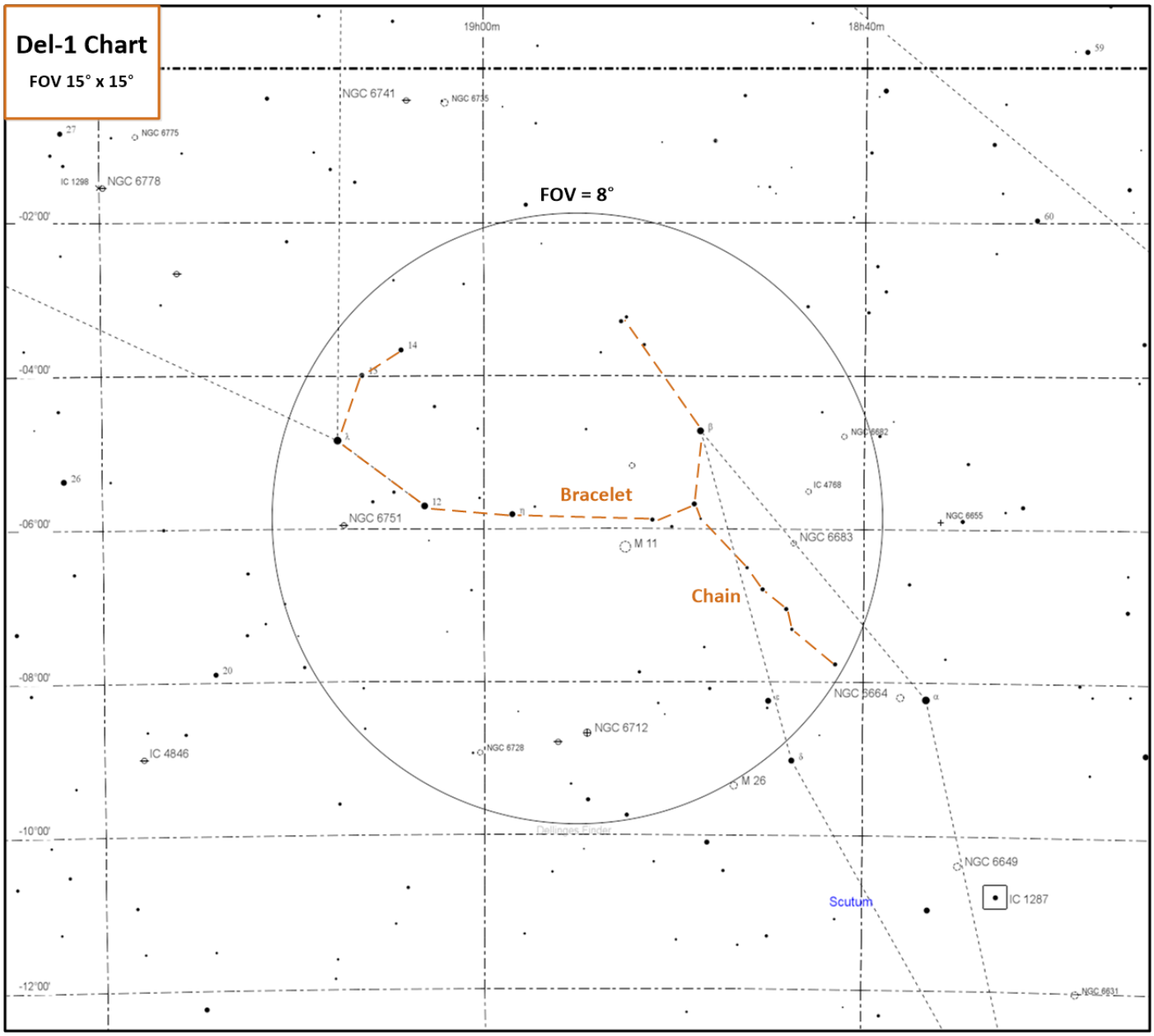
Del-1: Bracelet and Chain

This Bracelet and Chain asterism, in the tail of Aquila and northeast Scutum, was the first star field that caught my attention and gave me the impetus to create this catalog. For many years I used Aquila's "tail" stars, Lambda and 12 Aquilae (that point almost directly at M-11), to locate the star cluster, which is actually in Scutum. Then I noticed if you included 8, 14, 15 Aquilae, M-11, Eta and Beta Scuti, they formed what looked like an oval bracelet with a gap on its north side. Something else caught my eye too. At the four o'clock position of the Bracelet there's a cute string of six faint stars running southwestward from it. I call them the "Chain." The entire asterism is about seven-degrees in diameter. When you include the background Milky Way stars, this vista is quite pleasing in my Nikon 8x42. Ever since I discovered my "Bracelet," I can't help seeing it in every Milky Way panorama image I see. It just jumps out at me. I can't not see it! This kind of phenomenon is called pareidolia – another example is why some people see the Lady in the Moon and others don't (I can't not see her either!).



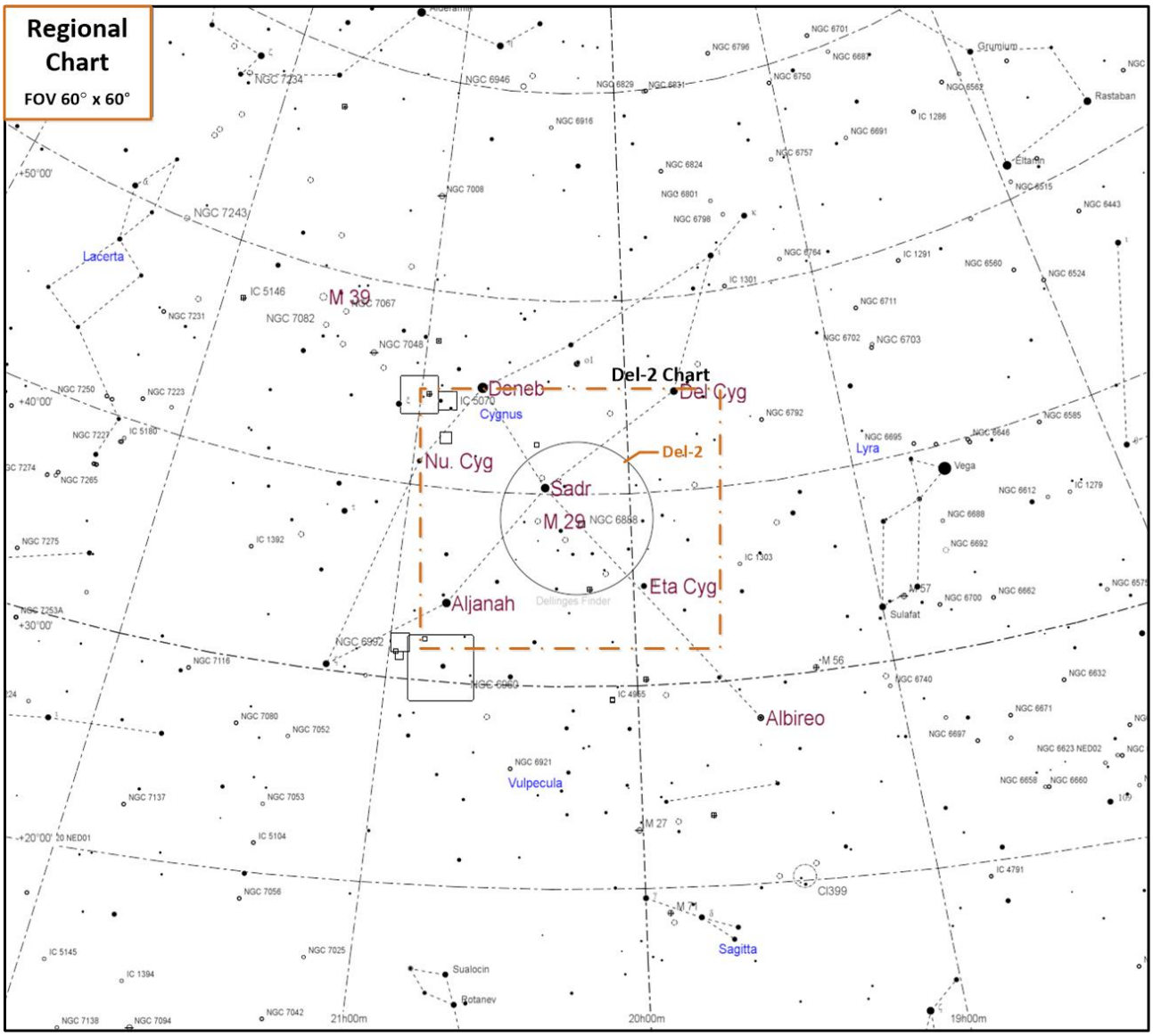
Object	Name	Constellation	Prime Time	RA	DEC
Del-1	Bracelet and Chain	Aquila, Scutum	Jun, Jul, Aug	18h 55m	-05° 33’

Del-1: Bracelet with a Chain



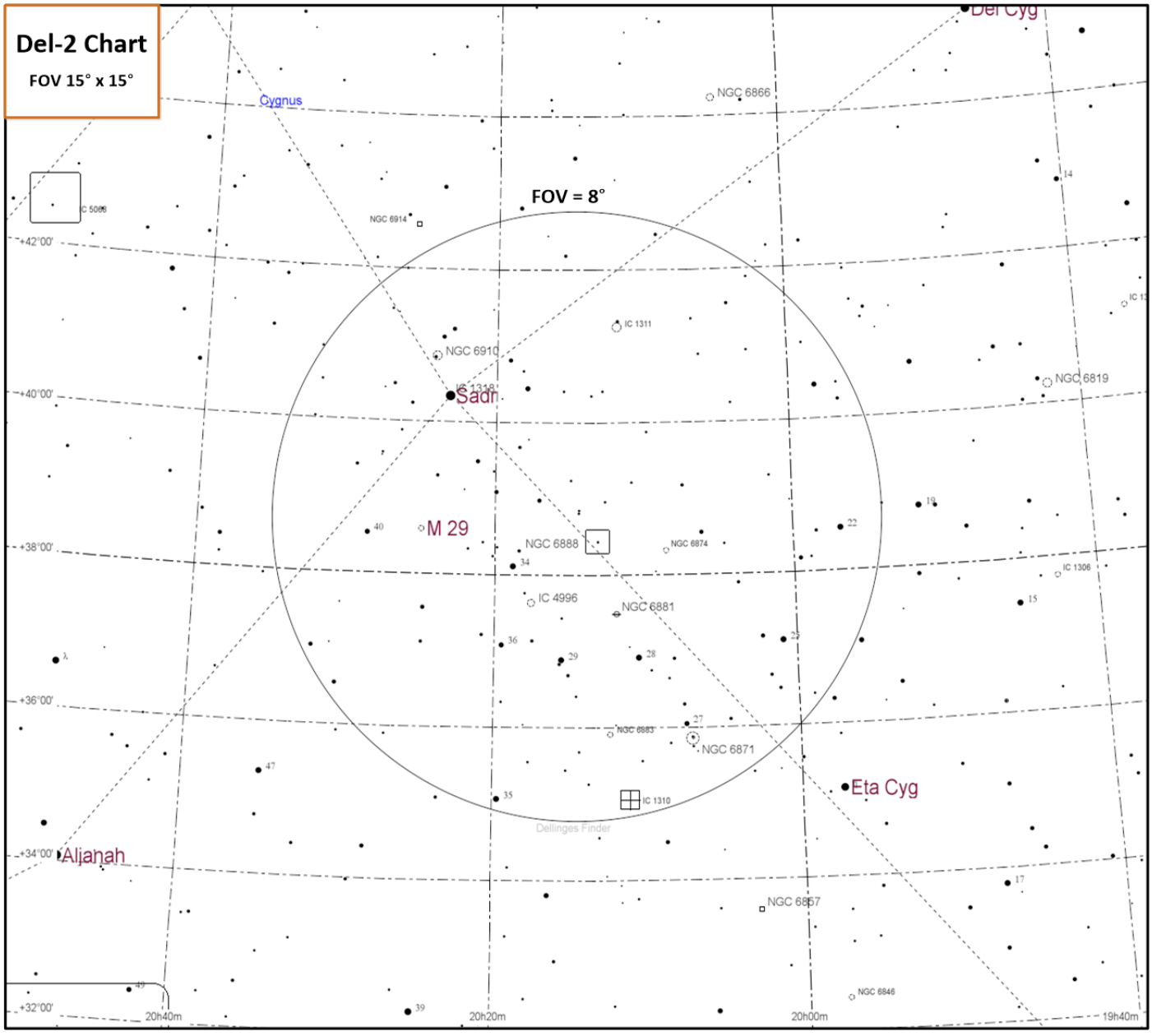
Del-2: Sadr Region

The star field surrounding Sadr, the center star in the asterism of the Northern Cross (Cygnus the Swan) is truly amazing. With Sadr centered in your field, you'll see a carpet of thousands of fainter Milky Way stars around it. Take a minute to think about how each dot you're looking at is a sun in its own right. The sight makes you realize our Sun is not so special, other than keeping us warm (sometimes too warm!). Astronomers estimate there are between 100 and 400 billion stars in our Milky Way Galaxy. Some stars in the Milky Way, such as the supergiants Betelgeuse and Antares, have diameters that could encompass the orbit of Mars and are approximately 15 times more massive than the Sun. However, most stars in our galaxy are smaller than the Sun. Nature seems to have a propensity to make smaller things in greater numbers than bigger things. Are there more ants on Earth than Elephants? Yes.



Object	Name	Constellation	Prime Time	RA	DEC
Del-02	Sadr Region	Cygnus	Jun, Jul, Aug	20h 14m	+38° 46’

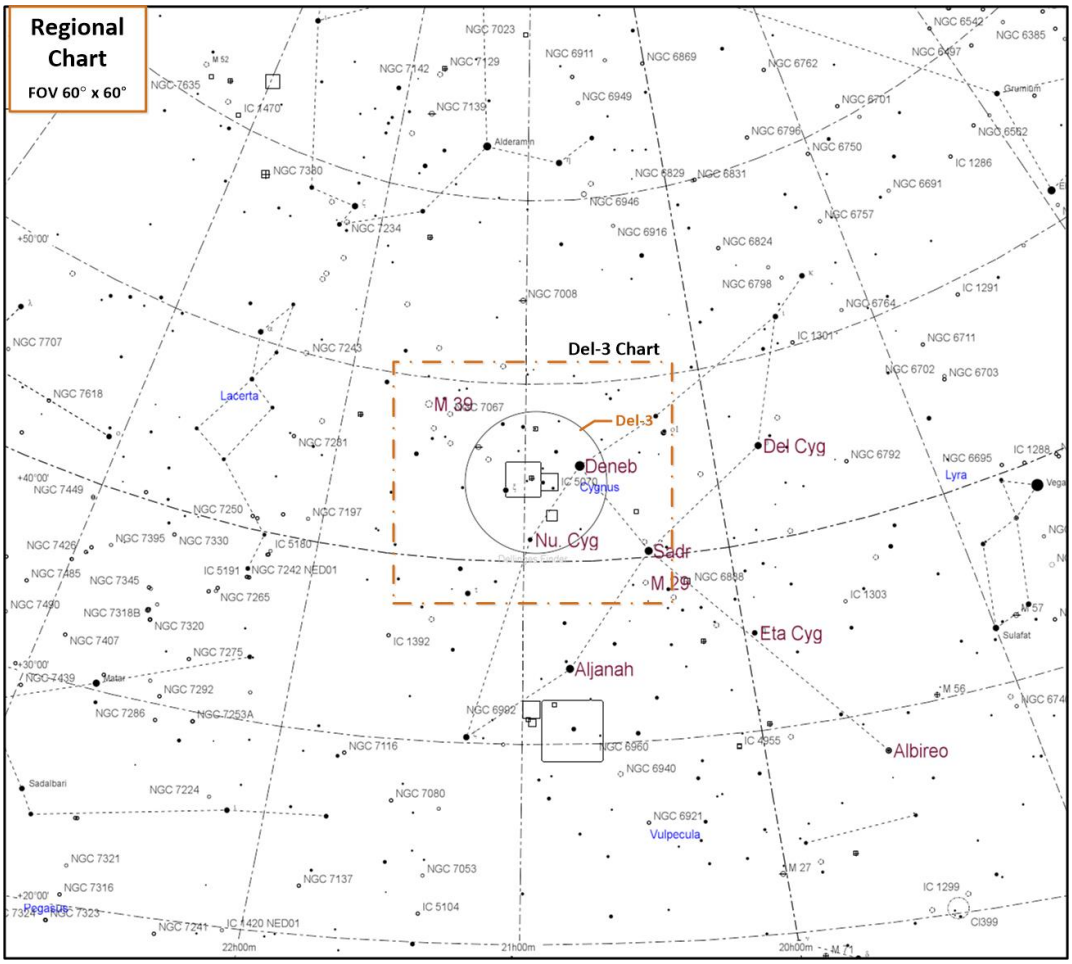
Del-02: Sadr Region



Del-3: Deneb Region

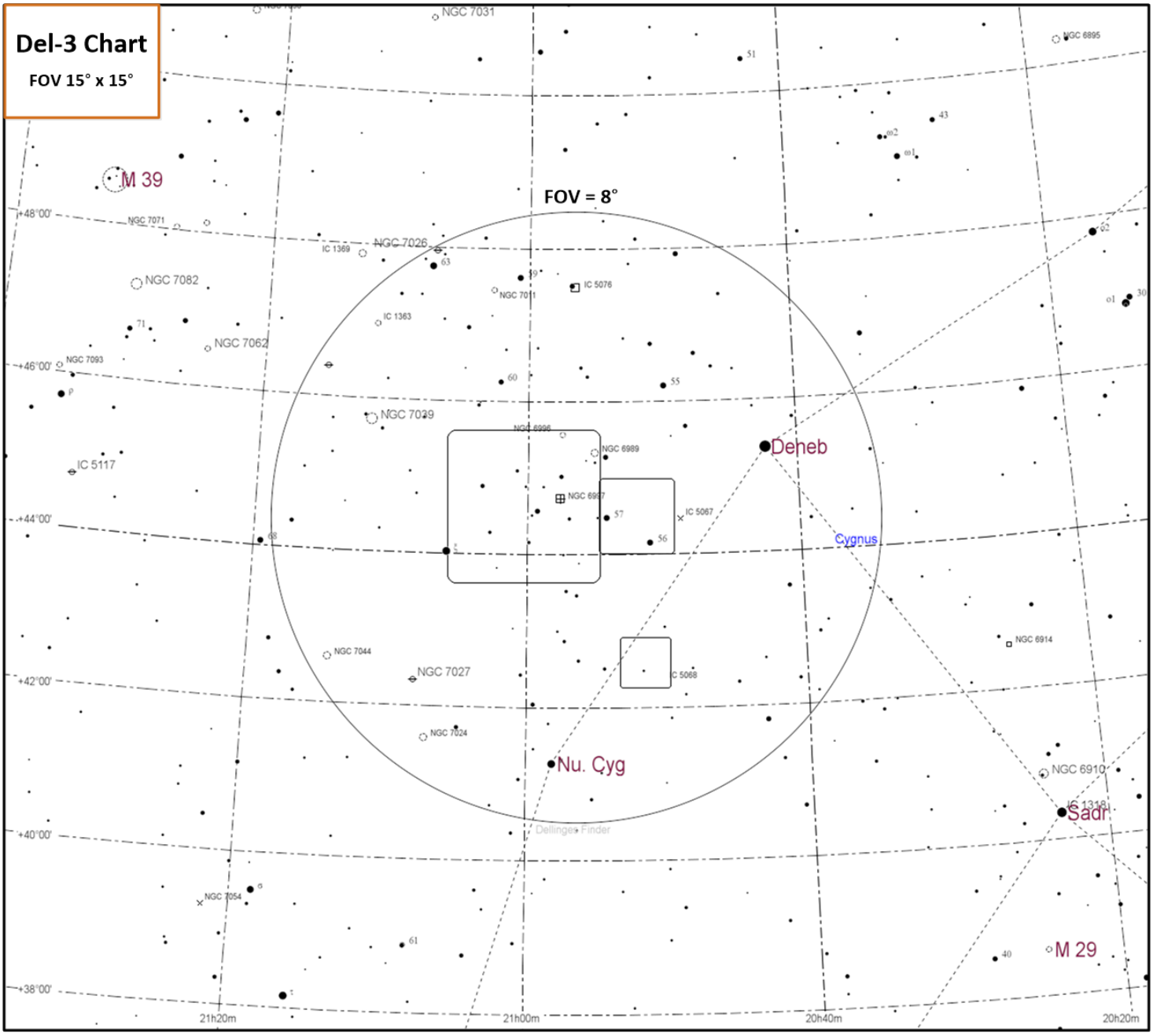
This stunning splash of stellar gems is only seven degrees northeast of Del-2. We just need to get Deneb in our field, so slide one binocular field up the Cross's axis from Sadr. Once you have Deneb centered in your field, move it to the western edge of the field and you will be greeted to a binocular field full of stars much brighter than what you saw in Del-2. This gaggle of luminaries is akin to a very sparse, bright open star cluster. Now purists may say, hey, wait a minute, you're looking at NGC 7000, the North American Nebula! Well, yes, but these stars are foreground stars and NGC 7000 is a nebula much more distant than the stars you're observing. Anyway, unless you have very dark skies, your eyes probably won't detect NGC 7000's gaseous nature.

Deneb deserves respect. Visually, it's the dimmest of the three stars comprising the Northern Cross asterism (along with Altair in Aquila and Vega in Lyra). However, it's also the most distant of the three. We can adjust for that by using the absolute magnitude scale, where we place all stars at the same distance of 10 parsecs (32.6 light years) and then measure their brightness. At that distance, Deneb would blow away its two competitors. Its absolute magnitude would be -7.2 compared to Vega's +0.6 and Altair's +2.3 (the Sun would be +4.8, barely visible to the naked eye!). Intrinsically, Deneb is a cosmic blowtorch, in one second it puts out as much energy as the sun does in one day. Deneb compared to our Sun: Diameter: 200 times that of the Sun. Mass: 19 Suns. Luminosity: 137,000 Suns.



