MONTHLY OBSERVER'S CHALLENGE

Compiled by:

Roger Ivester, North Carolina

&

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With

Sue French, New York, Special Advisor

Thanks to Robert Lambert, Alabama, for his dedicated work as LVAS Webmaster 2009 – 2019
RIP – You will be missed!

JULY 2019

Report #126

NGC 6482 Galaxy in Hercules

"Sharing Observations and Bringing Amateur Astronomers Together"

Introduction

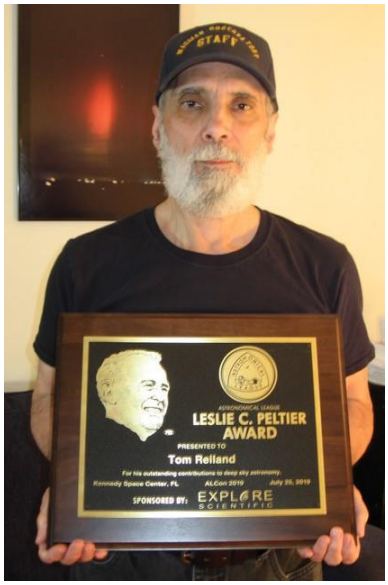
The purpose of the Observer's Challenge is to encourage the pursuit of visual observing. It's open to everyone who's interested, and if you're able to contribute notes, and/or drawings, we'll be happy to include them in our monthly summary. We also accept digital imaging. Visual astronomy depends on what's seen through the eyepiece. Not only does it satisfy an innate curiosity, but it allows the visual observer to discover the beauty and the wonderment of the night sky. Before photography, all observations depended on what astronomers saw in the eyepiece, and how they recorded their observations. This was done through notes and drawings, and that's the tradition we're stressing in the Observers Challenge. We're not excluding those with an interest in astrophotography, either. Your images and notes are just as welcome. The hope is that you'll read through these reports and become inspired to take more time at the eyepiece, study each object, and look for those subtle details that you might never have noticed before.

NGC 6482 Galaxy in Hercules

NGC 6482 is a mag. 11.5 elliptical galaxy discovered on July 12, 1830 by John Herschel. It lies approximately 195 light-years away. It's rather dim, and can be difficult except under the best dark sky conditions.

Observations/Drawings/Photos

Tom Reiland: Observer from Pennsylvania



NOTE: We'd like to welcome new participant Tome Reiland from Pennsylvania. Tom was awarded the 2019 Leslie Peltier Award by the Astronomical League. Welcome Tom!

I found my observation of NGC 6482 late last night/early this morning. It's almost 40 years old. I thought that it would be more recent than that. The date was June 22/23, 1979 at 12:48 AM EDLT (Eastern Daylight Later Time). I was using my 6-inch f/6.6 Newtonian at 50×, 80× and 120×.

My notes show that it appeared to me as being a dim, compact, star-like, roundish/oval, very small and white. I was using a 20mm (1.25-inch) eyepiece, a 12.5mm eyepiece and a 2.4× Barlow with the 20mm. Seeing was poor, at a rating of 2 on a scale of 0 to 5. Transparency was variable, with a rating of 4 at its best, until clouds moved in after 2:12 AM.

I plan on checking it out with the 21-inch the next opportunity I have to observe at Wagman Observatory.

Maureen Galevi: Observer from Massachusetts

I would like to report that I and a few other members saw the July challenge, NGC 6482, at the Westford club house using the manually operated 25-inch Dob, kept in the roll-off roof observing platform. Stephen Clougherty and Rich Nugent found the object under party cloudy skies. I had tried to find the galaxy myself at home with my 12-inch Dob, but have not succeeded.

One tip is that the galaxy looks very star-like, but fuzzier than a star. I'm not certain what power was used. I guess about 200×. The galaxy is small @2 × 1.7 arcminutes, and 197 light-years away according to SkySafari Pro. Steve uses a large atlas to find the object, so please contact him for more details.