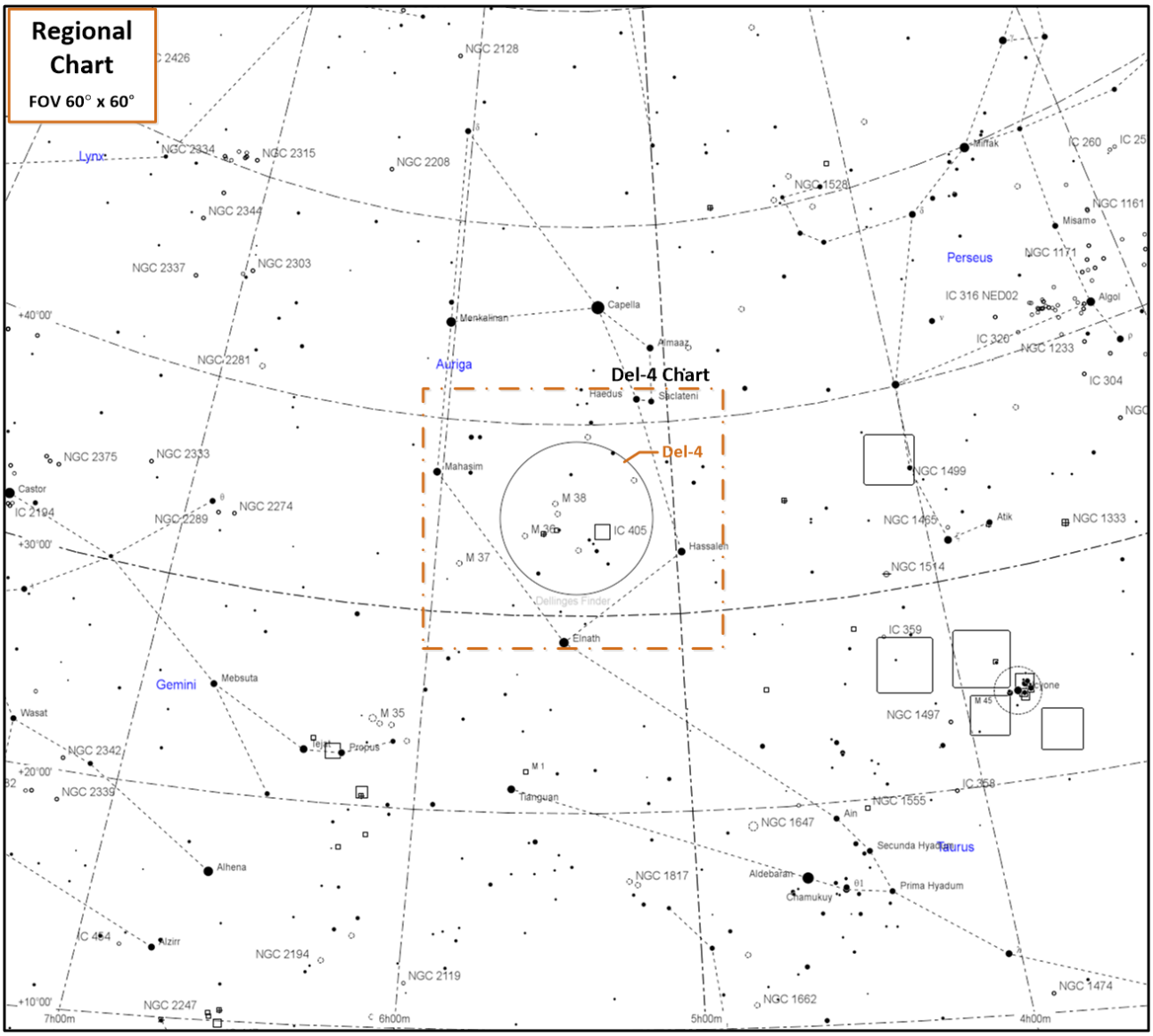
Object	Name	Constellation	Prime Time	RA	DEC
Del-03	Region of Deneb	Cygnus	Jun, Jul, Aug	20h 58m	+44° 34’

Del-03: Deneb Region



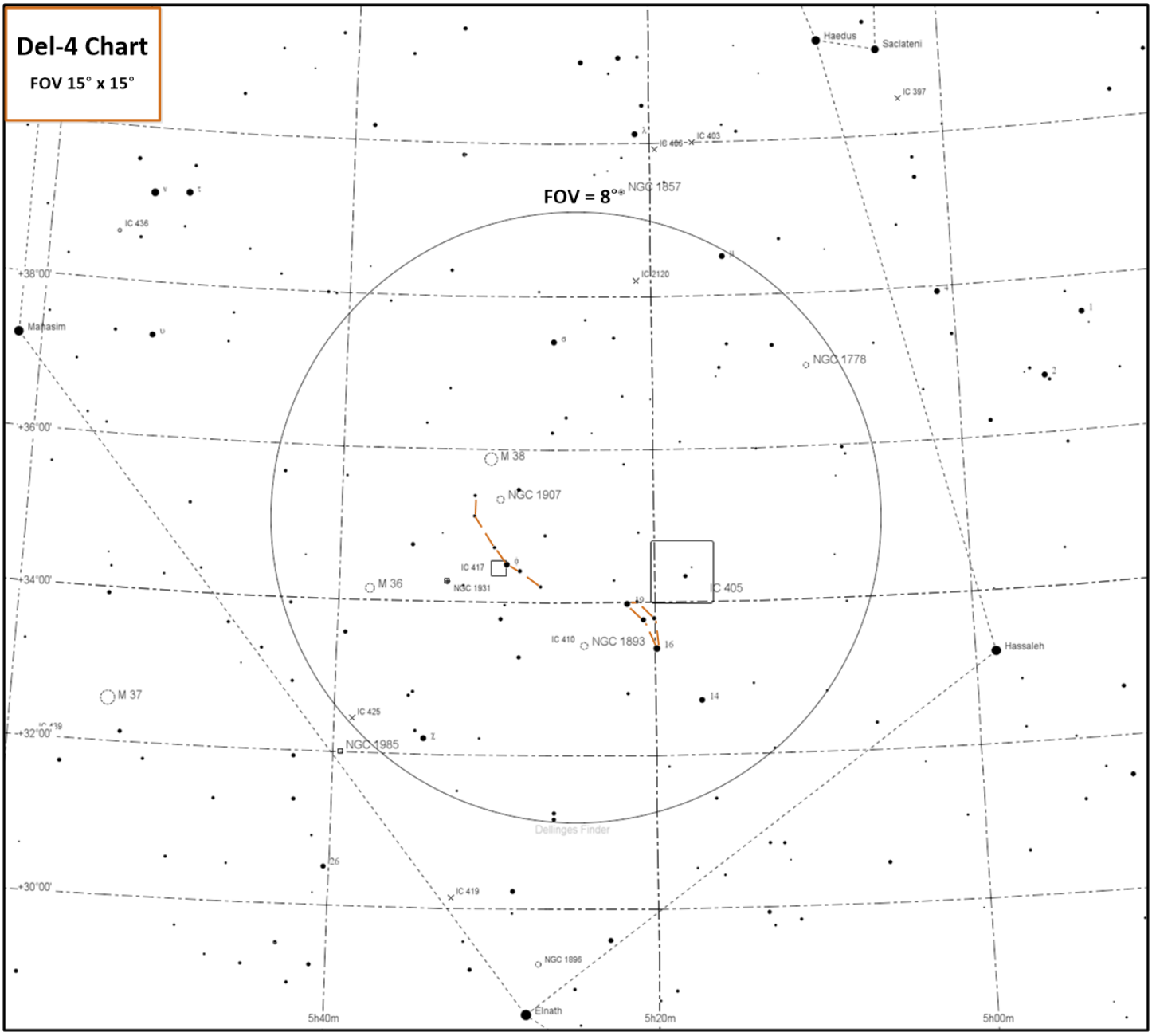
Del-4: Inside Auriga

We are concentrating on the southern interior of the “Pentagon” of Auriga (the farthest side from its brightest star Capella). Place your binocular field between the stars Iota and Theta Aurigae. A direct line connecting those two stars will cut through the middle of your field and reveal oodles of bright stars. Two dim nebulous spots in the field are the star clusters M-36 and M-38. Adding a little pizzazz to the scene, just west of M-36/38, is the asterism The Cheshire Cat; two stars for the eyes and six stars for a smiling mouth, an unexpected joy. Two degrees away, southwest of the feline (lower right of the field circle below), is another asterism called the Flying Minnow, a staggered string of four, 4th magnitude stars pointing the way to M-38 (and is much easier to find than the Cheshire Cat, which has fainter stars).



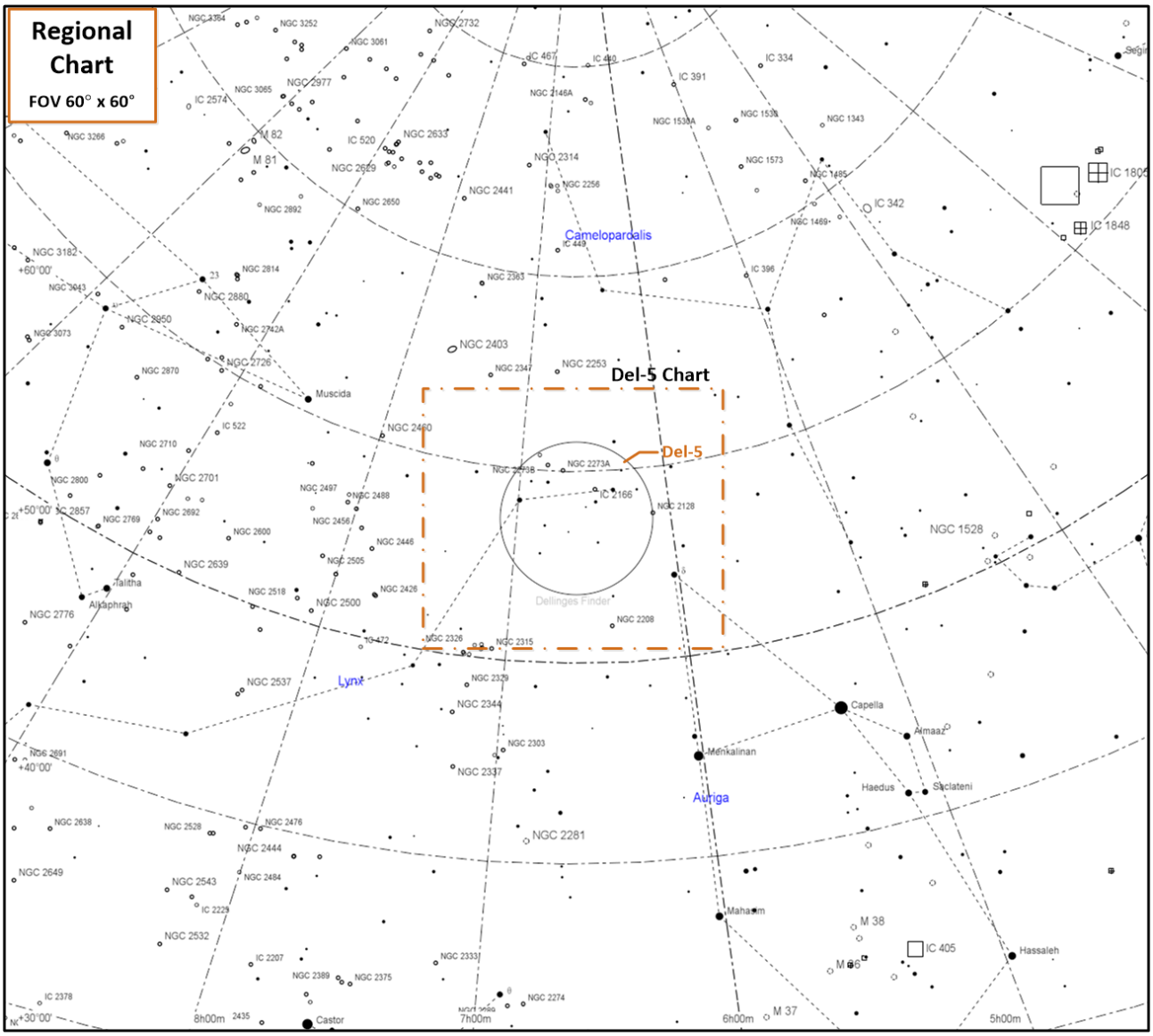
Object	Name	Constellation	Prime Time	RA	DEC
Del-4	Inside Auriga	Auriga	Nov, Dec, Jan	5h 24m	+35° 03’

Del-4: Inside Auriga



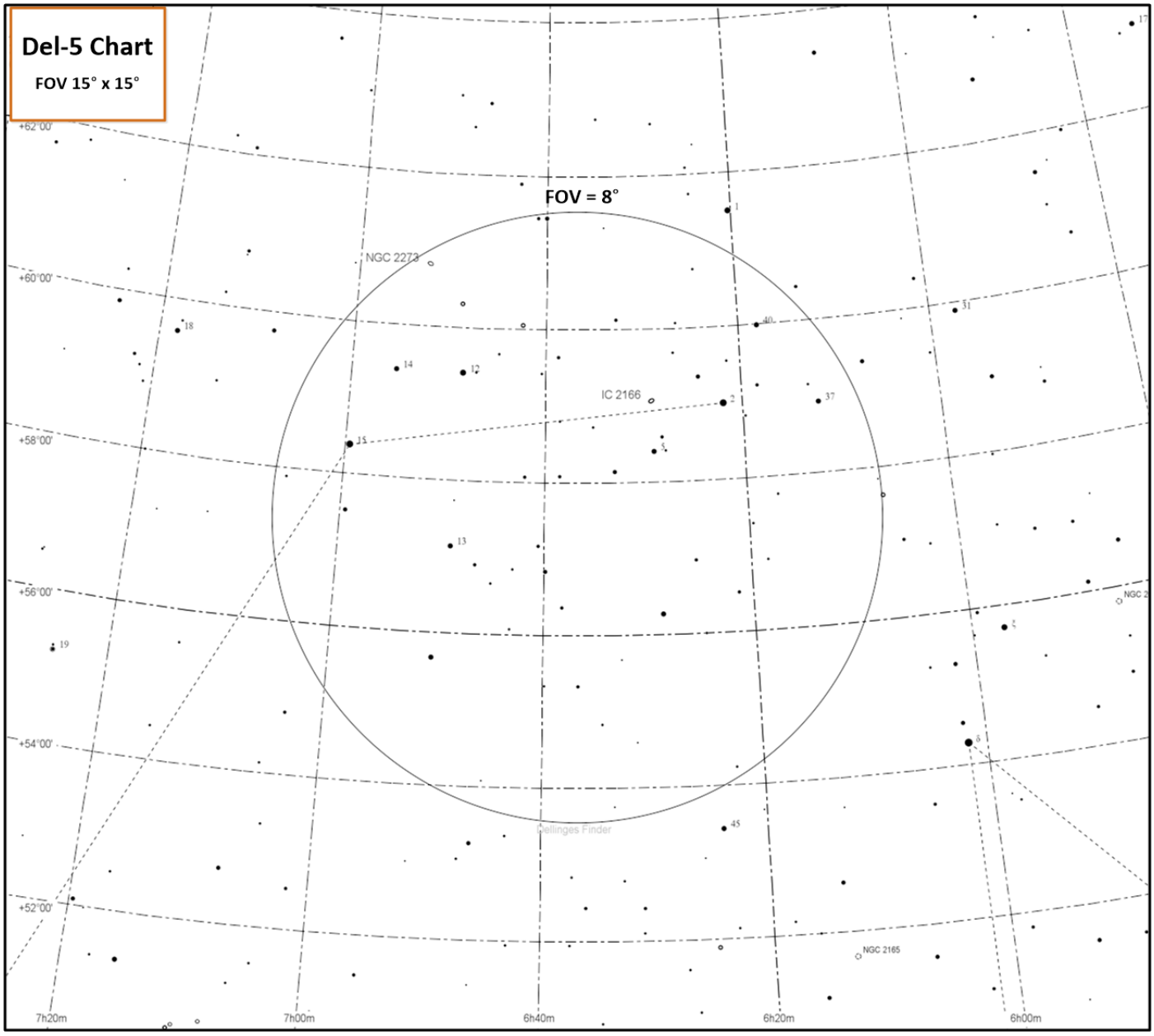
Del-5: Head of Lynx

The northern tip of this constellation represents the head of the Lynx and makes for an impressive stellar sight. I counted 47 stars within my 8x42 (8º) binocular field. The brightest seven stars, about 4th and 5th magnitude, stand out because they form an interesting pattern that catches the eye. On one side of the field, three stars make a bent line. On the other side, four stars form a “C”. It may be hard to find this hidden splash of stars because it’s in the middle of nowhere, a huge stellar void. Consult an atlas before going after this gem. The easiest way to find this outpost is to note it lies midway between Capella in Auriga and Omicron Ursae Majoris, the nose of the Great Bear. Given a little time to get dark adapted, I have seen this group of stars as a slight glow naked eye in my semi-light polluted sky.



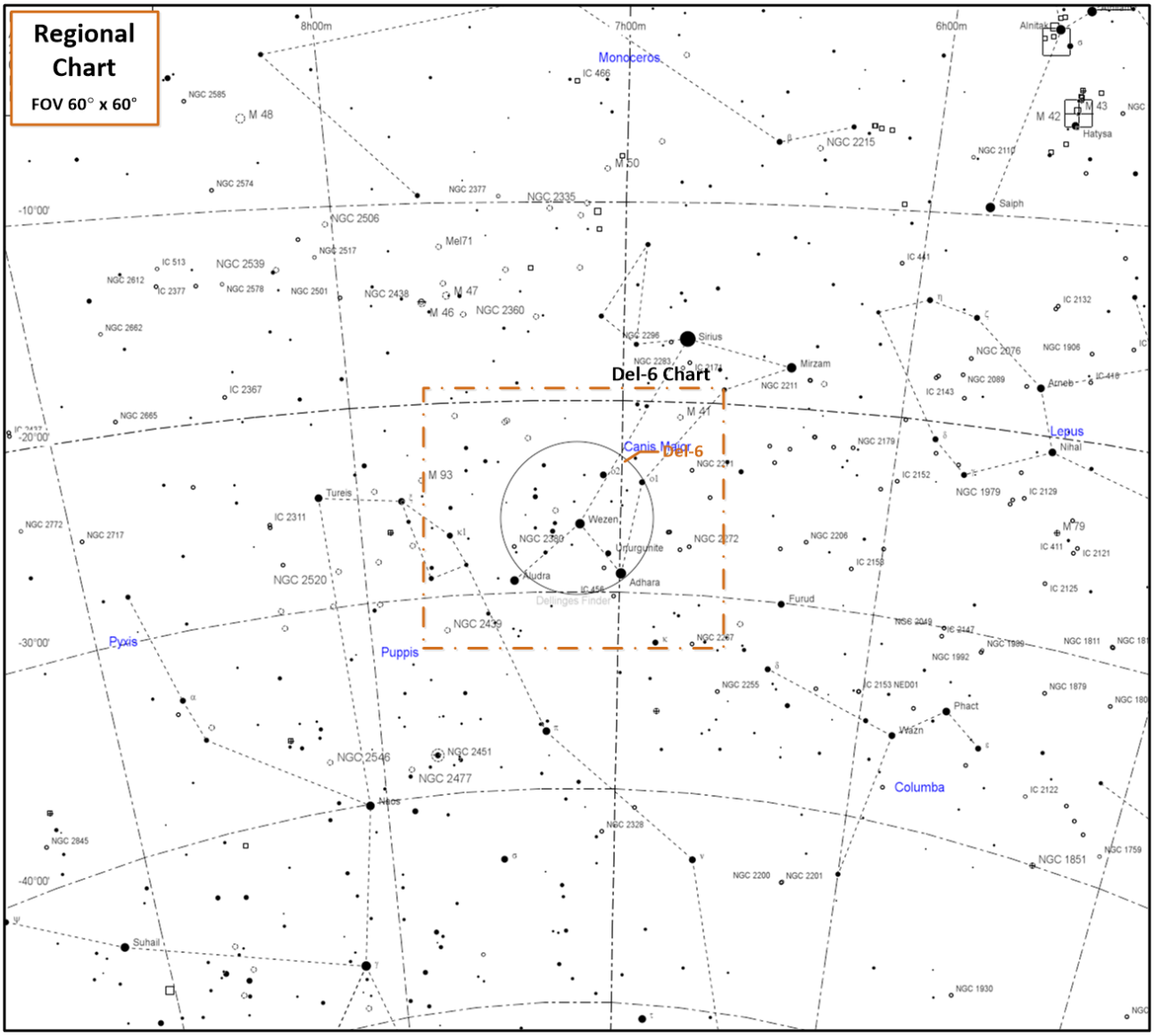
Object	Name	Constellation	Prime Time	RA	DEC
Del-5	Head of Lynx	Lynx	Jan, Feb, Mar	06h 38m	+57° 22’

Del-5: Head of Lynx



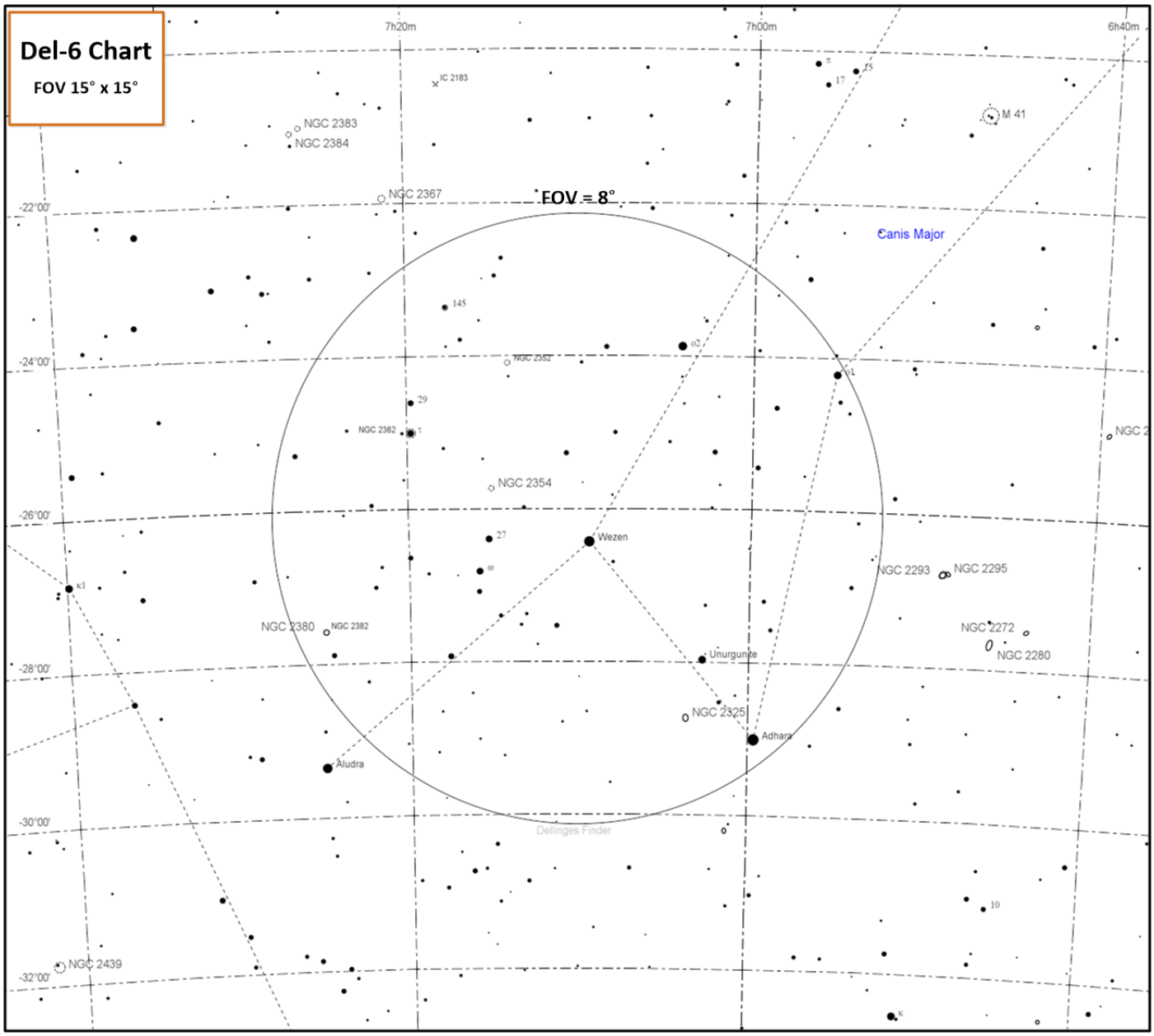
Del-6: Hip of the Great Dog

In southern Canis Major, find the bright star Wezen (Delta C. Maj.) signifying the Dog's hip. Center that star in your binocular. That's it, you're right where you need to be, enjoy the vista. At the bottom of your field you'll see two other bright stars, Aludra (Dog's tail) and Adhara (Dog's rear leg). I counted about 50 obvious stars in the background, but since the Milky Way runs through the area, your star count will likely be much higher. I split the wide double star Aludra with the 8x42 binocular. Its companion is a magnitude 6.8 star and is 170" away from Aludra at position angle 286°.



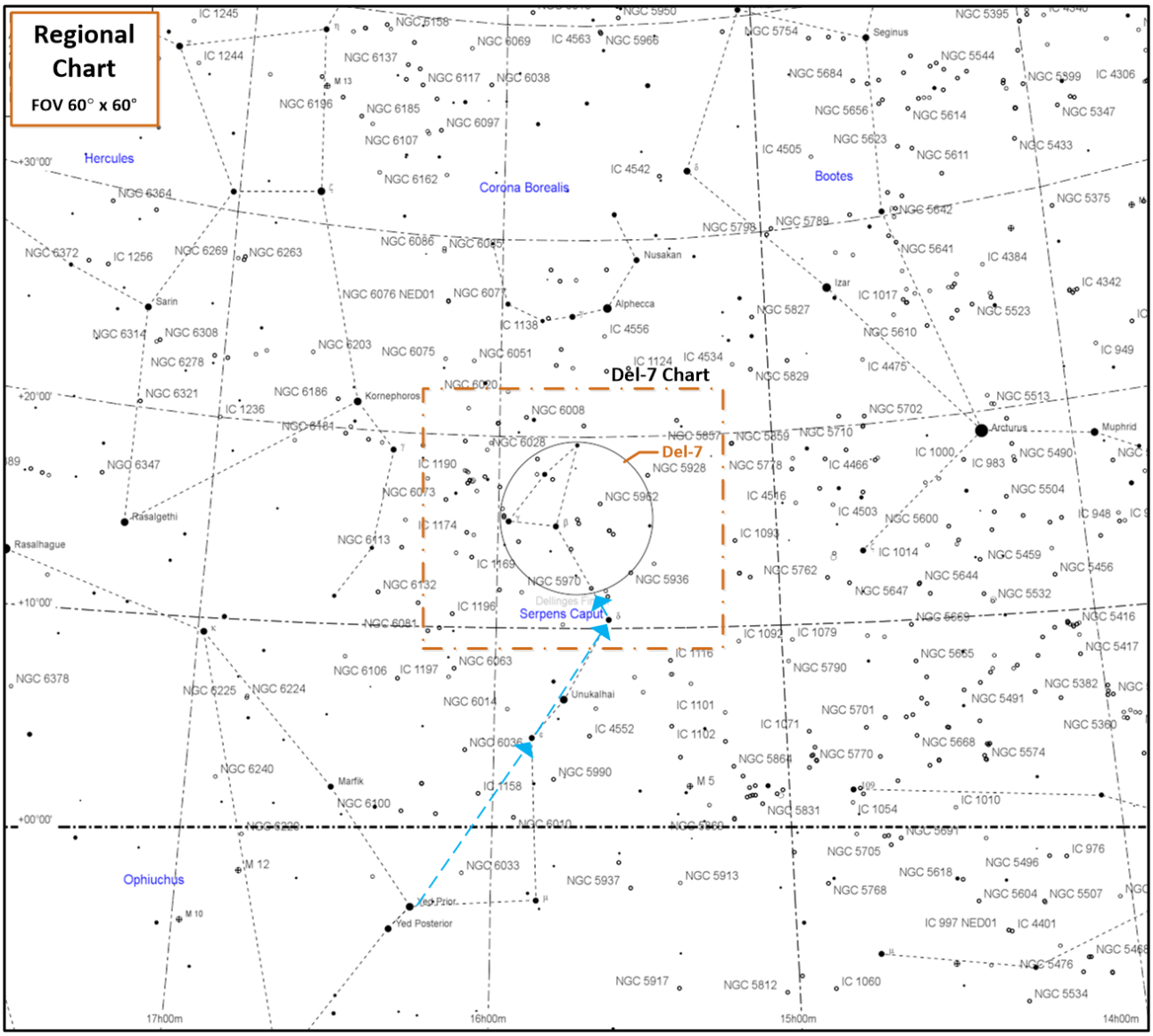
Object	Name	Constellation	Prime Time	RA	DEC
Del-6	Hip of the Great Dog	Canis Major	Dec, Jan, Feb	07h 10m	-26° 13’

Del-6: Hip of the Great Dog



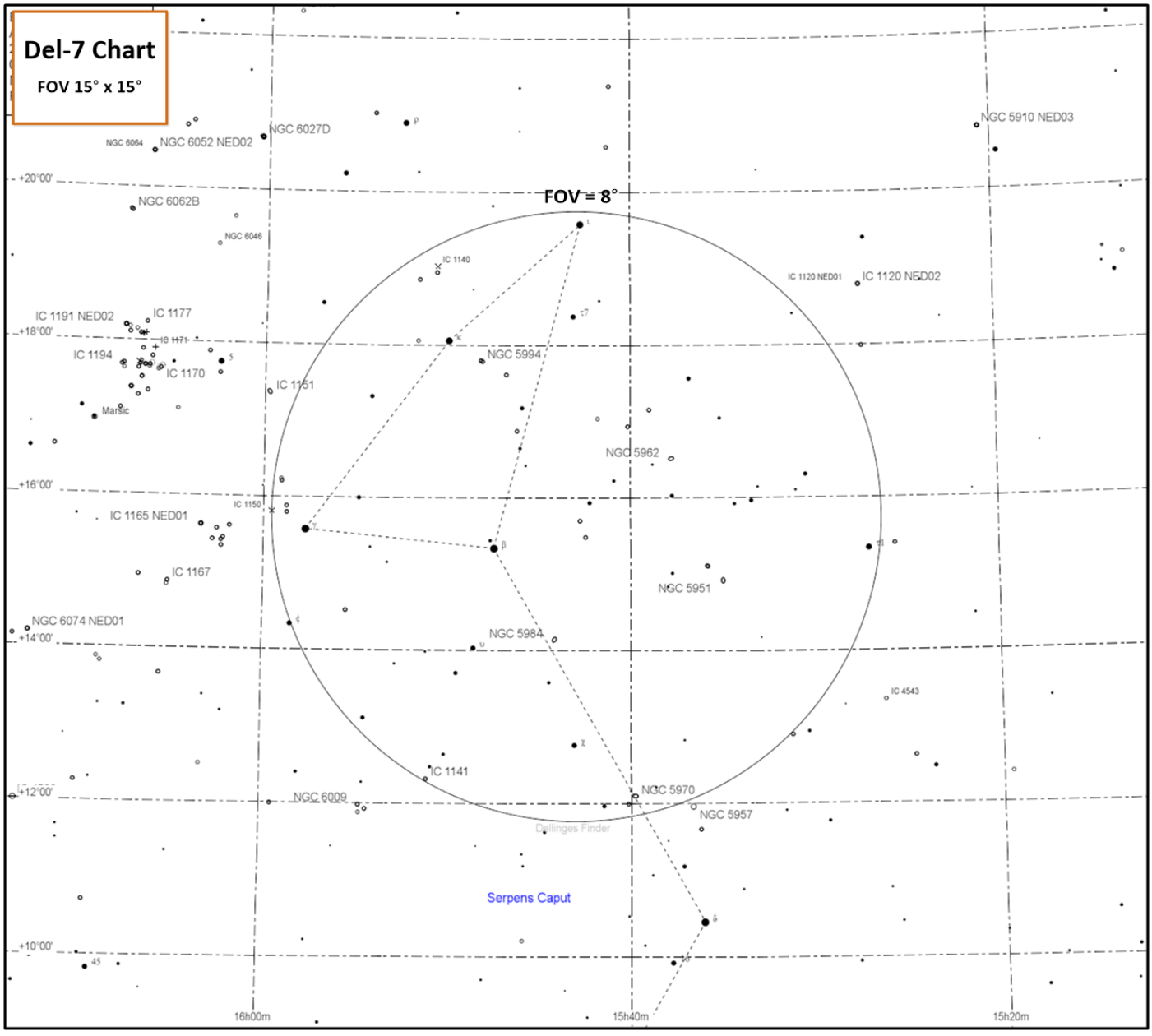
Del-7: Head of Serpens (Caput)

We are focusing on the Head of the Serpent in the western half of the constellation (Serpens is unique being the only constellation split in two parts, the other half, Serpens Cauda, is on the eastern side of Ophiuchus). You can reach Serpent's Head two ways. One easy, and one that requires a little star hopping. Easy way: Simply go 5 degrees due south of Corona Borealis. Star hop: Find Delta Ophiuchi near the bottom of that constellation. It has a slightly dimmer companion star near that catches your eye by looking like a wide "double star." Go 6-degrees due west to Mu Serpentis. From there go north to its brightest star, Alpha (Unukalhai), on to Delta. Above it, you should see a conspicuous triangle of stars (with a slightly dimmer star above it). Place that triangle on the left side of your binocular field to sweep up a nice smattering of 6th magnitude stars with Flamsteed numbers 9 through 26.



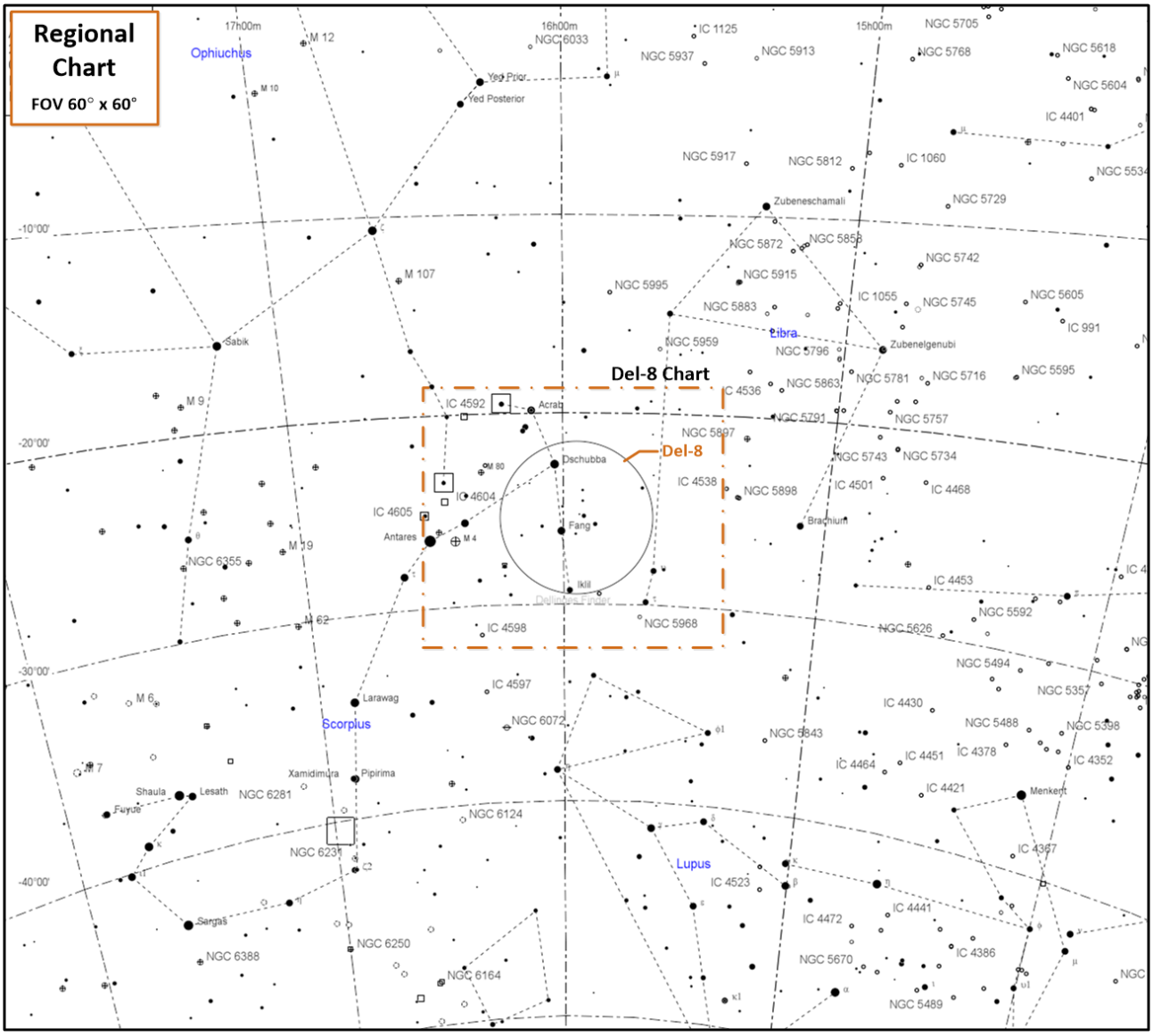
Object	Name	Constellation	Prime Time	RA	DEC
Del-7	Head of Serpens (Caput)	Serpens	May, Jun, Jul	15h 43m	+15° 47’

Del-7: Head of Serpens (Caput)



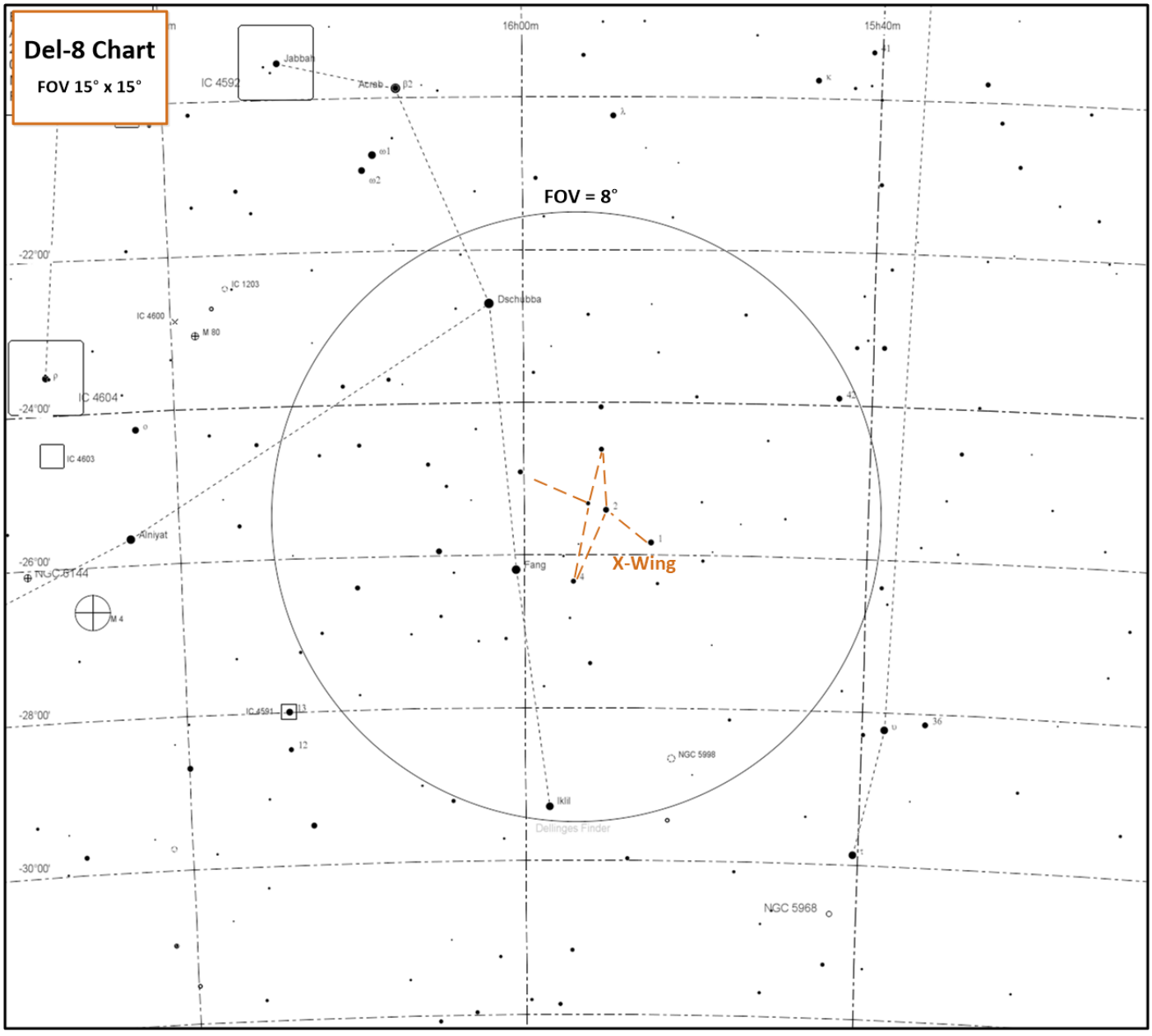
Del-8: Scorpion's Claw

Put your binoculars on Pi Scorpii, the southernmost star of the three bright stars representing the Scorpion's claws (in the western-most part of the constellation). Now, some tweaking to get the most stars in your field. Above Pi is Delta Scorpii (Dschubba, the brightest of the "Claw" stars since its brightening in 2000). Move Dschubba to the upper right of your field. Perfect! Delta and Pi will be the two brightest stars you see. Another 24 fainter stars hover in the field like bees. Seven of them, just west of Pi, form an interesting asterism that looks like an airplane as seen from above. Depending on your age, you may see either an F-104 or Star Wars X-Wing fighter!



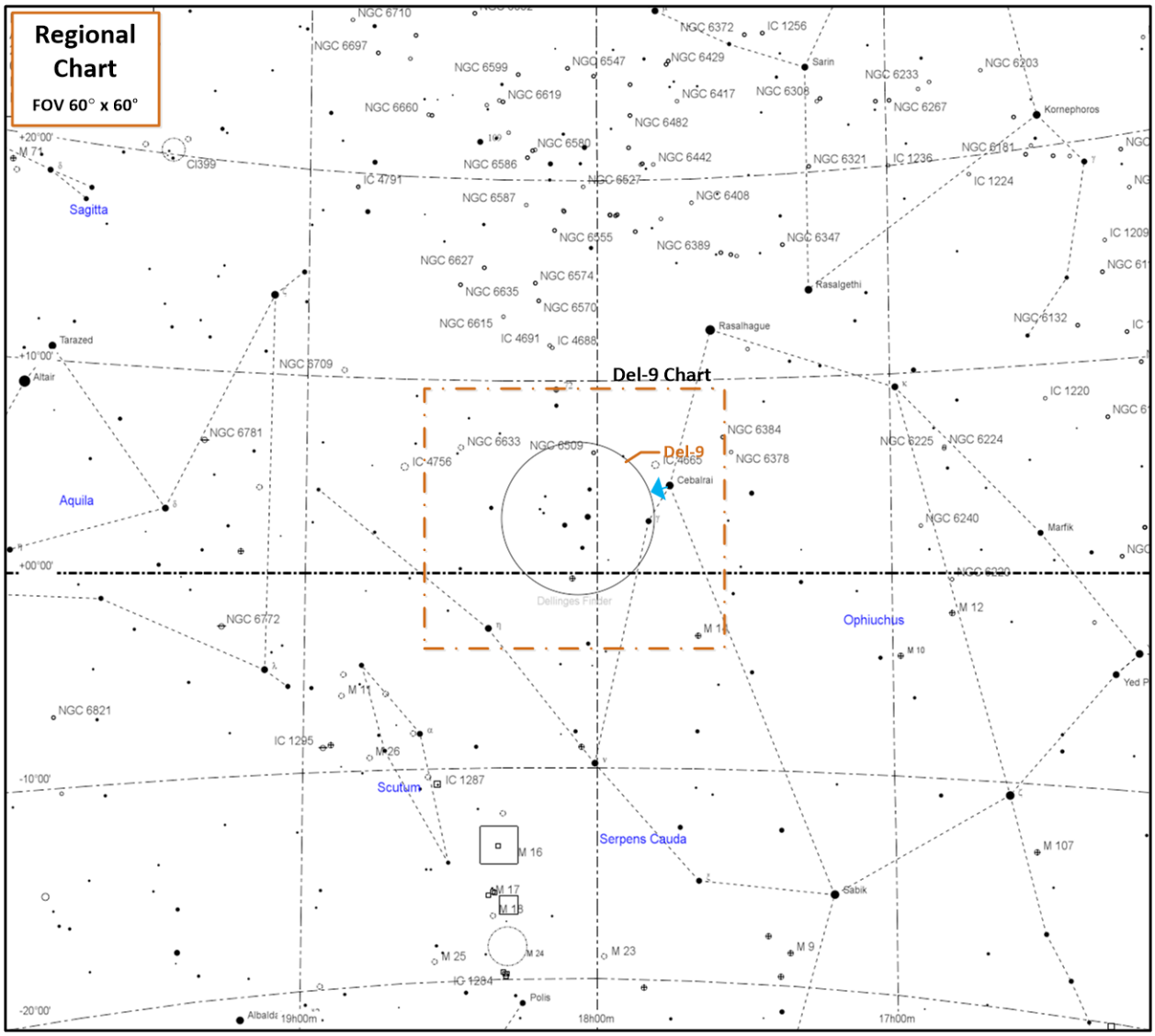
Object	Name	Constellation	Prime Time	RA	DEC
Del-8	Scorpion's Claw	Scorpius	May, Jun, Jul	15h 56m	-25° 30'

Del-8: Scorpion's Claw



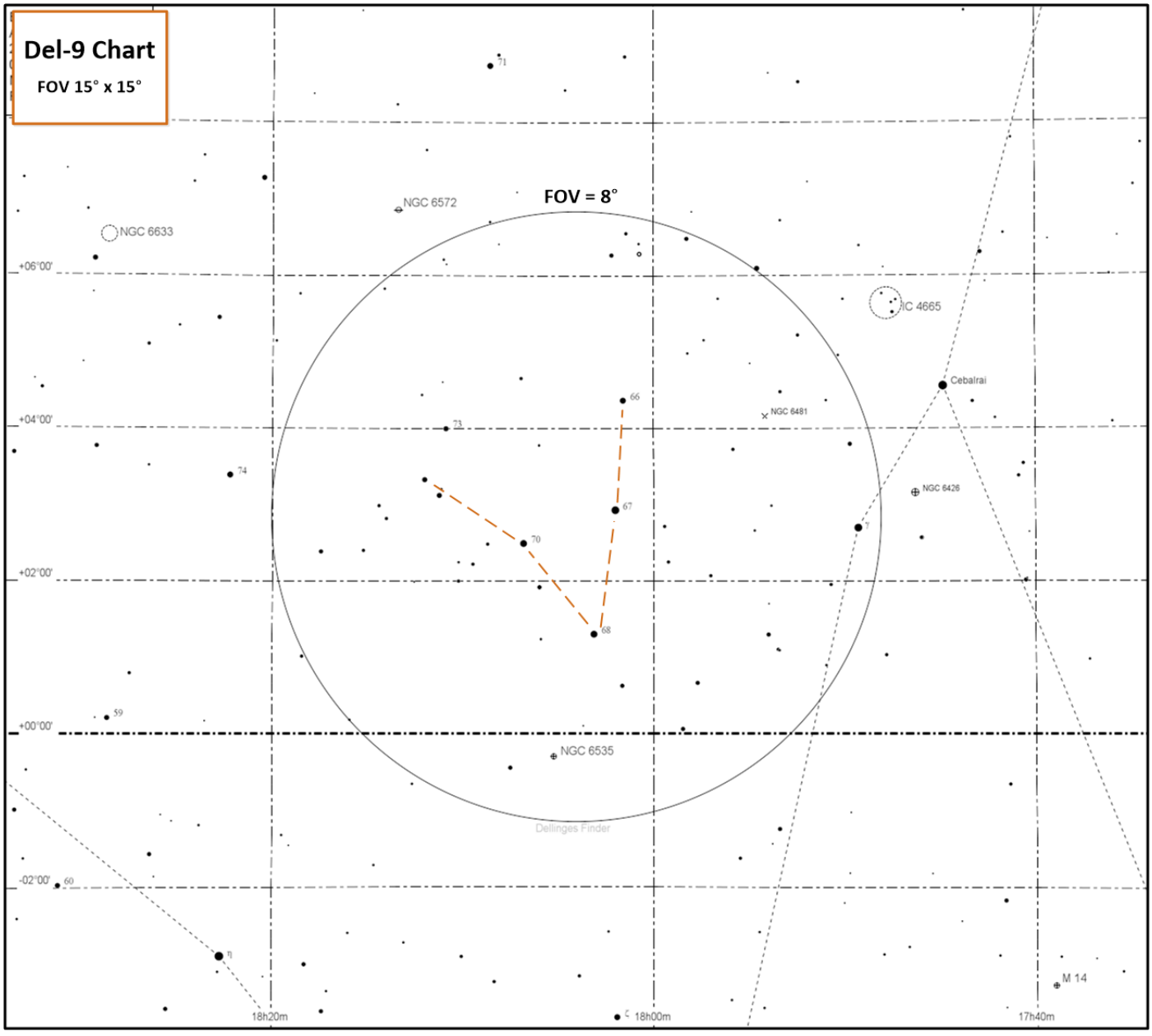
Del-9: False Hyades

Basically, we're looking at a defunct constellation that was known as Taurus Poniatovii (English translation "Poniatowski's bull"). The constellation was created by a Polish astronomer in 1777 to honor his king. He chose the term "Bull" for its resemblance to the Hyades star cluster in Taurus. It did not make the IAU cut in 1922 when they officially recognized 88 constellations. This was fortunate for me because I wanted to include the real Hyades as a Del object, but it had already been claimed by numerous astronomers such as P.J. Melotte (Mel 25) and Per Collinder (Cr 50). So Poniatovii's loss was my gain. I hereby claim it as Del-9. Indeed, this group of 3rd magnitude stars does look like the Hyades. It's about the same size but fainter. You can easily star hop
to it by first finding Beta Ophiuchi, then sashaying south-east a degree or two. I found the best view of this group by centering its distinctive six star "V" in the center of the binocular field. I counted about 50 dimmer stars in the background. Before leaving the area, don't miss checking out IC 4665, a large star cluster perfect for binoculars, two degrees northeast of Beta Ophiuchi.



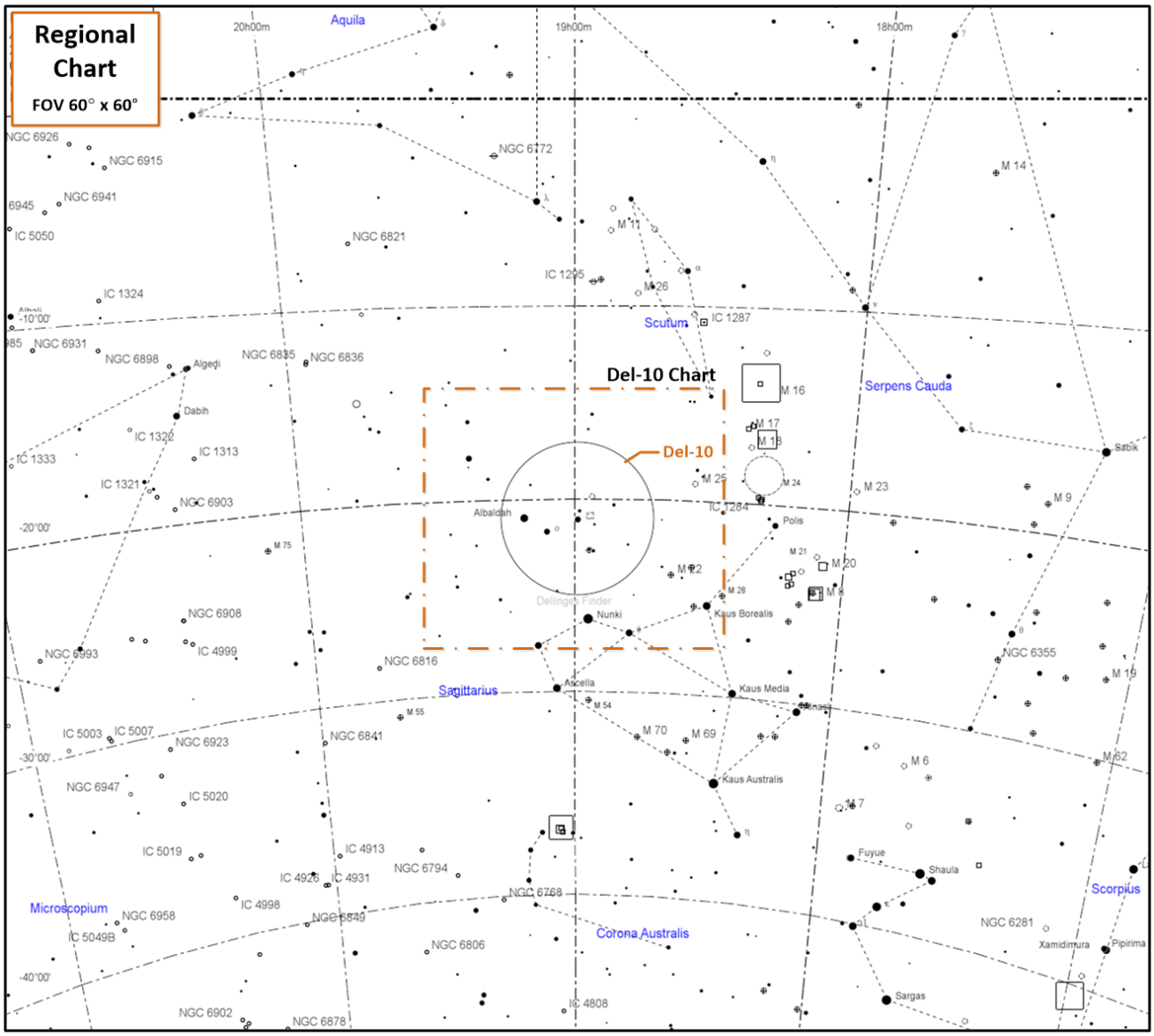
Object	Name	Constellation	Prime Time	RA	DEC
Del-9	False Hyades	Ophiuchus	May, Jun, Jul	18h 04m	+02° 51’

Del-9: False Hyades



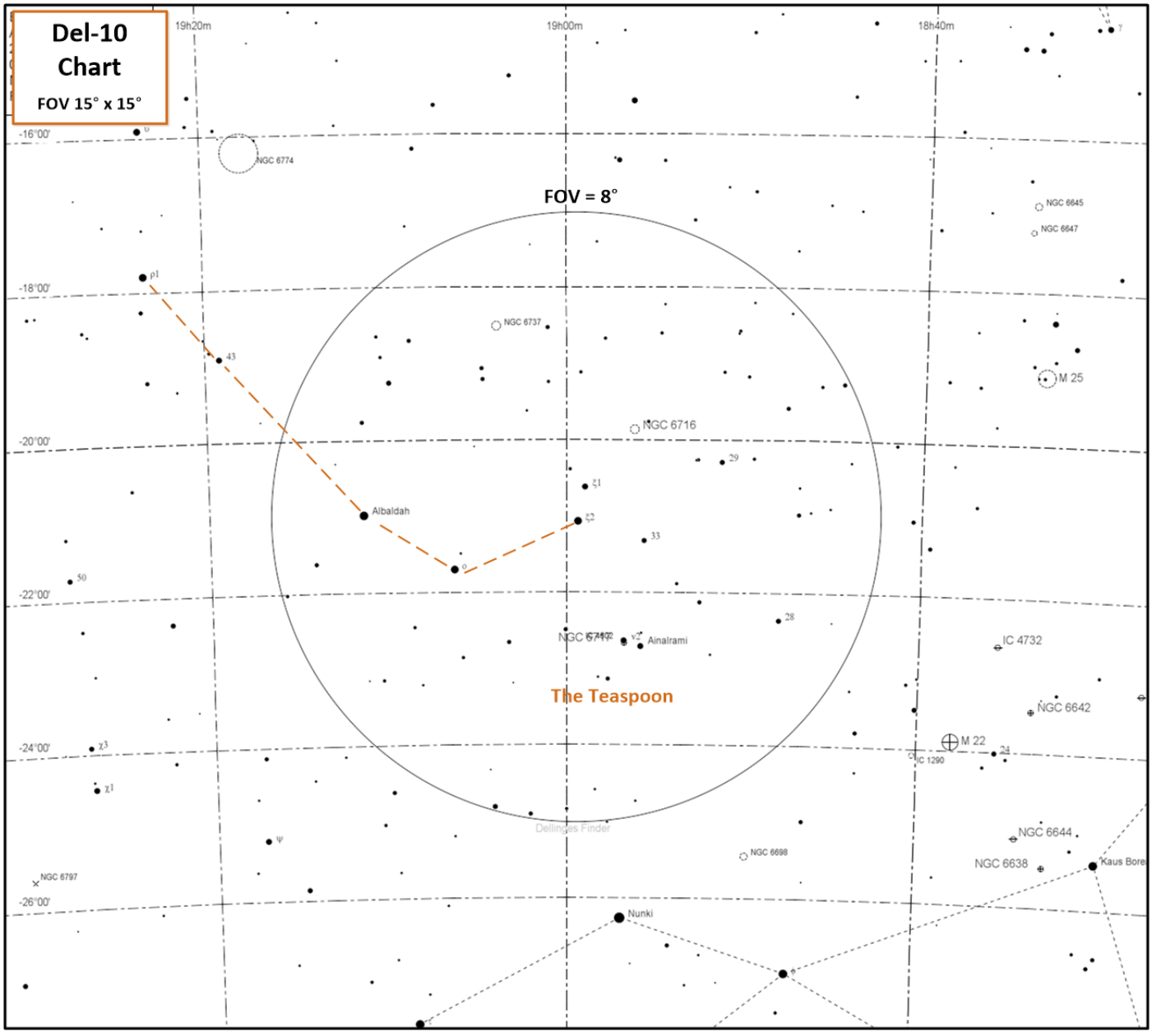
Del-10: Teaspoon in Sagittarius

This selection surprised me because I assumed Sagittarius, being in the foreground of the center of our galaxy, would offer splendid star fields for binocular perusing. But I was hard put to find anything that knocked my socks off. Several factors worked against me here. 1) If you're at 7,000' and a hundred miles from a city, the view in a binocular will be amazing. But rarely are we there. 2) There's a lot of interstellar dust in that direction which dims the stars. 3) The constellation's low altitude results in atmospheric attenuation - more dimming of starlight. Nevertheless, I found something I thought Del-worthy. Five degrees north of the Teapot's Handle is an asterism known as the Teaspoon. Though only 3rd magnitude stars, they're more concentrated than the more spread-out 2nd magnitude stars of the Teapot. My 8x42 (8.3°) field could not get the entire Spoon in because the Spoon's handle is bent up towards the northeast. But the three stars forming a shallow V of the Spoon's cup, if moved slightly to the left in your field, deliver a wealth of fainter stars above and west of the Spoon. I was quite pleased with the view and happy to welcome them into the Del family.



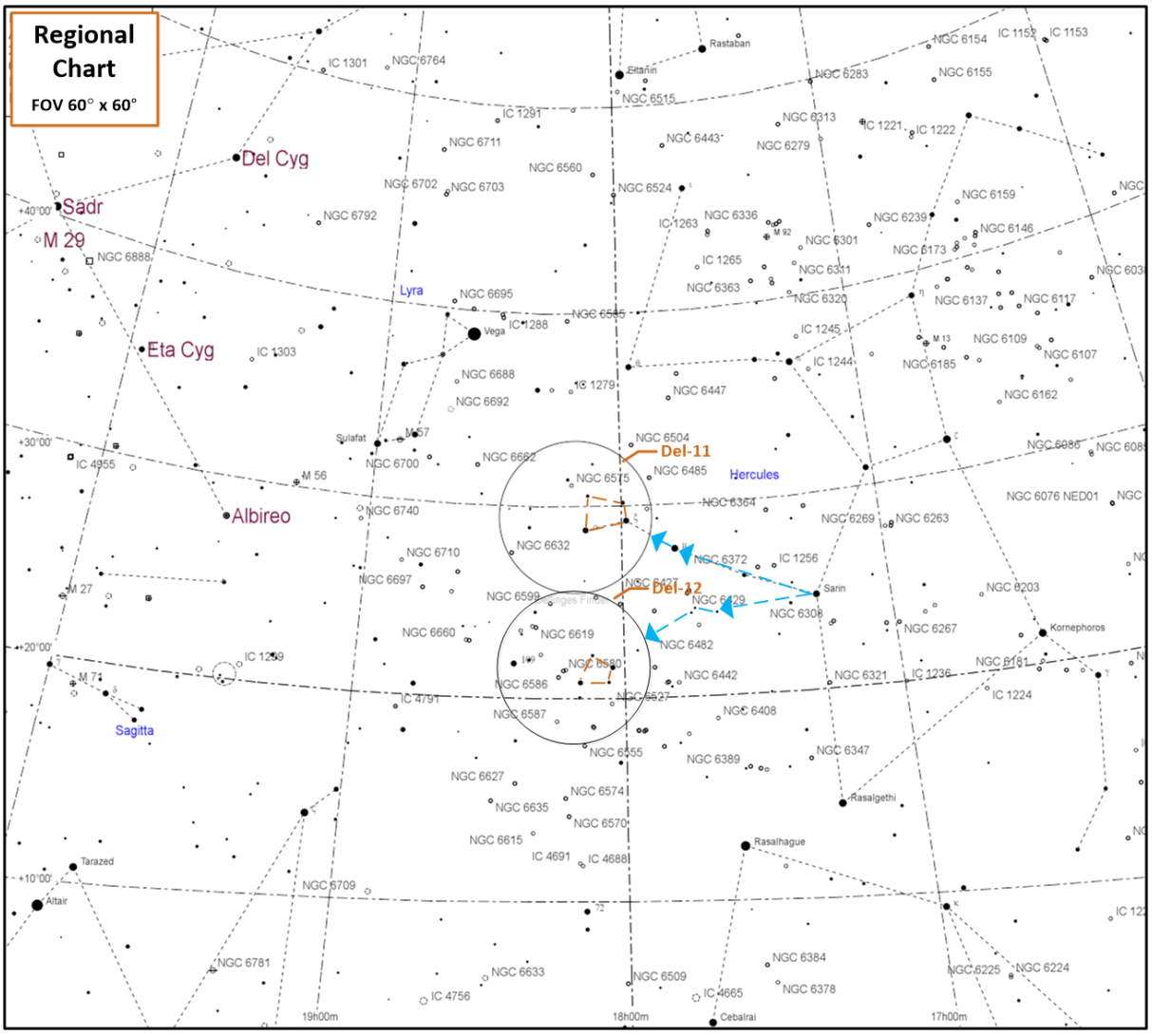
Object	Name	Constellation	Prime Time	RA	DEC
Del-10	Teaspoon in Sagittarius	Sagittarius	Jun, Jul, Aug	18h 29m	-21° 01’

Del-10: Teaspoon in Sagittarius



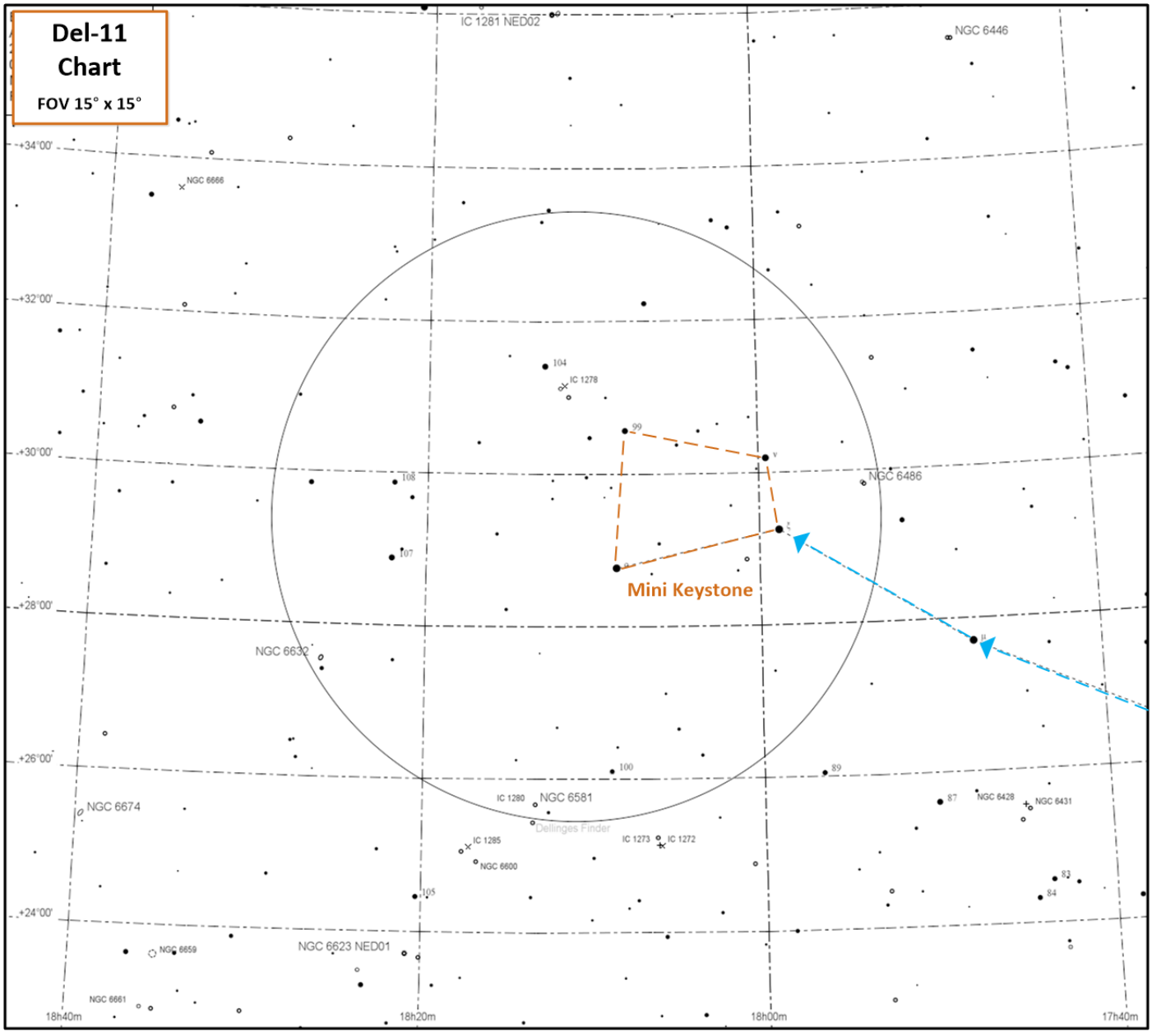
Del-11: Hercules Mini-Keystone A

At first glance, there aren't many bright stars between Hercules and Lyra. But several years ago, while cruising between these two constellations, I was startled to find a sea of 3rd and 4th magnitude stars residing there, hidden in plain sight. Stargazing columnists seem to have ignored it. Until now! If you're game for a challenge, you're in for a treat. I say challenge because Hercules is a constellation I still have trouble recognizing. It takes me a minute or two to figure it out (it's spread over a lot of space with no stars brighter than magnitude 2.8). It helps to be familiar with the central section of Hercules called the Keystone (his torso). Find that first (I trust you brought a star atlas with you?). Now use the Keystone's southeast star Epsilon to go south to Delta Herculis. Once there, follow the three stars in a straight line from Delta going northeast. Note the third star, Xi, makes a trapezium with Nu, Omicron and 99 Herculis. Due to its resemblance to the "Keystone" asterism, I call this the "Mini-Keystone A"(I say "A" because we'll have "B" coming up in Del-12). Center this Mini-Keystone in your binocular field and you'll be looking at Del-11. This Mini-Keystone and about 20 other stars around it create a striking sight. Note: Though the area looks like a void to the naked eye, once my eyes get dark adapted, I can just barely pick out a hint of stars there without optical aid.



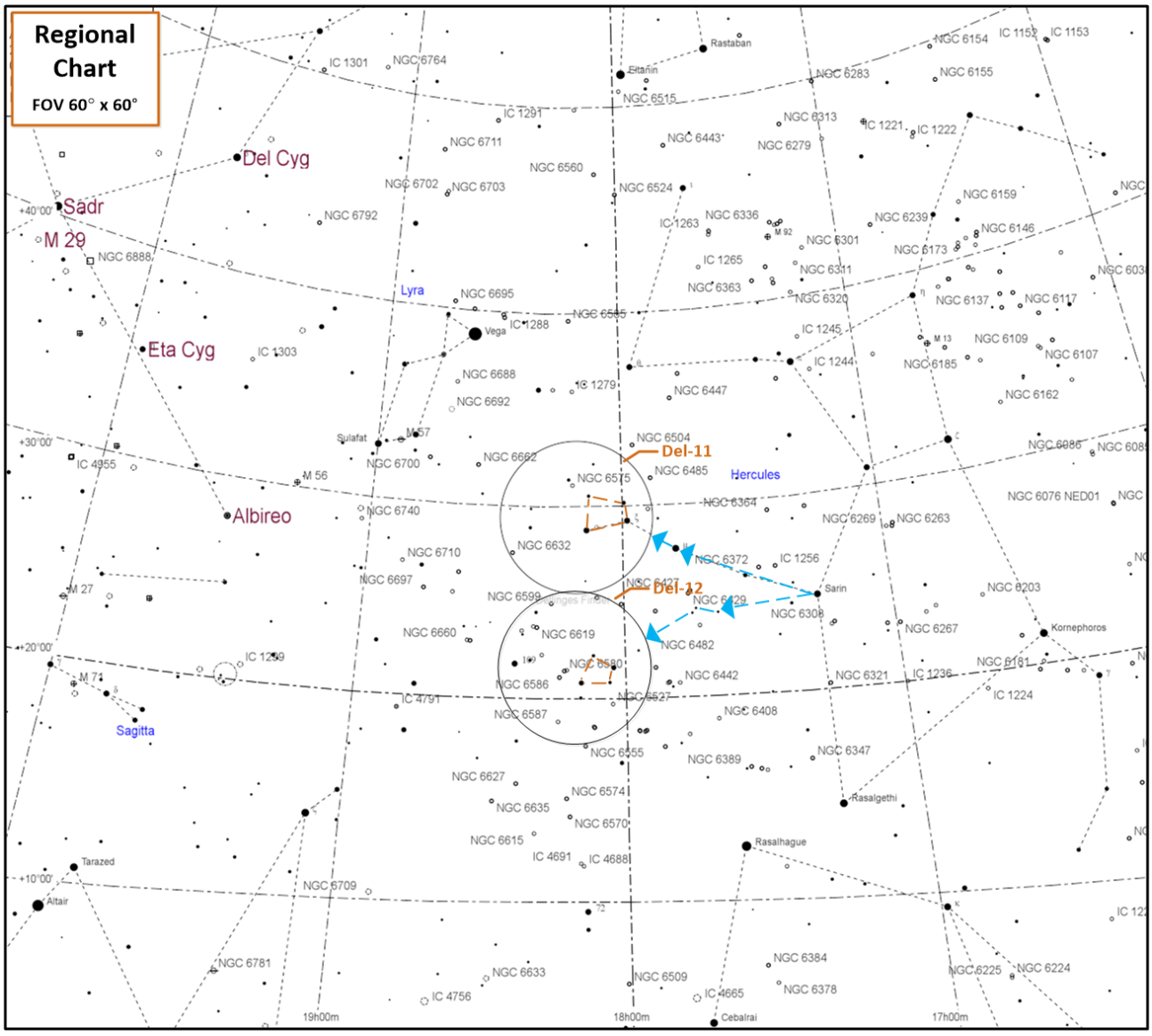
Object	Name	Constellation	Prime Time	RA	DEC
Del-11	Hercules Mini-Keystone A	Hercules	May, Jun, Jul	18h 11m	+29° 27’

Del-11: Hercules Mini-Keystone A



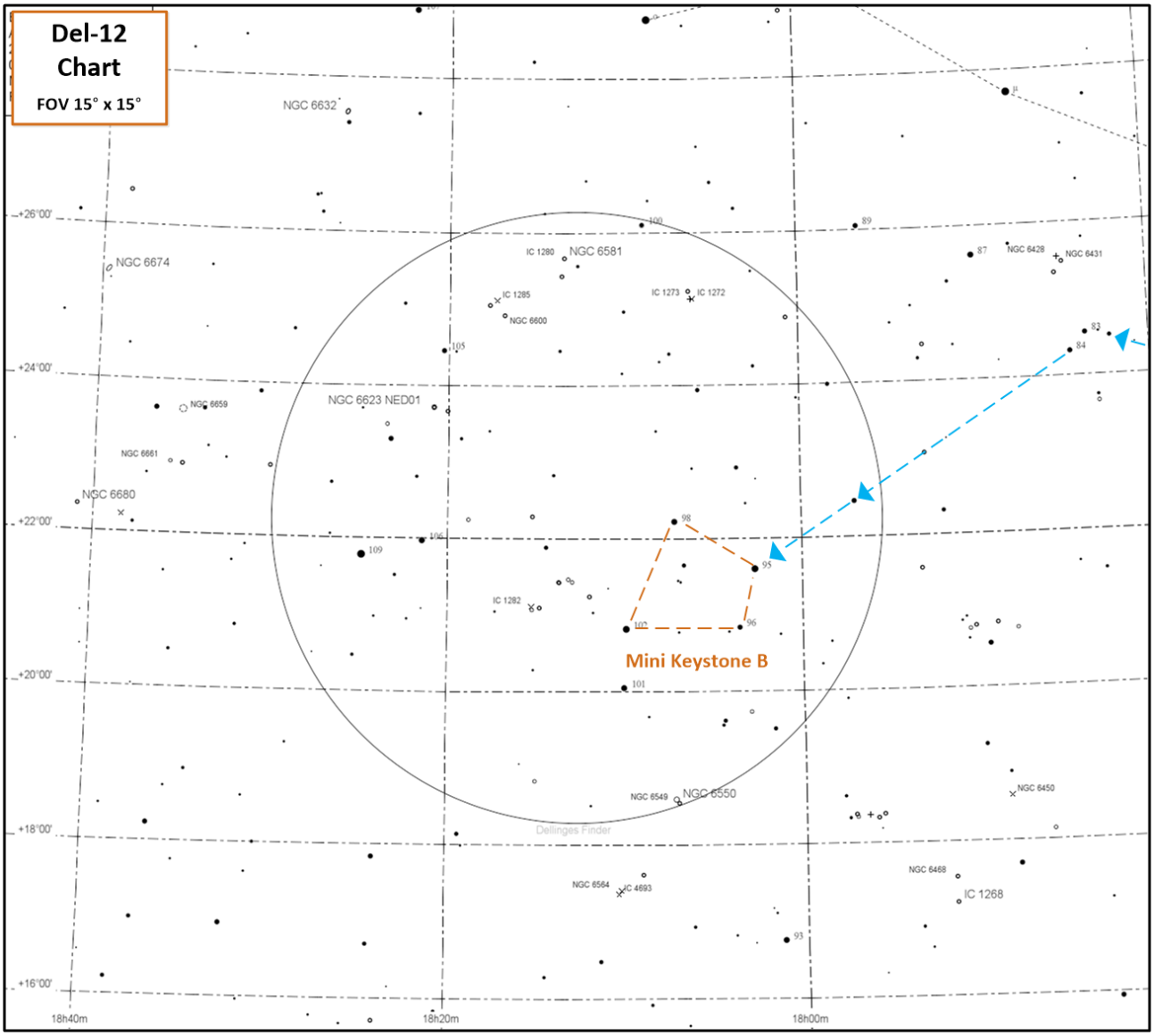
Del-12: Hercules Mini-Keystone B

You won't have far to go to get from Del-11to Del-12. Simply move your binocular 8º due south one field's worth of travel! You know you're there when you see another (!) trapezium. This one's slightly dimmer and smaller than its northern counterpart. Four of its stars are 95, 96, 98, and 102 Herculis. I call this one Mini-Keystone B. Both trapeziums have their shortest side pointed west compared to the main Keystone in Hercules' body, in which its shortest side faces south. To get the most rewarding view of this starfield, place the little trapezium slightly to the lower right of your field, which moves a nice flock of 20 fainter stars into the scene. Midway between these two trapeziums, one star, 5th magnitude 100 Herculis, sticks out above the others because of its brightness. It's a fine double star (Mag 5.8, 5.8, 14", 183°). I stumbled across it by accident cruising between the two trapeziums with my APM 28x100 and was blown away by its two "headlights coming at you" appearance (an 8x42 won't split it). I recently put my TeleVue 85mm on it and barely split it at 19x, 50x was more pleasing.



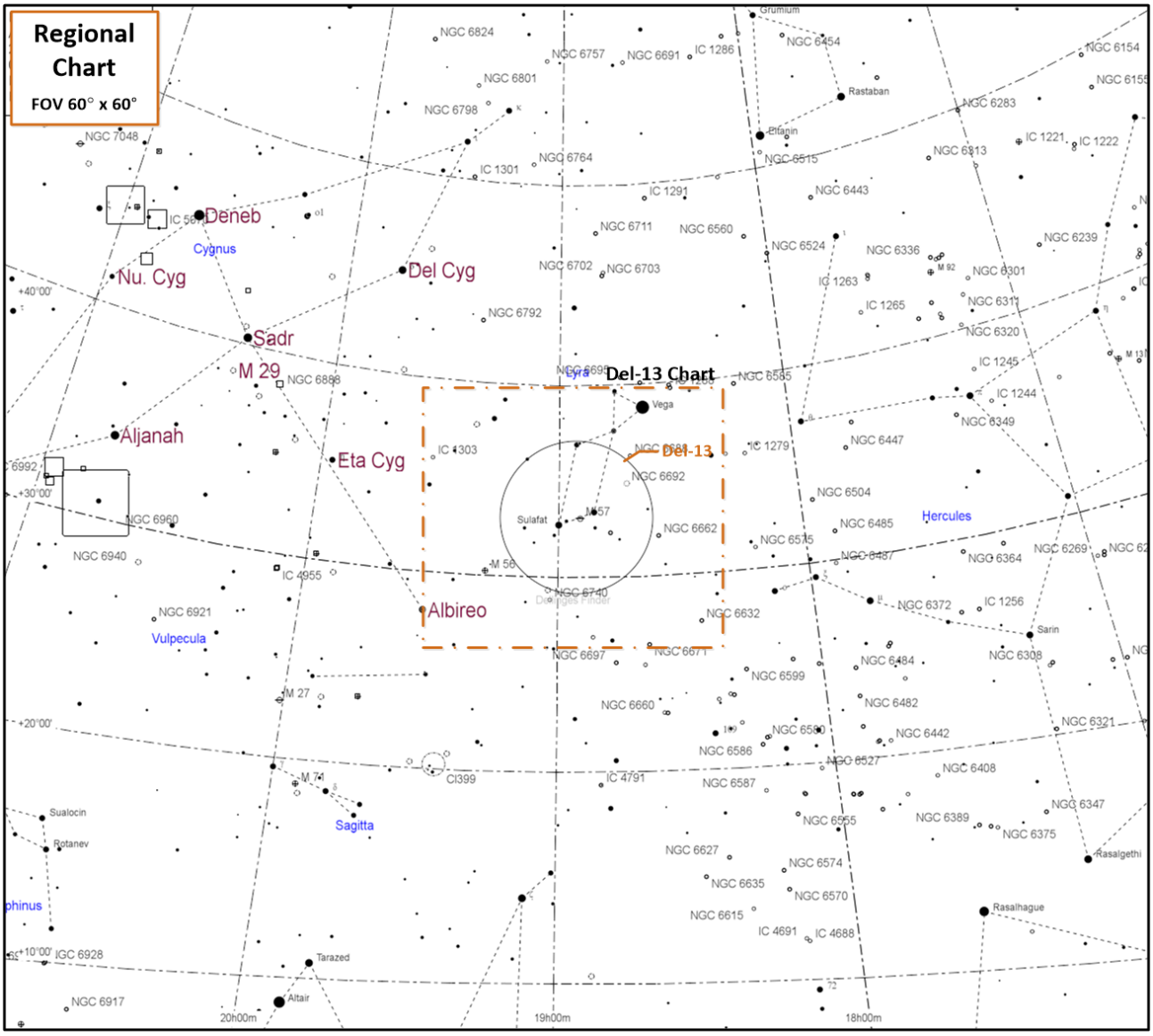
Object	Name	Constellation	Prime Time	RA	DEC
Del-12	Hercules Mini-Keystone B	Hercules	May, Jun, Jul	18h 12m	+22° 17’

Del-12: Hercules Mini-Keystone B



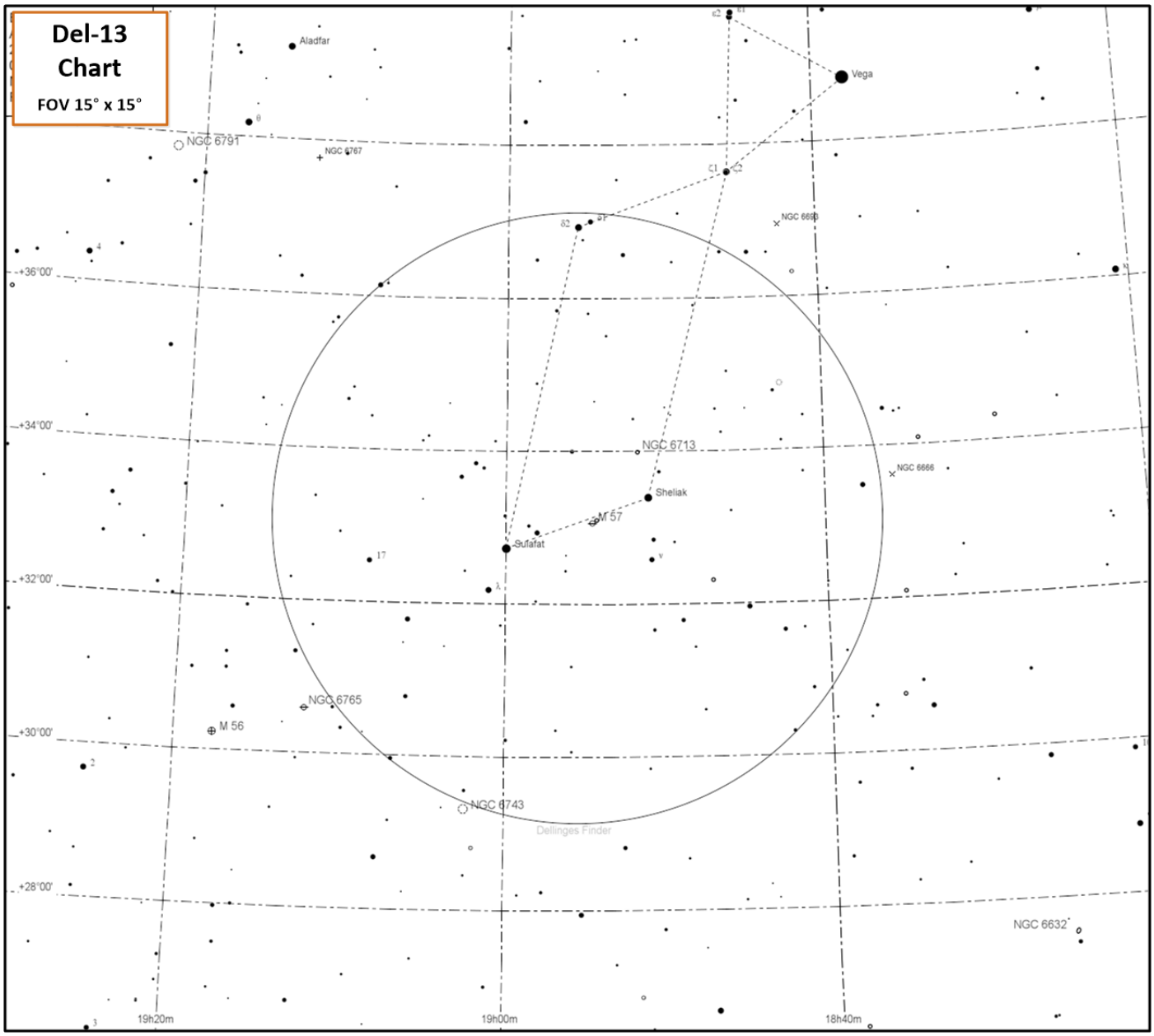
Del-13: Region of Southern Lyra

While exploring the Mini-Keystone A in western Hercules, I felt the gravitational pull of more stars to the northeast tugging at my binoculars. I followed the stellar breadcrumbs in that direction for only 1.5 binocular fields, when I stumbled across a pretty panoply of bright stars. Whoa, what's this? I lowered my binocular and realized I was looking at the lower half of Lyra's Parallelogram, free of glare from bright Vega (just out of the field to the north). I was centered on Gamma and Beta Lyrae. I had been here many times seeking M-57, the Ring Nebula, nestled between the two stars, but that was with a telescope with a ½ degree field. I had not seen the big picture all those years. I kissed my binoculars for directing me to this deep sky wonder.



Object	Name	Constellation	Prime Time	RA	DEC
Del-13	Region of Southern Lyra	Lyra	Jun, Jul, Aug	18h 56m	+33° 07’

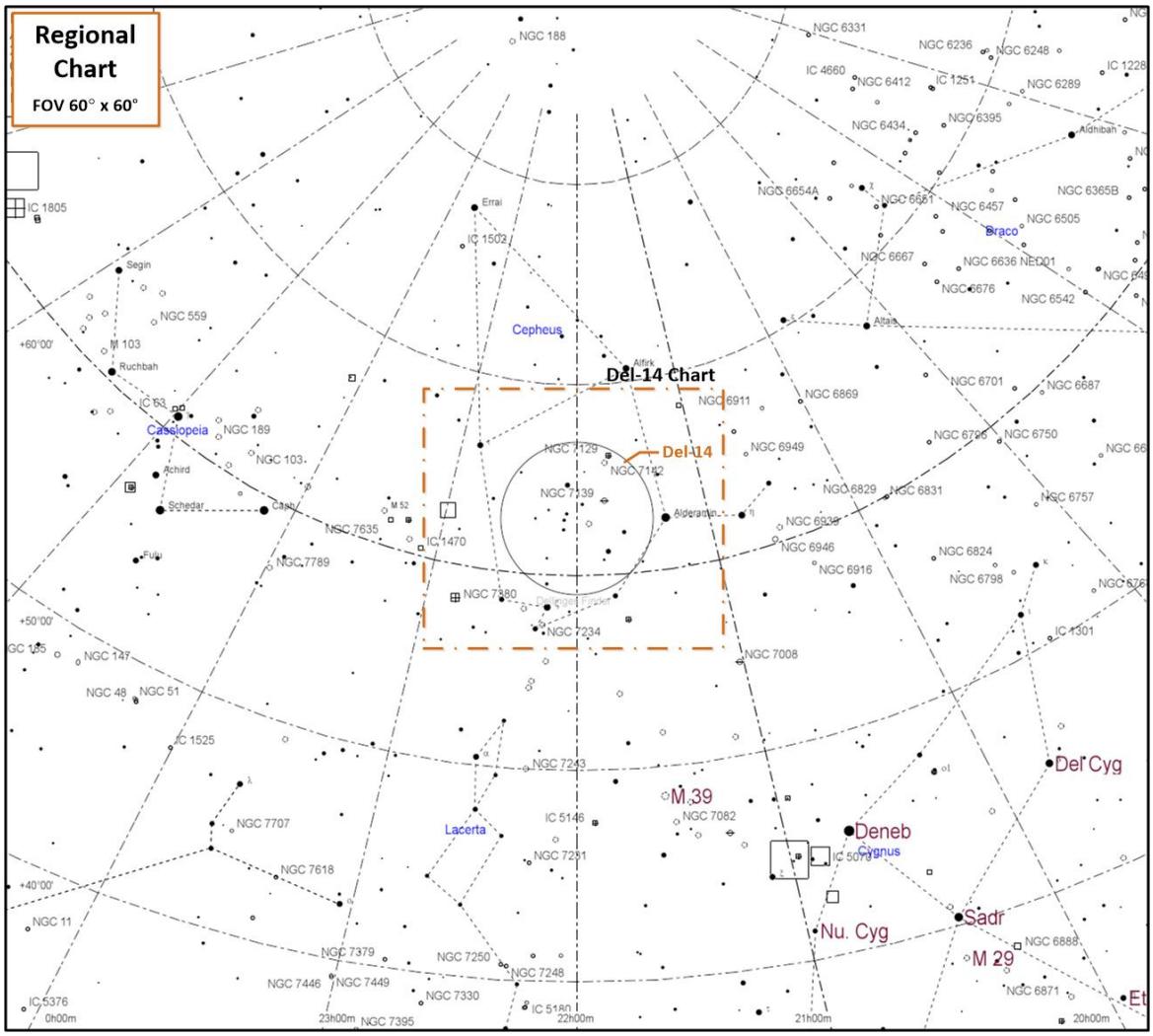
Del-13: Region of Southern Lyra



Del-14: Inside Cepheus

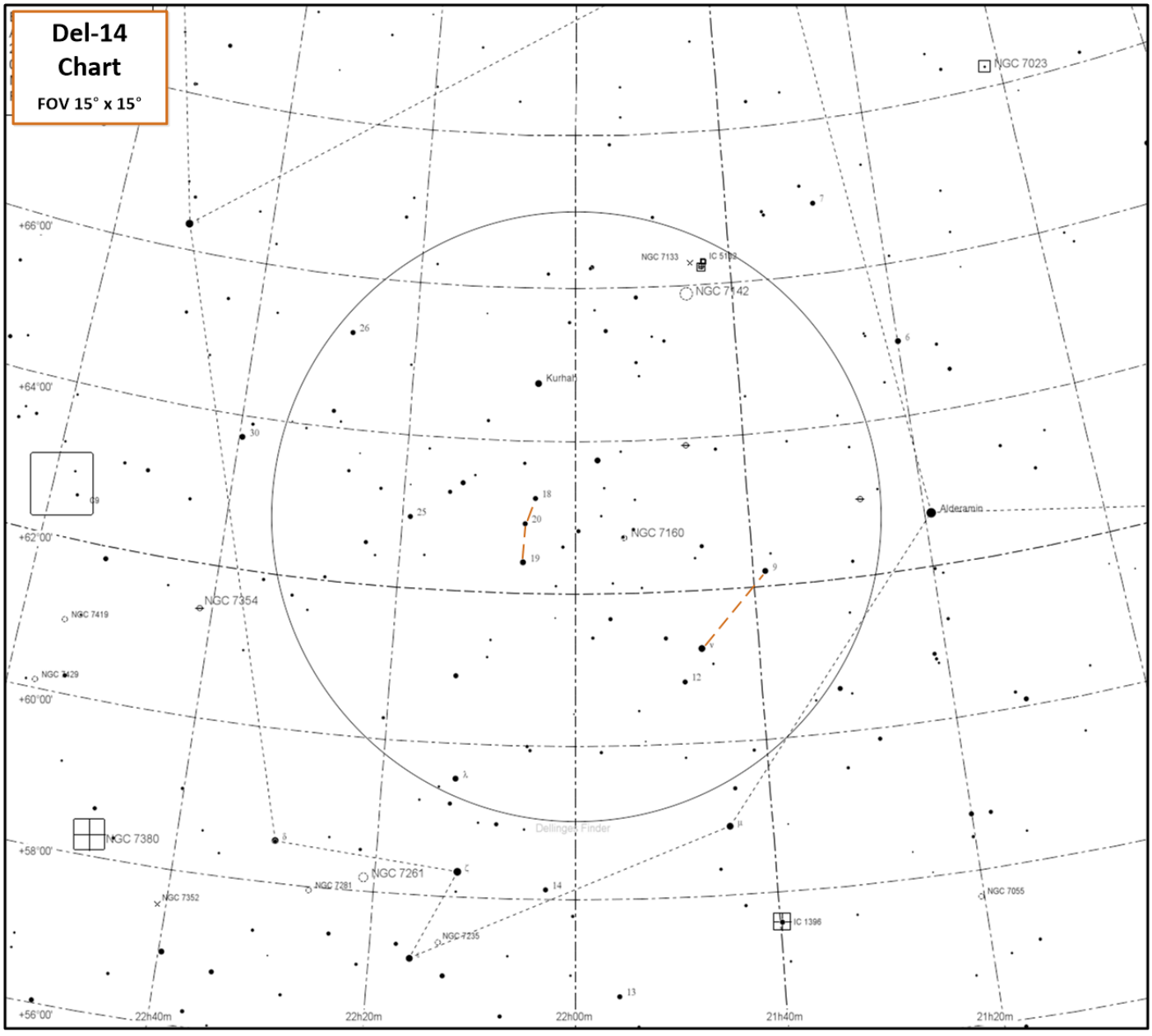
Though the constellation represents a king, its shape is often depicted as a child's drawing of a house – a box for the house and a steeple for the roof, the tip of which is the star, Gamma Cephei. The tip of the roof points roughly at Polaris. This constellation, like Hercules, can be a challenge to find. Its brightest star, Alpha Cephei, is only magnitude 2.5. Two tips help. 1) As noted above, the rooftop star points in the general direction of the North Star Polaris. 2) In the lower left corner of this house, you'll spy a distinctive small triangle of stars (Zeta, Epsilon and Delta Cephei, the latter is the prototype Cepheus variable star astronomers use to determine stellar distances). These two tips may help you find the constellation.

We are targeting the center of the "house" formed by the stars Alpha, Beta, Iota and Zeta Cephei, to zero in on Del-14. More precisely, we want the center of our 8.3 degree-field to be at the midway point from Beta to Zeta Cephei. One landmark I noticed near my field's center were three 5th magnitude stars (18, 19, 20 Cephei) in a short curve facing two 4th magnitude stars (Nu, 9 Cephei). Once you're settled into your new house, I think you'll like what you see.



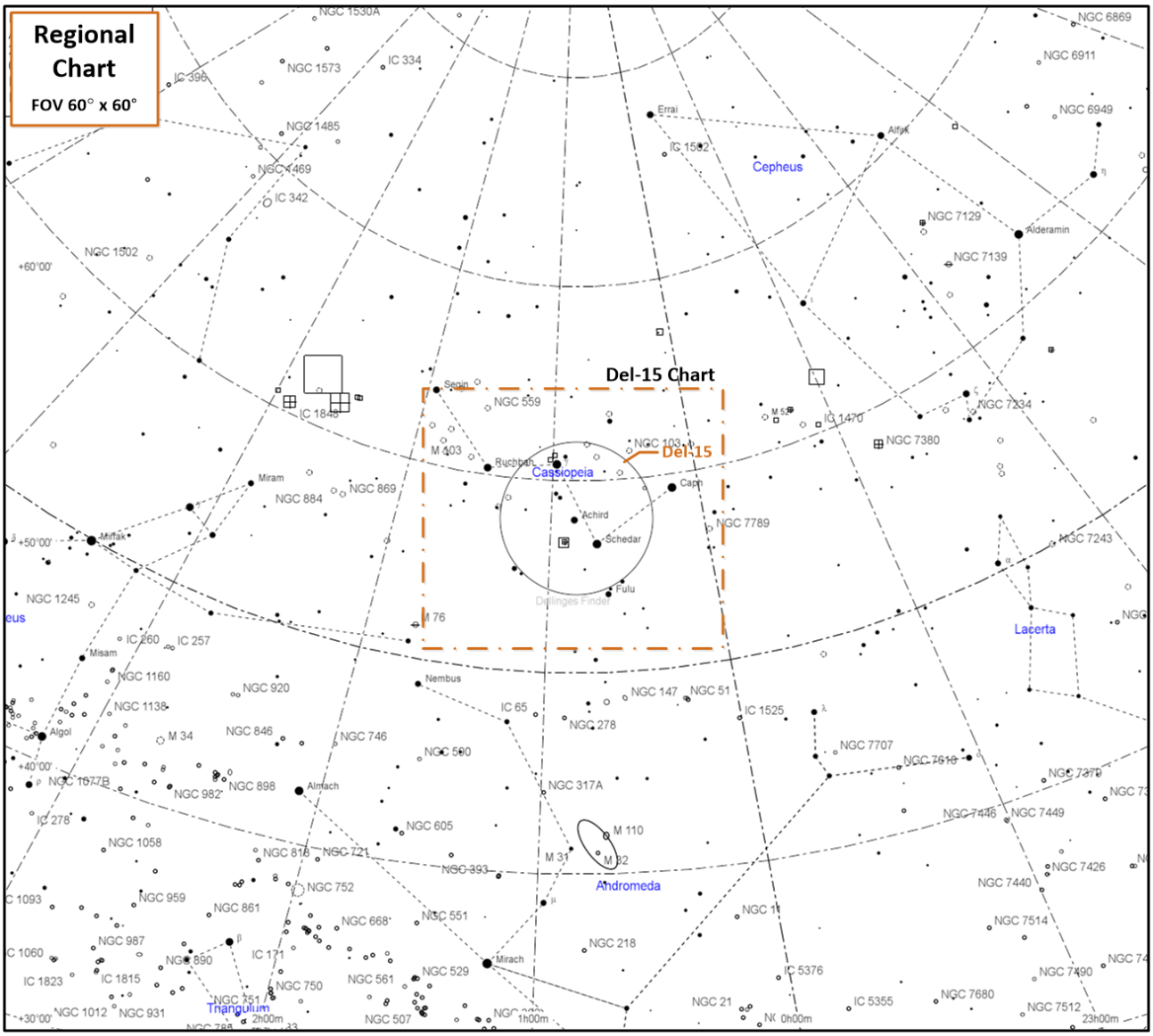
Object	Name	Constellation	Prime Time	RA	DEC
Del-14	Inside Cepheus	Cepheus	Aug, Sep, Oct	22h 01m	+63° 04’

Del-14: Inside Cepheus



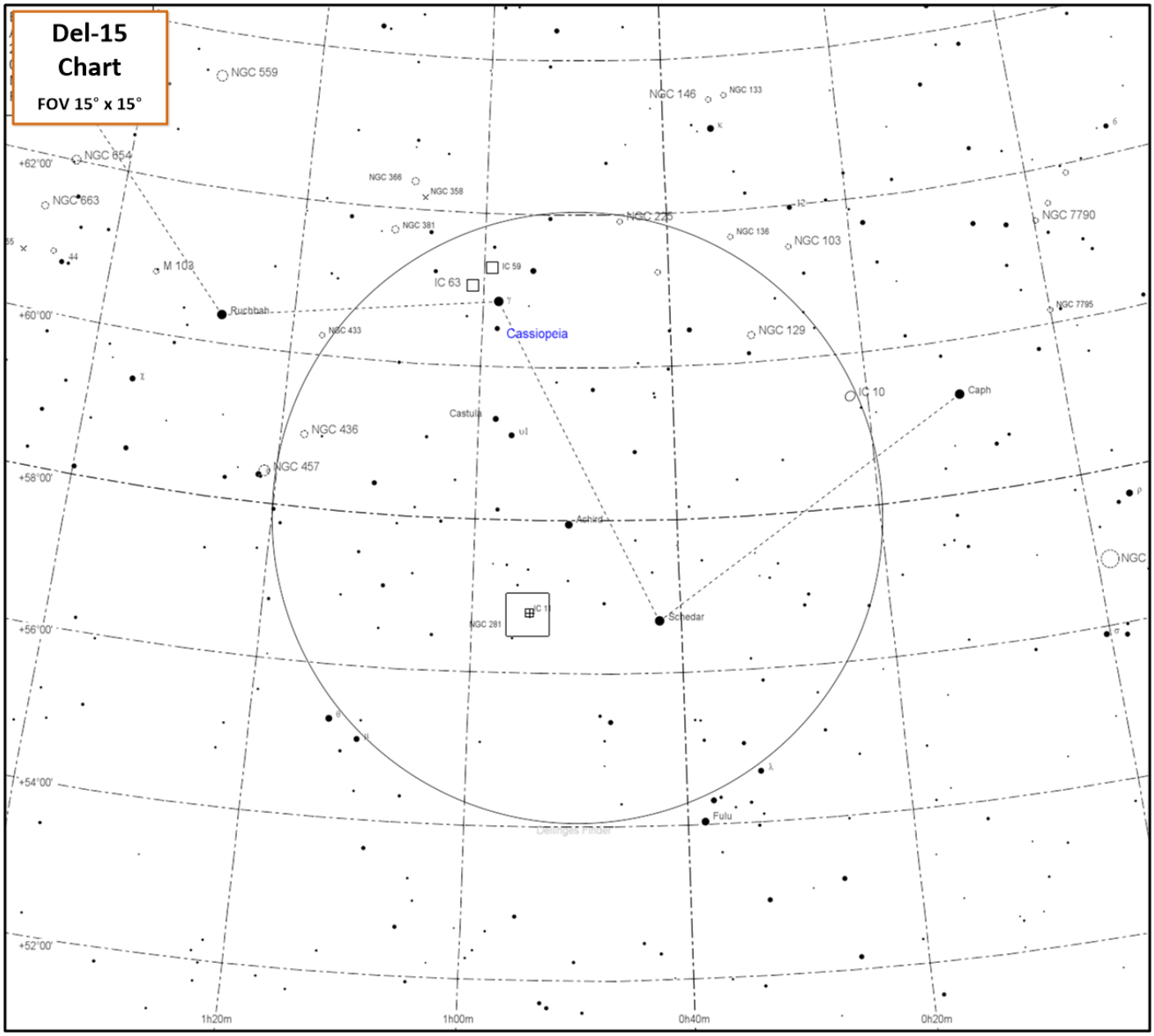
Del-15: Starry Cassiopeia

Unlike her dim adjacent husband, King Cepheus, Queen Cassiopeia is easy to find. Her brightest five stars form a conspicuous W when under the Little Dipper, or M when above it. The queen never strays far from the Little Dipper's north star Polaris, circling around it every 24 hours. Being a circumpolar constellation, it does not rise in the east and set in the west as other constellations do. It never sets for most of the USA. Cassiopeia is buried in a bright section of the Milky Way. Thus, I knew I'd find something worthy for my Del Catalog. It was a tough decision, but I settled on an 8-degree wide circle around Alpha (Schedar) and Gamma (Chi or Navi) Cassiopeiae. To get the best view, place the two stars in the middle of your field, with Gamma slightly closer to the field's northern side. Doing so should bring Zeta and Lambda just inside the southern edge of the field.



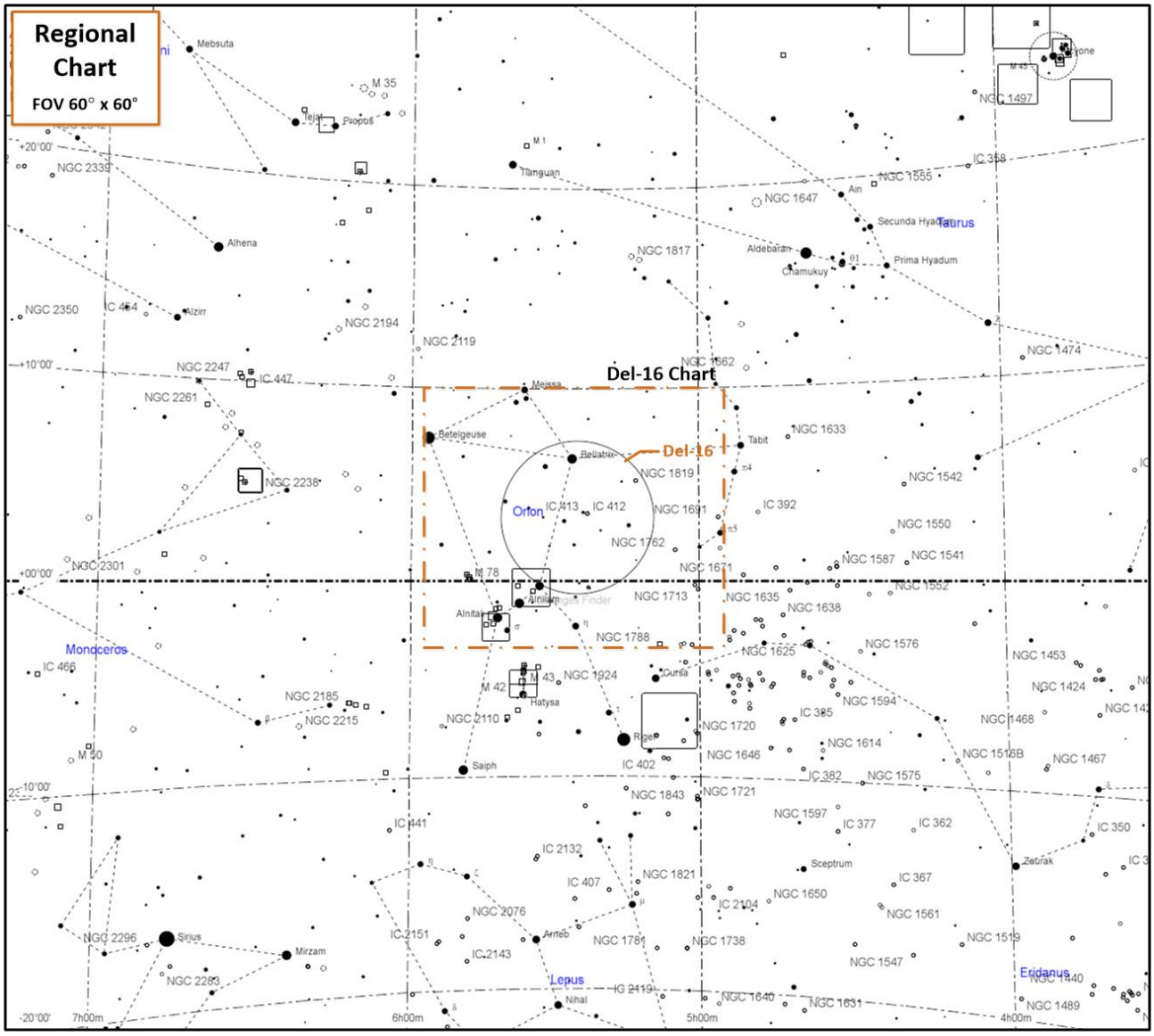
Object	Name	Constellation	Prime Time	RA	DEC
Del-15	Starry Cassiopeia	Cassiopeia	Sep, Oct, Nov	00h 05m	+58° 02’

Del-15: Starry Cassiopeia



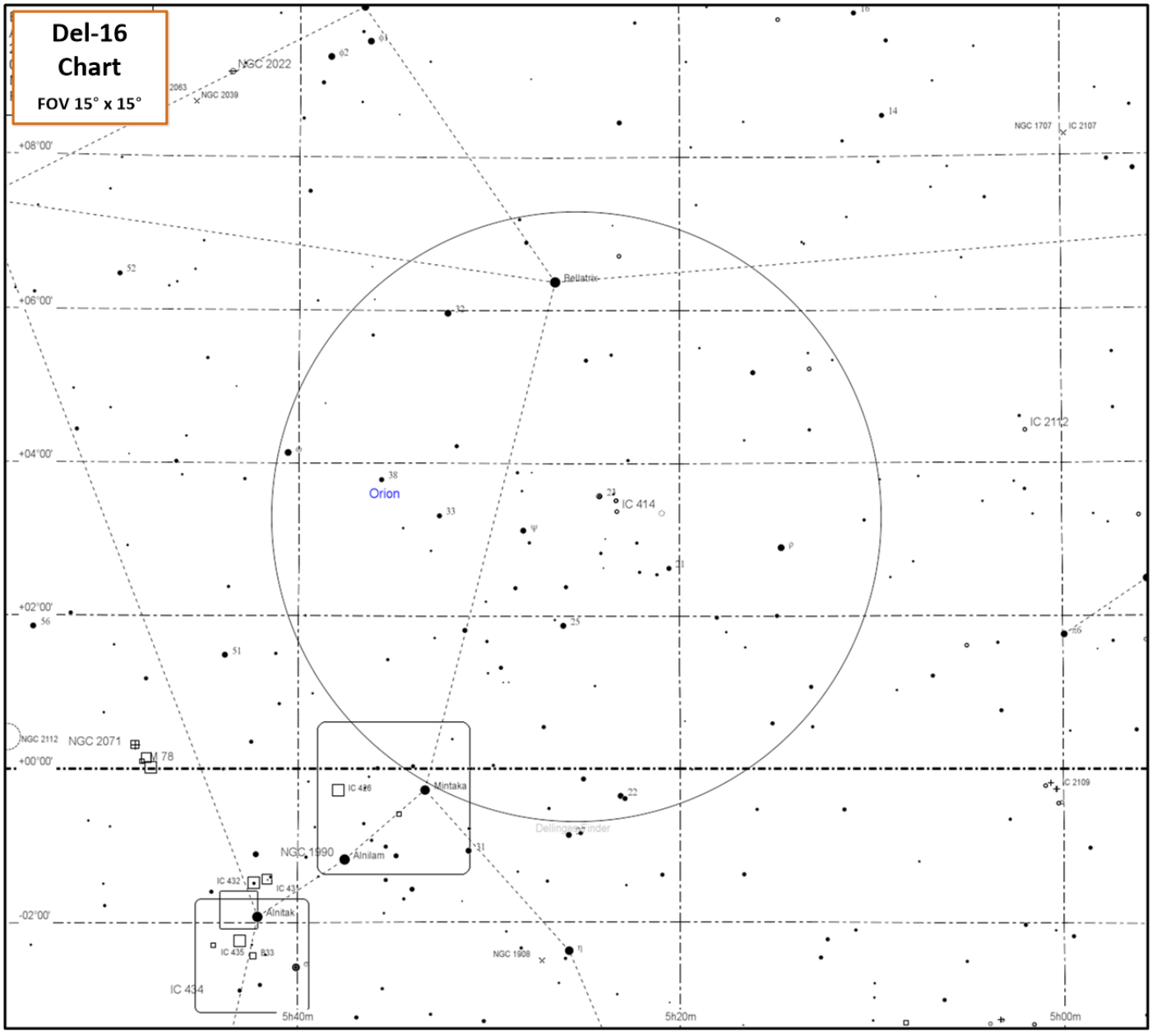
Del-16: Beyond Orion's Belt

This is the star field between Mintaka, the western-most star in the Belt of Orion, and Bellatrix. The area is ablaze with eight 4th magnitude stars and enhanced by many dimmer stars due to a spur of the Milky Way sweeping down upon the area. Sidebar: My first choice of a stellar richfield in Orion would have been, without a doubt, the Belt of Orion-it's spectacular! However, an astronomer by the name of Per Collinder listed it in his 1931 star cluster catalog as Cr 70. Thus, I shall respect that (grudgingly) and not claim it as mine. That doesn't mean you can't look at it - it's not to be missed! The Belt of Orion is one of my favorite binocular sights in the night sky.



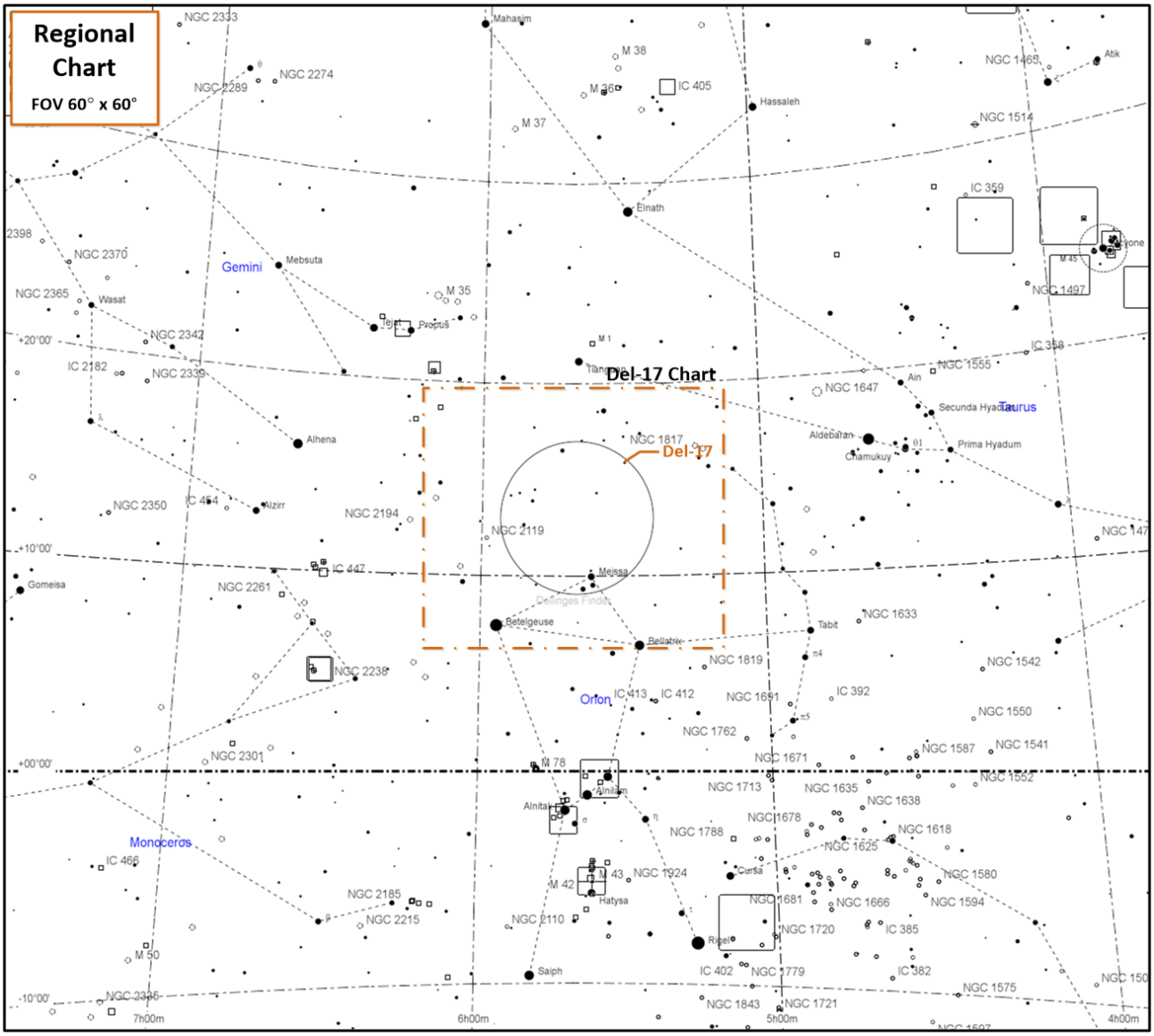
Object	Name	Constellation	Prime Time	RA	DEC
Del-16	Beyond Orion's Belt	Orion	Nov, Dec, Jan	05h 26m	+03° 19'

Del-16: Beyond Orion's Belt



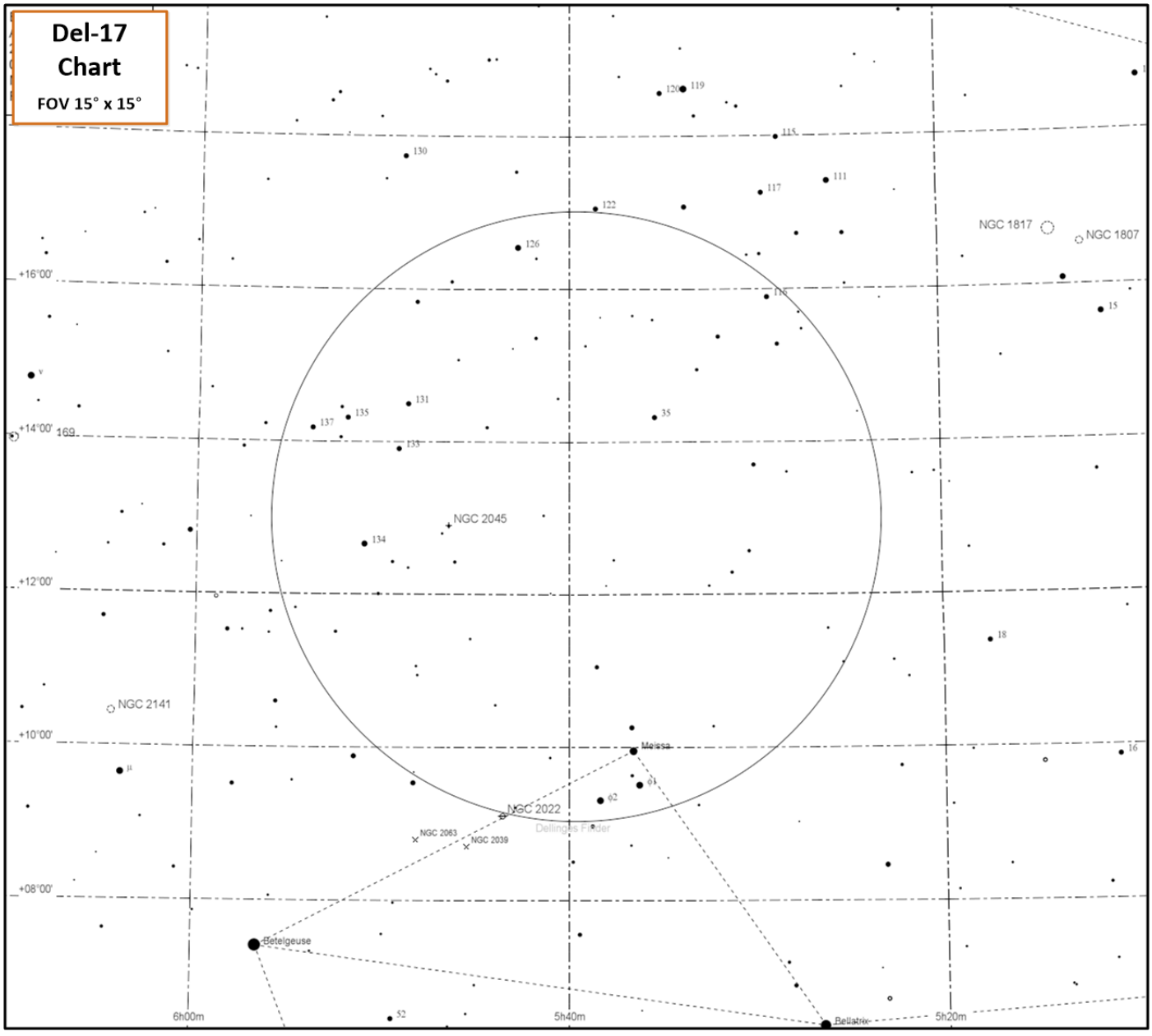
Del-17: Stars Over Betelgeuse

Just above Betelgeuse in Orion lurks a beehive of stars that fill an 8º binocular field. On its southwest edge a small star cluster of a half-dozen stars, Collinder 69, marks Orion's Head. It doesn't look that impressive in small binoculars but is worth checking out in a 10x50 or 16x70 binocular. On either side of Del-17, northwest *and* northeast are two other eight-degree star fields that overlap Del-17. The northwest one (to the upper right) is Collinder 65 and whose stars form an asterism called the Stingray (delightful in its own right). The northeast field (to the upper left) will be our next target, Del-18.



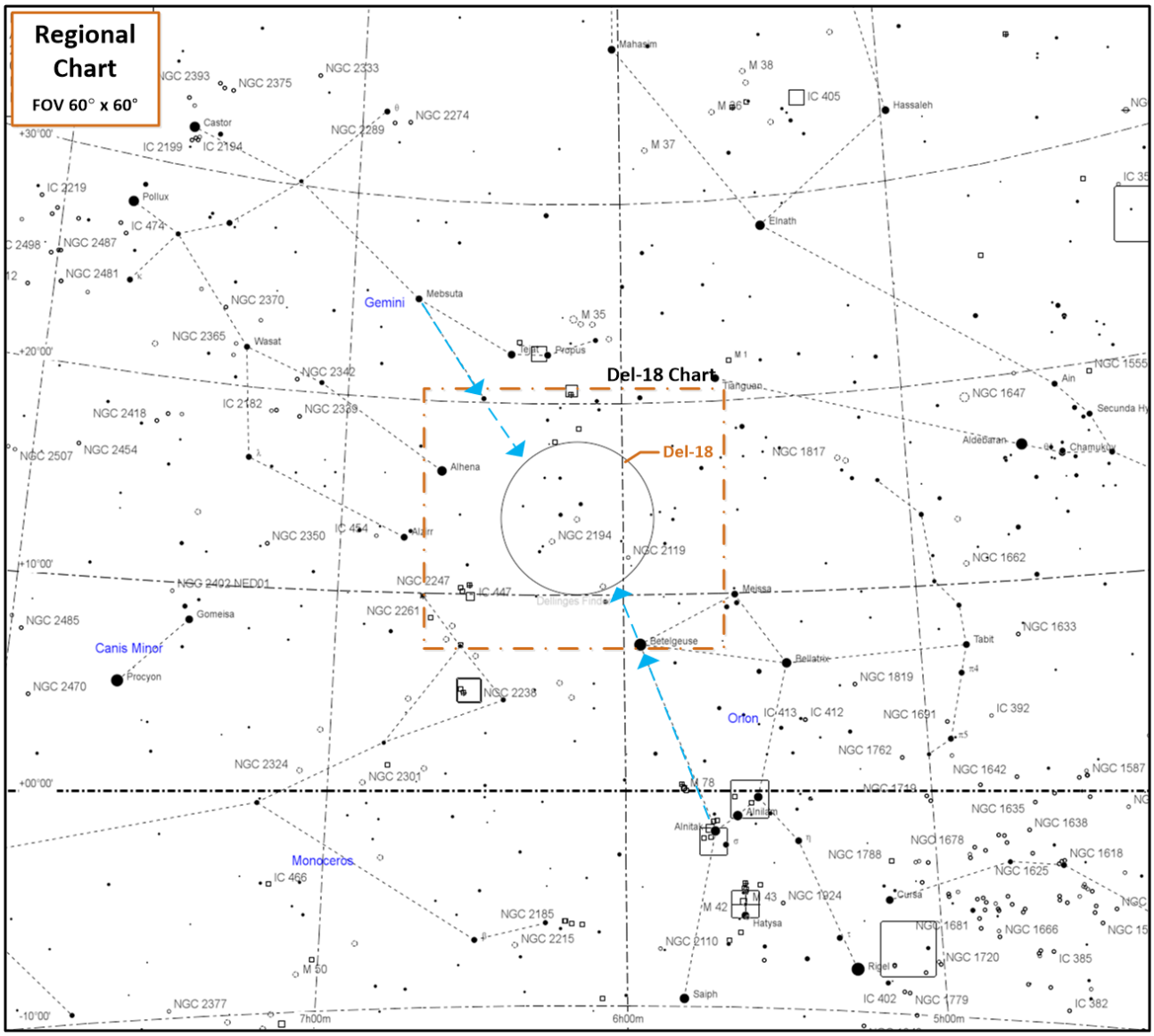
Object	Name	Constellation	Prime Time	RA	DEC
Del-17	Stars Over Betelgeuse	Orion	Nov, Dec, Jan	05h 40m	+15° 00’

Del-17: Stars Over Betelgeuse



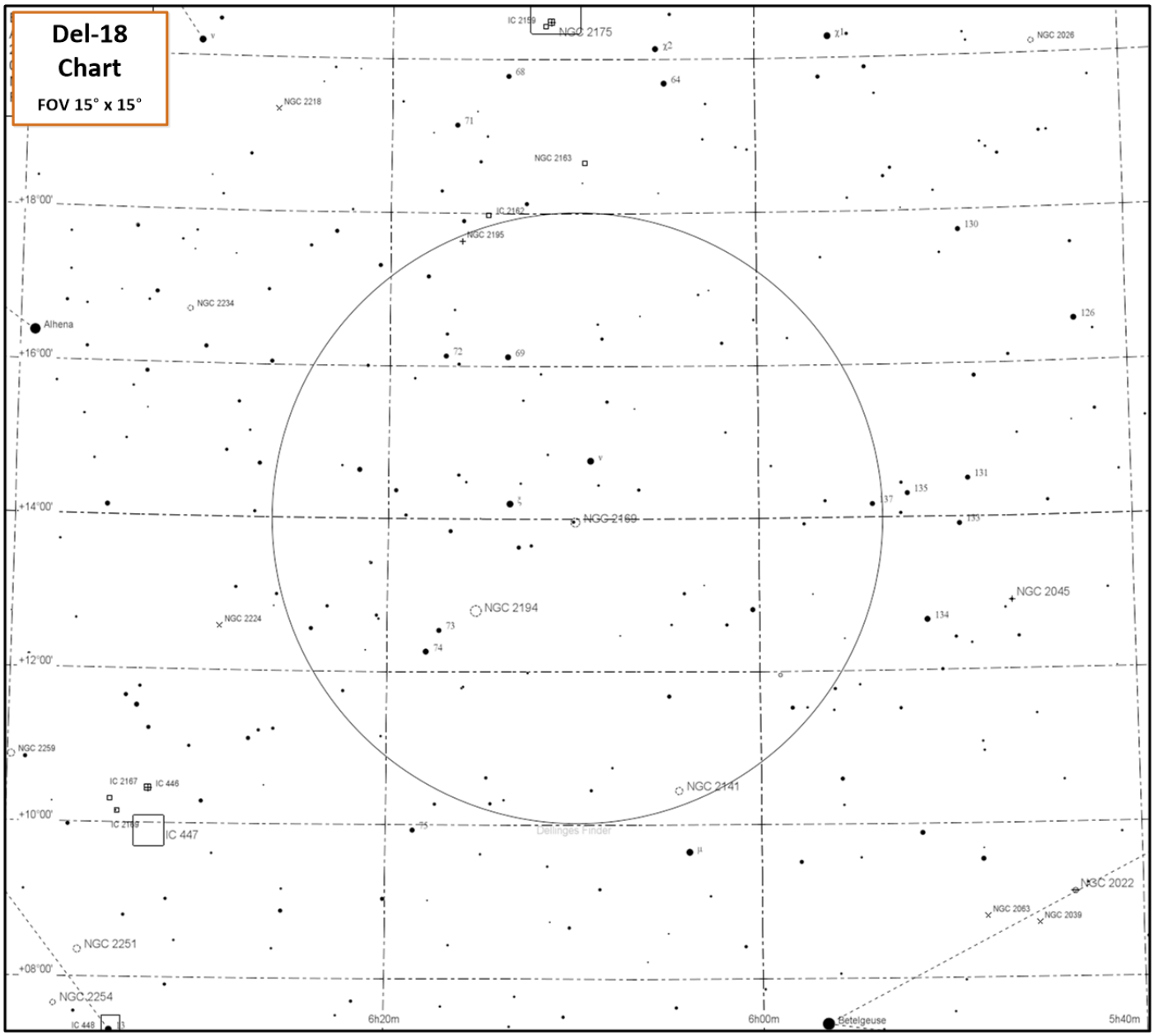
Del-18: Stars Northeast of Betelgeuse

Del-18 is just northeast of Del-17 and actually overlaps it. At its center is Xi and Nu Orionis, two stars representing Orion's right elbow. Del-18 has more stars than Del-17 and includes the famous open star cluster NGC 2169, the "37 Cluster." It's fun to use our previous Del-17 as a home base and alternatively slide one binocular field northwest (your upper right) to Cr 65 (the Stingray asterism), back to Del-17 and up to Del-18 (your upper left). What a starry panorama!



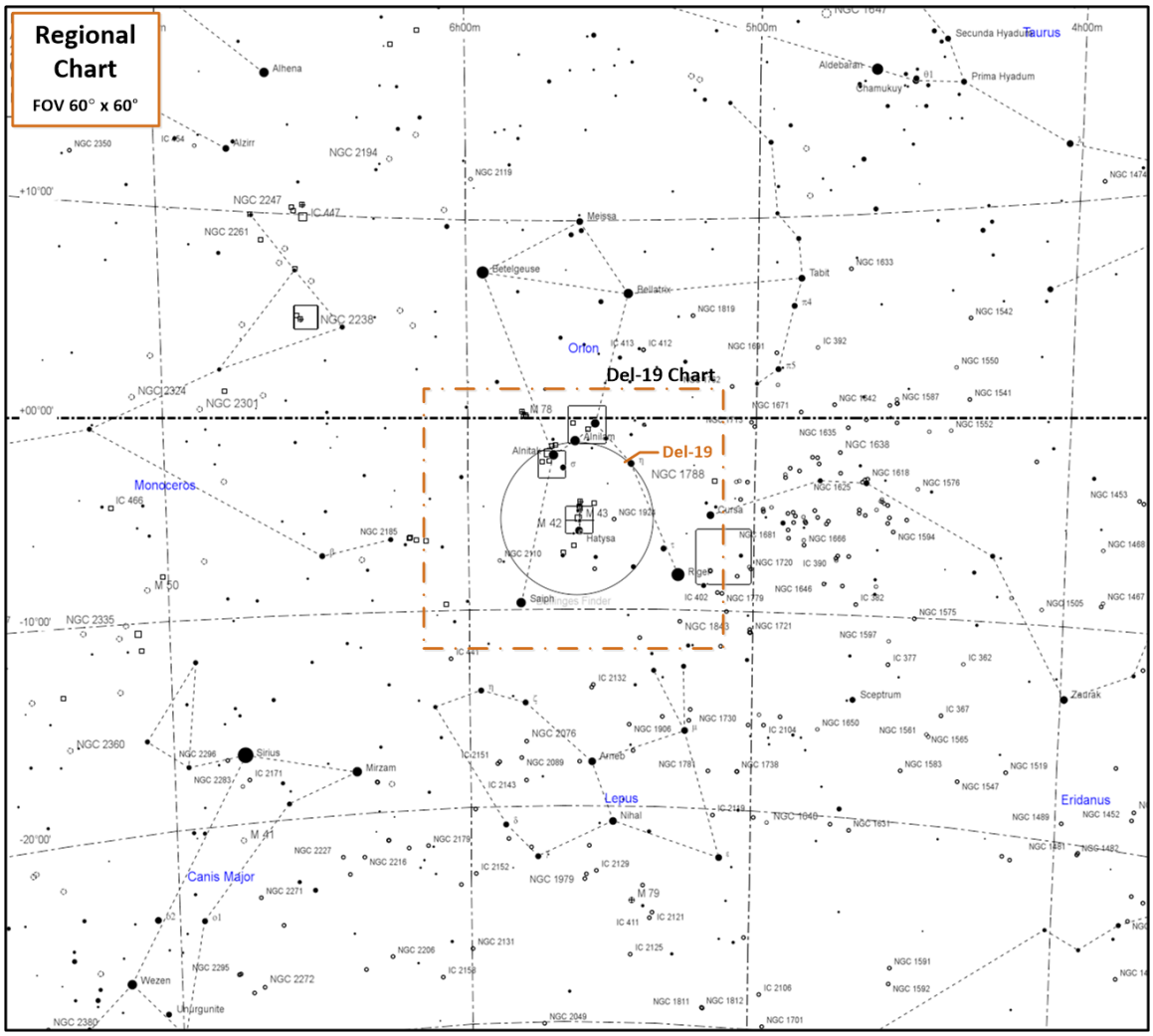
Object	Name	Constellation	Prime Time	RA	DEC
Del-18	Stars Northeast of Betelgeuse	Orion	Nov, Dec, Jan	06h 10m	+14° 05’

Del-18: Stars Northeast of Betelgeuse



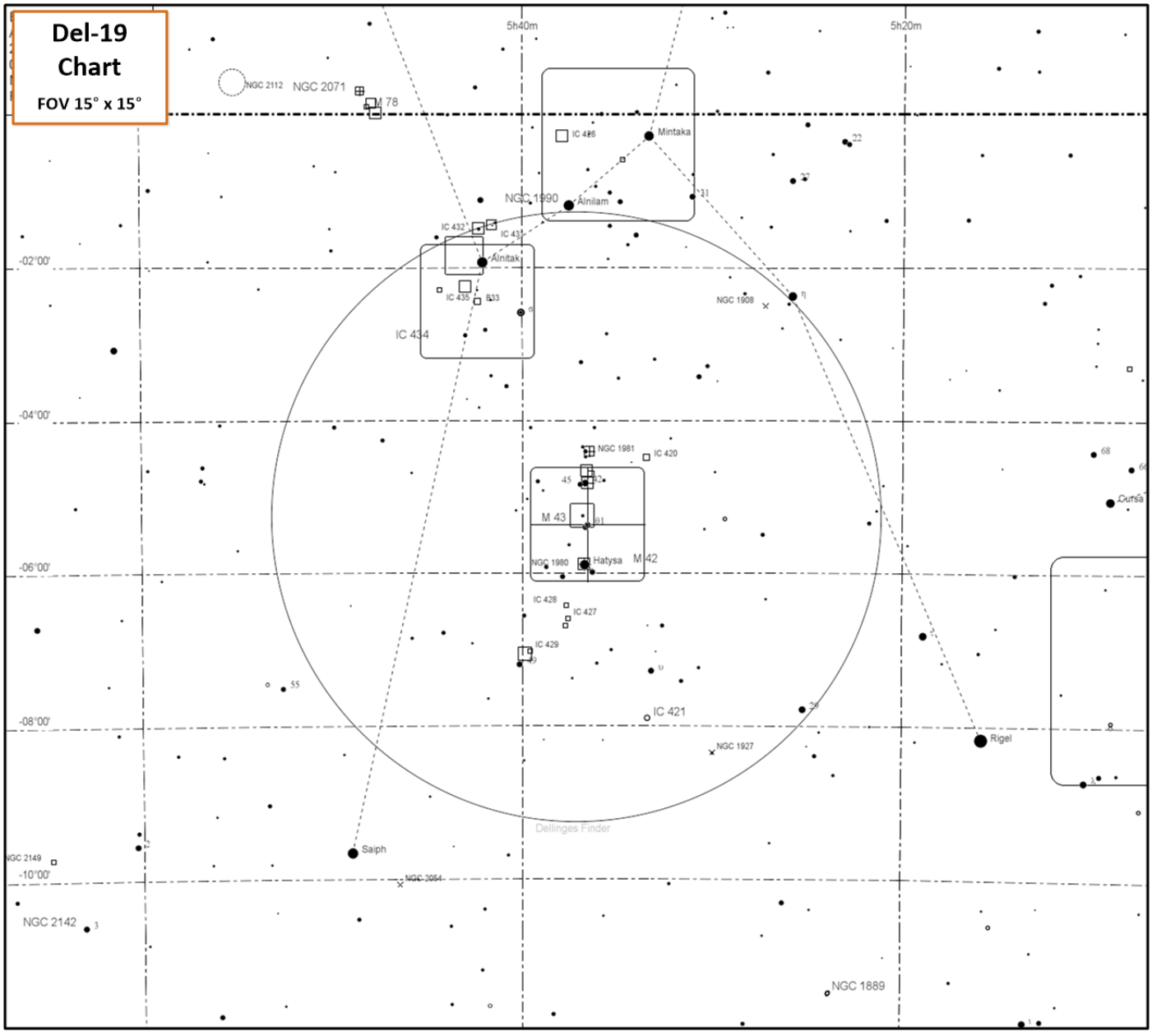
Del-19: Sword of Orion

"One of the most magnificent showpieces of the night," Sue French, former S&T columnist. I agree wholeheartedly. For many years, the Sword of Orion has been a favorite binocular target of mine. Its Crown Jewel is M42, the Orion Nebula, the finest emission nebula in the northern skies. As it's midway in the two-degree long Sword, just put M42 in the center of your field. Above and below M42 are several NGC objects-it's a very busy area! South of M42 there's a bright star, Iota Orionis (A nice triple star in a telescope) and 5 arc minutes to its southwest, there's the conspicuous wide double star Struve 747 (Sep. 36"). I claim this region as a Del object because the entire Sword has no specific numerical designation. Note: In this series I've emphasized using a binocular with the widest field possible, so I used an 8x42 with an 8.3° field on my other 23 objects. However, for this object I'm making an exception. I recommend using something like a 7x50 (7º), 10x50 (6.5º) or 16x70 (4º) binocular. Their larger apertures gather more light, enhancing M42 and adjacent nebulae, yet still accommodating the entire Sword. For a wonderful photograph of the scene, like what you'll see through binoculars, see page 46 in Sue French's Celestial Sampler or page 33 in her Deep-Sky Wonders.



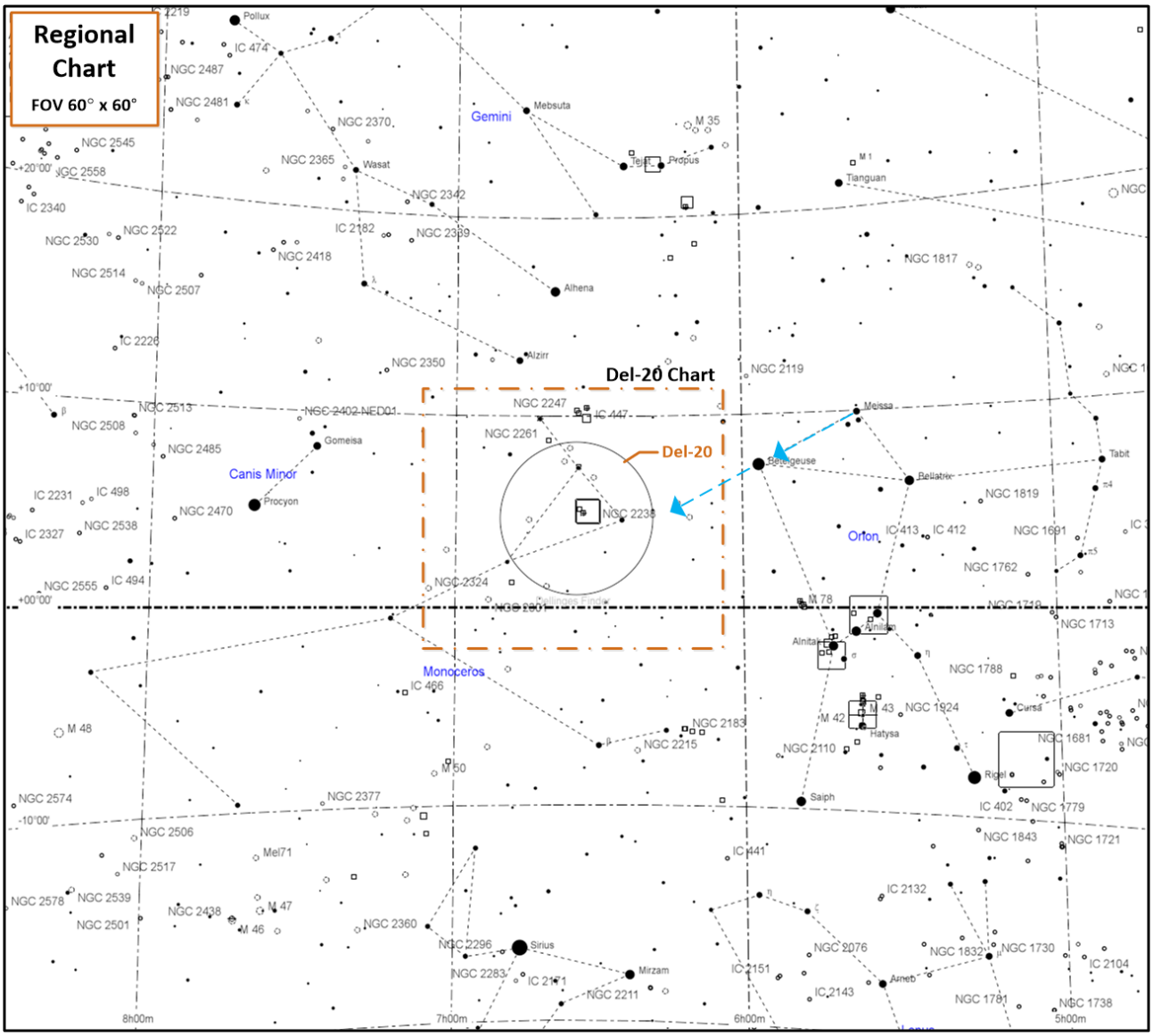
Object	Name	Constellation	Prime Time	RA	DEC
Del-19	Sword of Orion	Orion	Nov, Dec, Jan	05h 37m	-05° 15’

Del-19: Sword of Orion



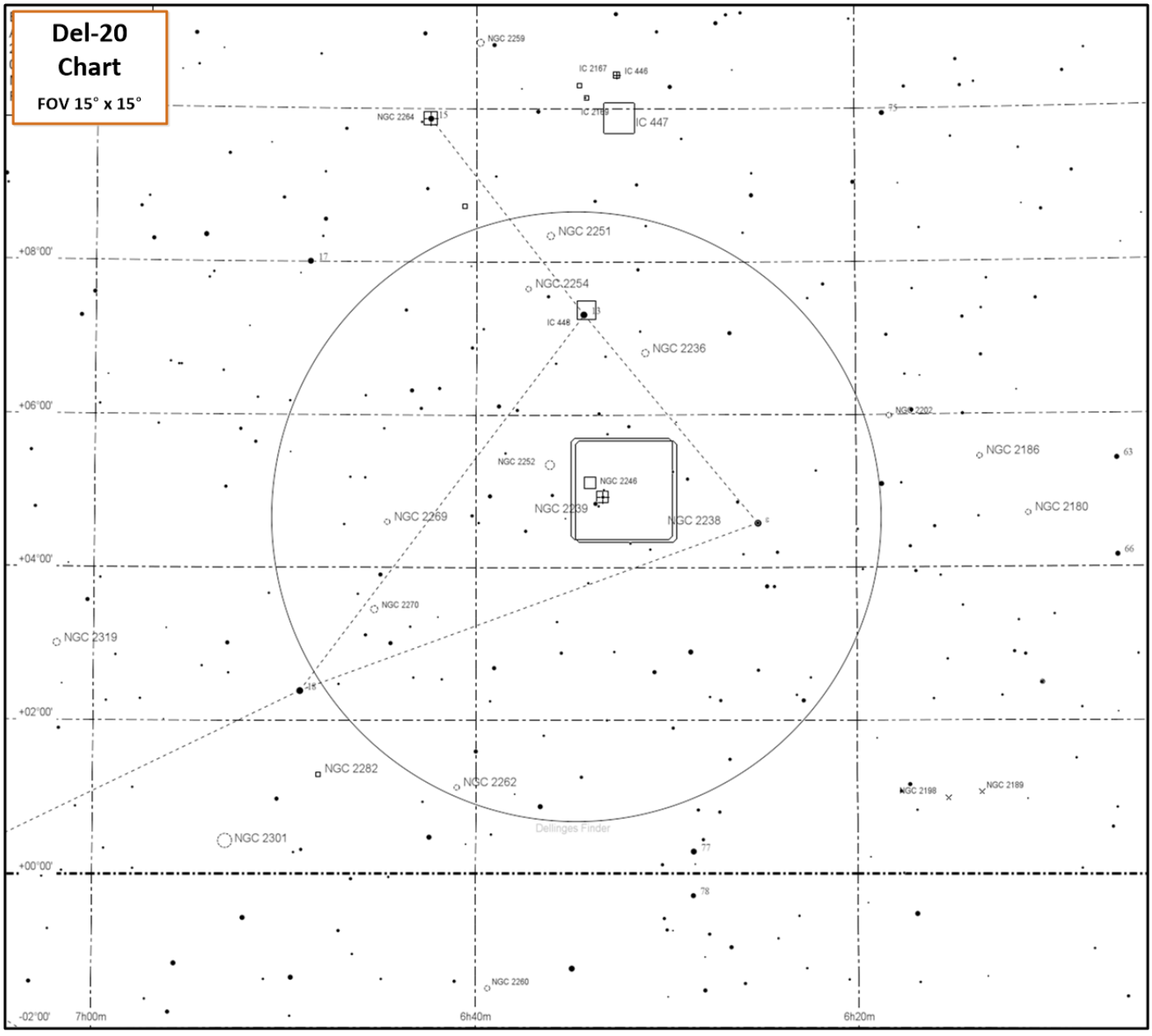
Del-20: Head of Monoceros

Good luck trying to find this constellation, its brightest star is only magnitude 4.1! Note it's about midway between Betelgeuse (in Orion) and Procyon (in Canis Minor). I find placing the Rosette Nebula, NGC 2237 and interior star cluster NGC 2244 (a few of its stars were apparent in the 8x42), in the center of your binocular field to reap the maximum benefits of Del-20. You may notice the star count is slightly sparser above the Rosette Nebula, than below it. I also found the combined light of the nebula/cluster helpful in navigating my way around, as it looked like a smudge a little brighter than the dim background stars, and that tended to catch my eye. In this field the brightest stars are three equally spaced 4.5 magnitude stars at a 45-degree slant (top to bottom 15, 13, and 8 Monocerotis. Star 15 might be slightly out of the field at the top). I have used these stars as markers to help me find this northern part of Monoceros.



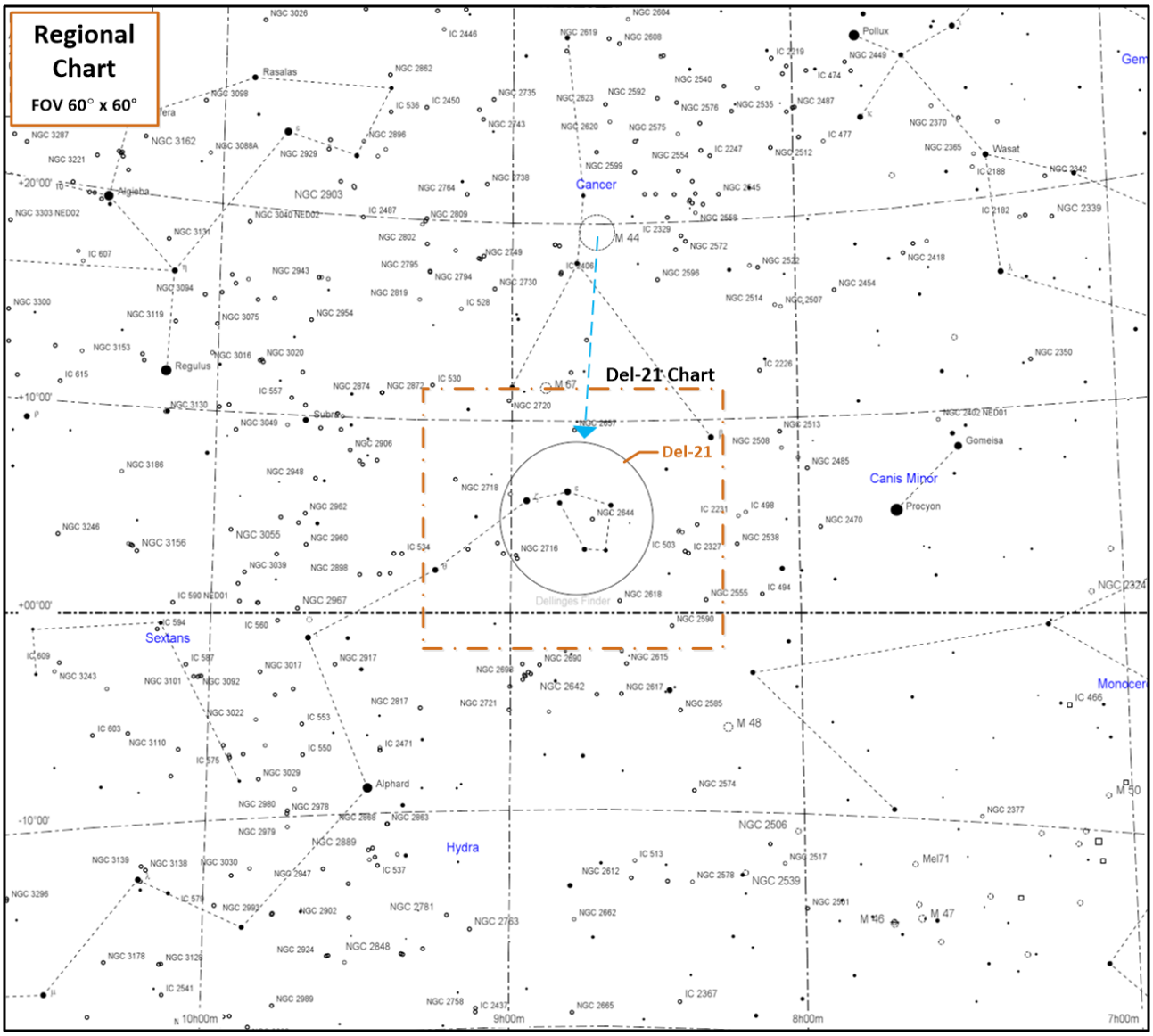
Object	Name	Constellation	Prime Time	RA	DEC
Del-20	Head of Monoceros	Monoceros	Dec, Jan, Feb	06h 35m	+04° 39’

Del-20: Head of Monoceros



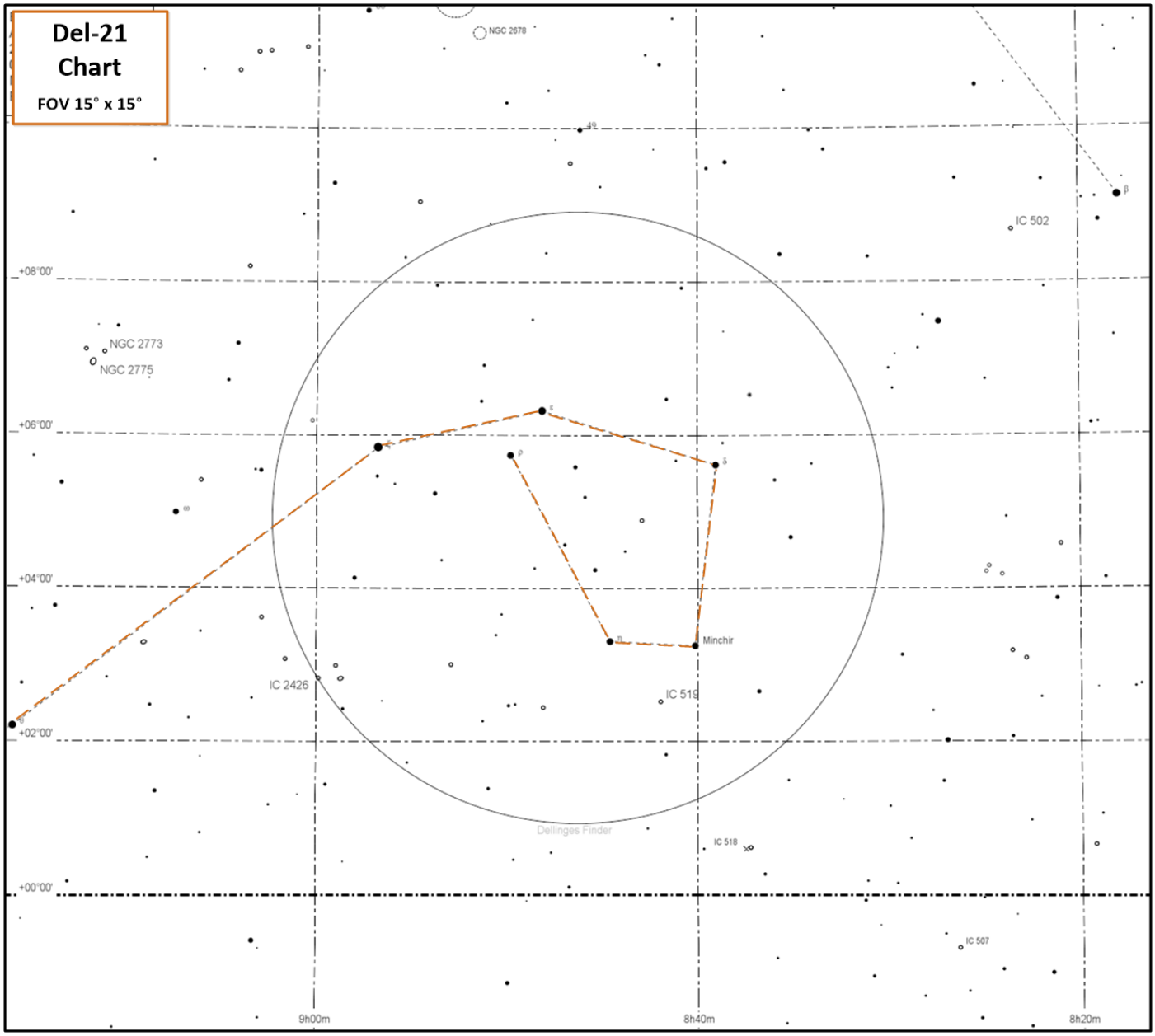
Del-21: Head of Hydra

Hydra, the Water Snake, has the distinction of being the largest of the 88 constellations in terms of square degrees (1302.84°, or 3.158% of the sky). Del-21 is a simple affair. Five stars, ranging in magnitude 3.3 to 4.5, form a pentagon, with a sixth one just tucked under the northern-most star, Epsilon Hydrae. Utilizing the sixth star, I see it as an asterism shaped like the profile of a knight chess piece. It fits comfortably in my 8x42's 8.3º field. While it is devoid of deep sky objects, I counted about 35 sixth magnitude background stars sprinkled through the field, making it a fine binocular sight. This stellar grouping is 15 degrees due south of M44, the Beehive Cluster in Cancer. In my slightly light polluted sky, I find it easier to pick out the stars of Hydra's Head than M44. I'm surprised this asterism in Hydra doesn't get more attention considering the pickings are mighty slim in this sector of the sky.



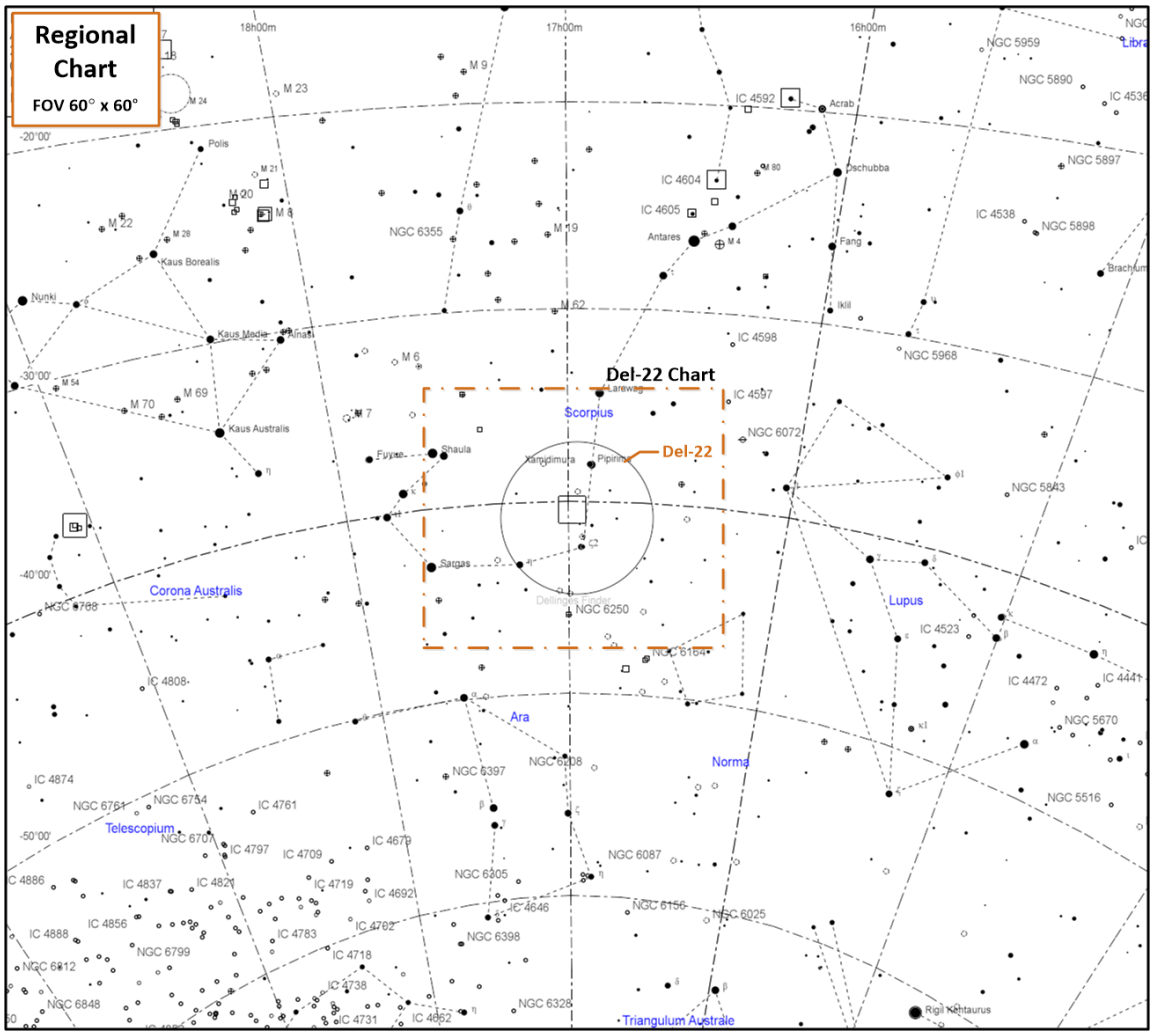
Object	Name	Constellation	Prime Time	RA	DEC
Del-21	Head of Hydra	Hydra	Feb, Mar, Apr	08h 46m	+04° 55’

Del-21: Head of Hydra



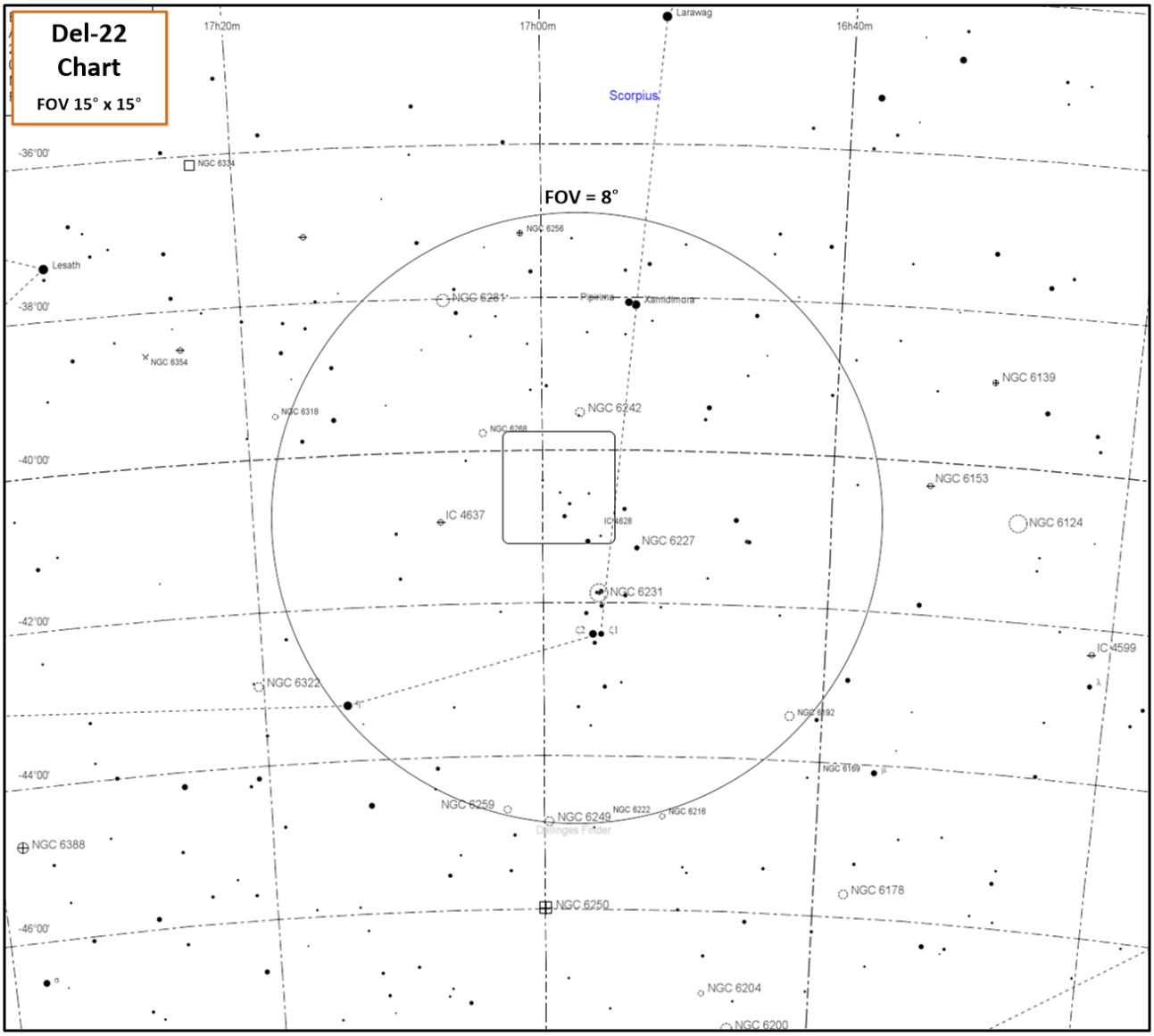
Del-22: Scorpion's False Comet

My first introduction to the False Comet was in the mid 1980's attending a stargazing seminar at Glacier Point in Yosemite National Park. The instructor knew I was an amateur astronomer and asked me if there was a comet in Scorpius that month. I didn't know offhand, so we put a telescope on the area he was looking at. The culprit was primarily NGC 6231, a compact sparkling open cluster in southern Scorpius. But the cluster wasn't alone. To stage a False Comet here, we need additional actors. Two bright stars below NGC 6231, Zeta 1&2, fill the role as the bright nucleus of the comet. NGC 6231 is promenading as the burgeoning tail. Two supporting actors, star clusters Cr 316 and Tr 24, play the part of the extended curved tail, bending northeastward. To the naked eye or binocular, this cast can be mistaken for a comet. Renowned astro-columnist Sue French attributes the comet's moniker to amateur astronomer Alan Whitman, who thought it looked like a comet at the 1983 Texas Star Party. Observing note: I tried three different binoculars on this curious cometary impostor: an 8x42 (8.3° FOV), 10x50 (6.5° FOV) and 16x70 (4° FOV). All three performed admirably. My favorite view was in the 16x70. Though its FOV was only 4 degrees, it could still accommodate the 2.5-degree long False Comet, with the advantage of higher power and superior light grasp. And the Oscar goes to…… the 16x70 for Best Performance of a Binocular.



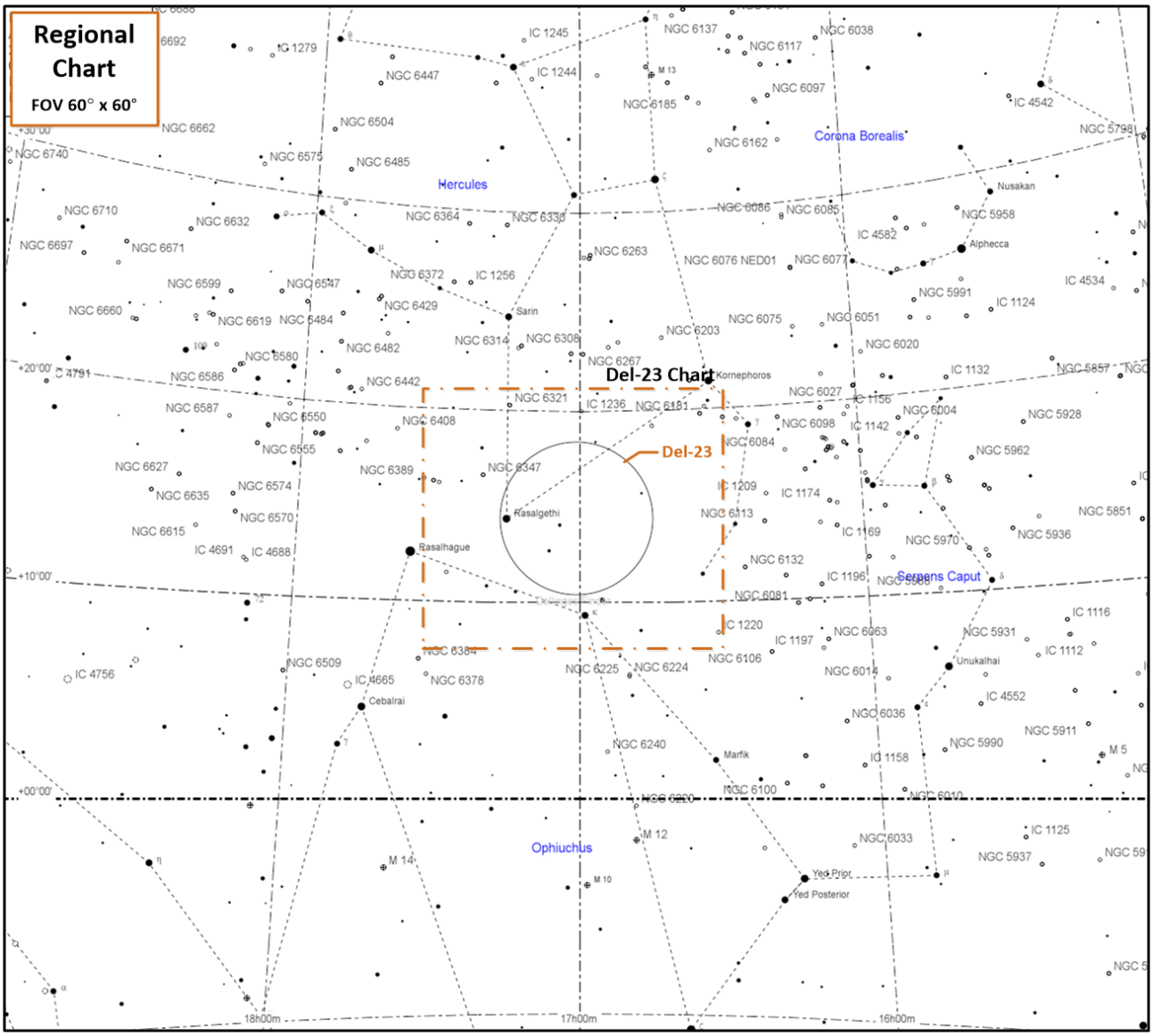
Object	Name	Constellation	Prime Time	RA	DEC
Del-22	Scorpion's False Comet	Scorpius	May, Jun, Jul	16h 58m	-40° 53'

Del-22: Scorpion's False Comet



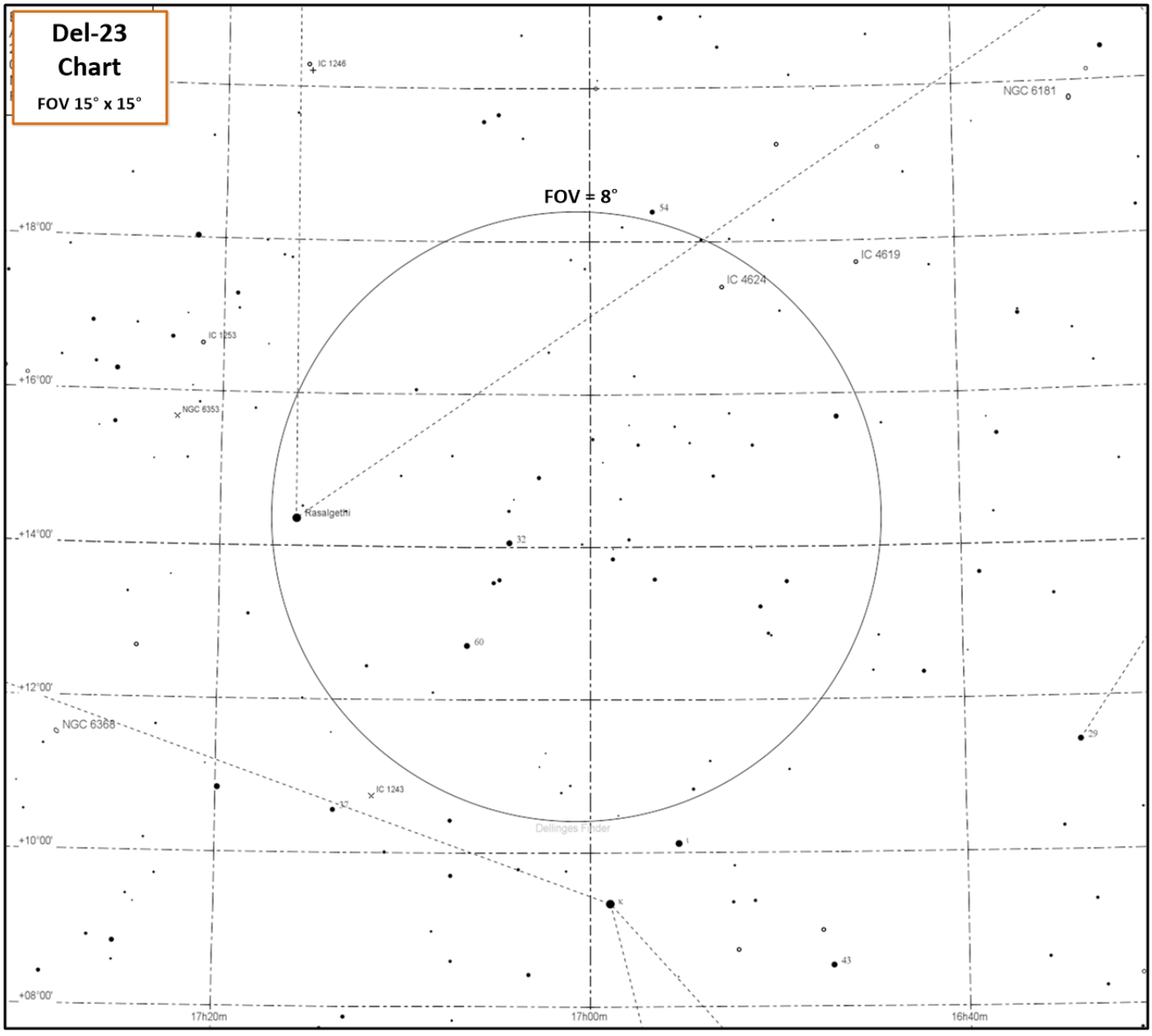
Del-23: Starry Fan

One night I was snooping around the area between Rasalhague (Alpha Ophiuchi) and Rasalgethi (Alpha Herculis) with my binoculars when a string of stars about three degrees west of Rasalgethi caught my eye. They startled me! What have we here? Is this going to be another Kemble's Cascade (a popular asterism in Camelopardalis)? The six 5th and 6th magnitude stars ran on a slightly staggered path south to north, then petered out. The brightest star on the string is 60 Herculis, the first star on the bottom of the string. I thought the show was over, but then I noticed a large cloud of fainter stars to the upper right of the brighter stars I had seen. The cloud fanned around to the west and then south, and I instantly thought, "This thing looks like a handheld fan!" The best view was in my 8x42's 8º field. The 10x50's 6.5º field was a little tight for this grouping but did make the "fan's" stars brighter.



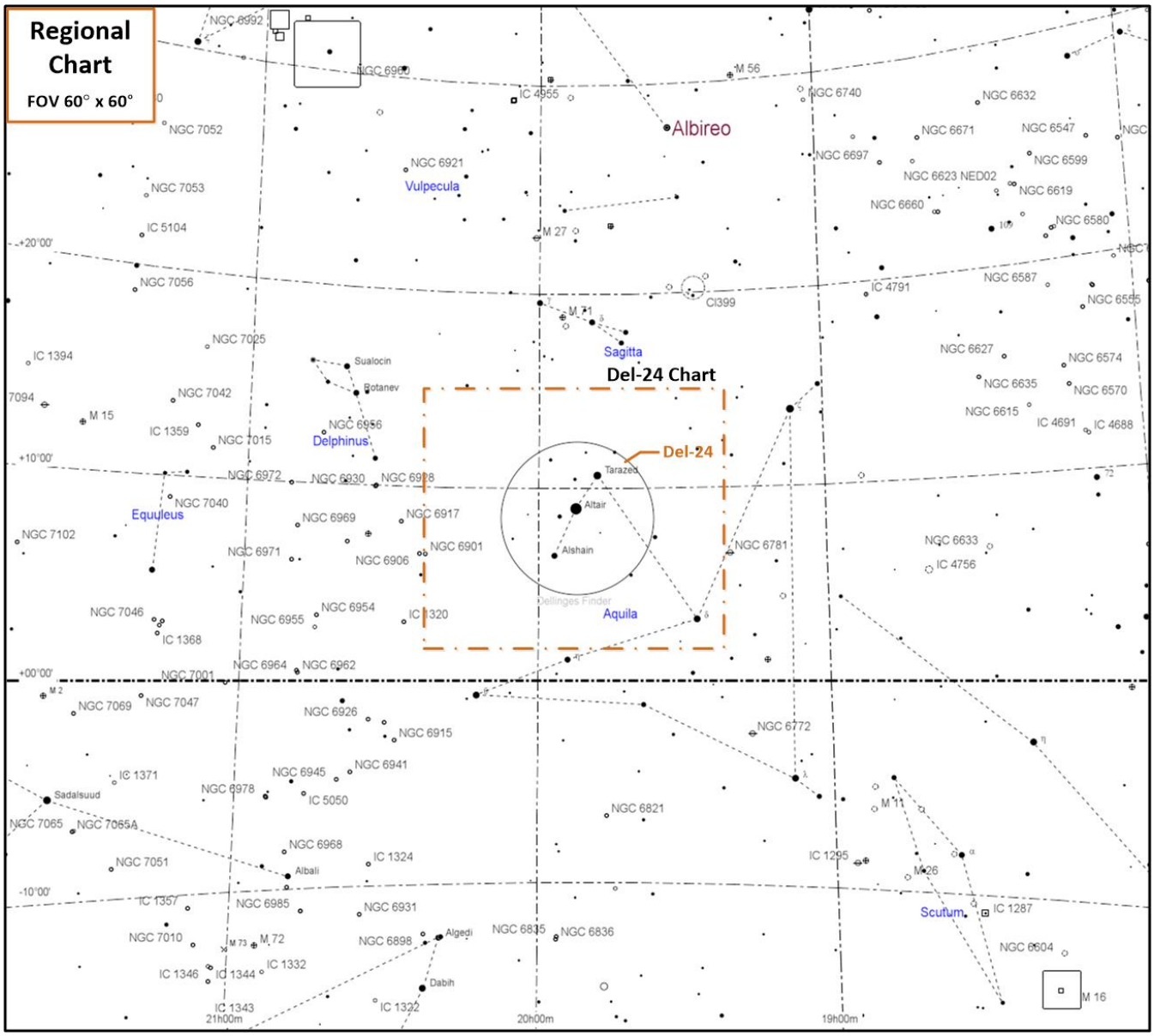
Object	Name	Constellation	Prime Time	RA	DEC
Del-23	Starry Fan	Hercules	May, Jun, Jul	17h 01m	+14° 22’

Del-23: Starry Fan



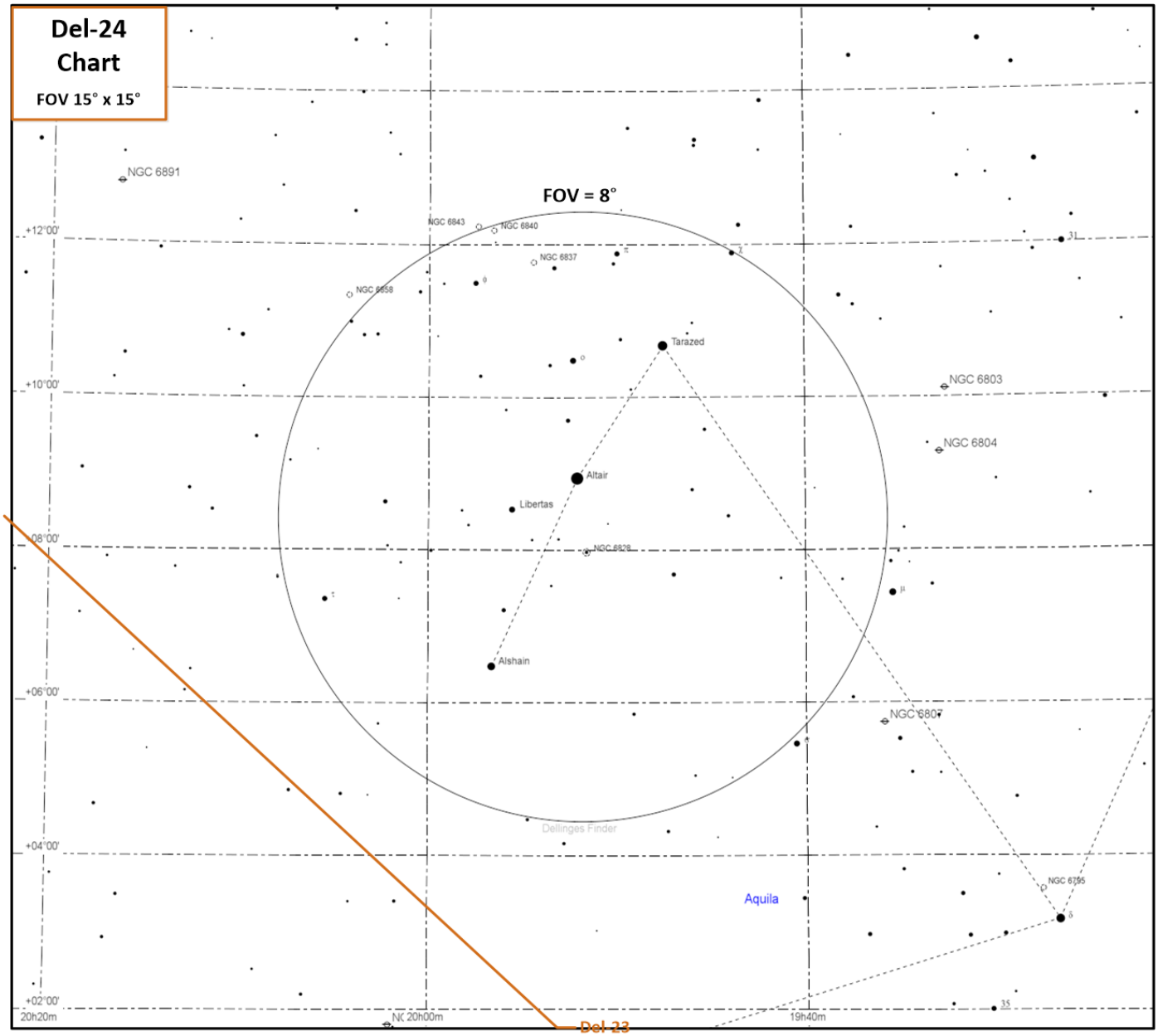
Del-24: Head of Aquila

It's ironic to return to Aquila for our final Del-24 object. This is where our journey began with Del-1 and its "Bracelet and Chain." Del-24 is centered around its brightest star Altair, magnitude +0.77. It's also the second brightest star in the Summer Triangle asterism. Until recently, the only thing that had drawn my attention to the Eagle's head was Altair and its two buddy stars Alshain and Tarazed. But there was something hiding in plain sight here. When I centered my binocular on Altair I was floored by the spectacle. Staring back at me was a bright white star with its two attendants below and above Altair, all still within the eight-degree field of my 8x42 binocular. My 10x50 6.5º field was enough to encompass all three of the bright stars too, but I thought the wider eight-degree view was esthetically more pleasing. Since the Milky Way runs right through Aquila, the background was filled with a generous supply of stars. What took me so long to discover this sublime delight?



Object	Name	Constellation	Prime Time	RA	DEC
Del-24	Head of Aquila	Aquila	Jun, Jul, Aug	19h 52m	+08° 28’

Del-24: Head of Aquila



I hope you have as much fun in observing these 24 binocular gems as much as I did in discovering them. I highly recommend adding a binocular to your astronomy gear because it's an indispensable tool in exploring the night sky. For those who don't have a computerized telescope, binoculars can help you find your object *and* can show you many deep sky objects too large for telescopes with narrow fields of view. When shopping for a binocular, make sure it's tripod adaptable – then it can also be used as a low power, wide field telescope!