Michael Brown: Observer from Massachusetts

I observed NGC 6482 on July 3 and August 1, 2019 with my 8-inch SCT and 9mm eyepiece. I spotted an apparently very small, diffuse object, although initially I was somewhat uncertain whether it was really there. After further examination with averted vision, I became certain, and noted an elongated, east-west oriented galaxy, perhaps nearly edge-on. A star appeared to be directly in front of the center of the object. In my second view on August 1, 2019, all I could really discern was what looked like a star surrounded by a small area of nebulosity.

P.S. I'll be leaving for my annual vacation to the Adirondacks in northern NY state. That often is my best chance each year to observe from a dark sky!

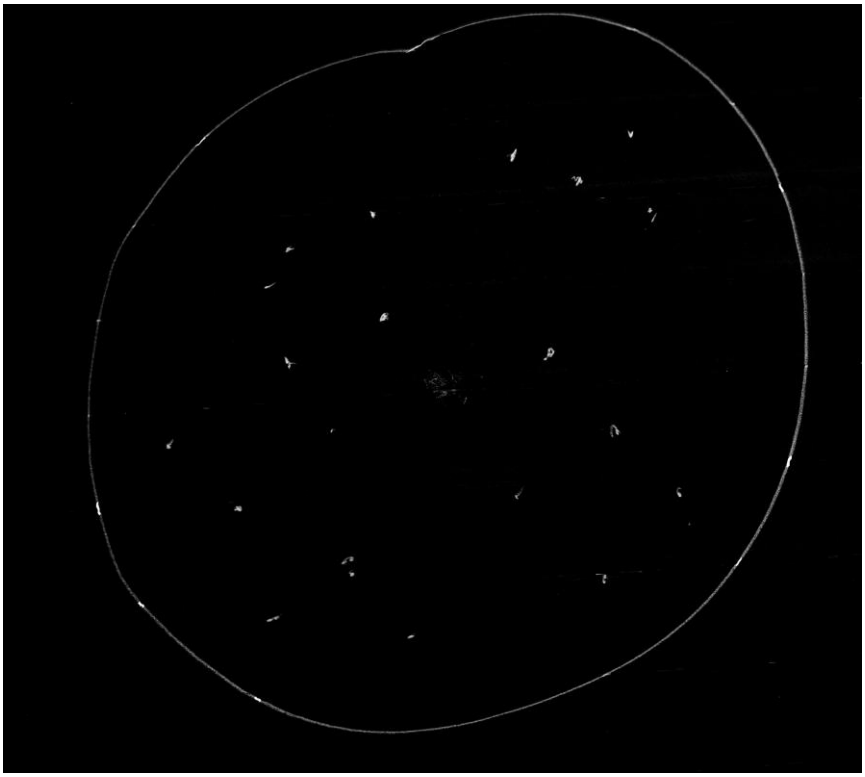
Craig Sandler: Observer from Massachusetts

I got it last week with an 8-inch SCT, and my impression was, boy, that looks like a small planetary, attractively arranged with two companion stars. I exaggerated the structure because after a time, I could barely discern it and wanted to sketch what I saw.

I observed this galaxy with an 8-inch SCT at about 110× from a rural site in Petersham, MA. NELM was about 5.8(?). The scope is f/10, but I think I had the field flattener on, so that made it about f/8.

Anyway, it took 5-6 tries before I could tease this out, and finding and studying it was MOST rewarding. Patient looking…and looking…as Roger Ivester preaches, really paid off - lots of delicate structure appeared as I kept observing. All of that "structure" tens of millions of stars...just imagine.

I also went through what I now think of as the Ivester Objects for July…all the O.C. July objects from 2009 through 2018. It took two sessions, but it was very much well worth the effort! I plan to do the same this August. Clear Skies, all!



Ed Fraini: Observer from Texas

Our attempt to log an observation of the July Challenge Object, NGC 6482, on the night of July 6, 2019 was unsuccessful. I located and observed the pentagon of stars associated with the field for NGC 6482 with no problems. The sky conditions were typical for our dark site, with an SQM near 20.0, seeing and transparency were logged at 5/5. Initially, the field was observed in a 14-inch SCT, and subsequently with a 25-inch Dob. Multiple magnifications and my best eye tricks did not produce a single occurrence of the object in the eyepieces. I was very surprised by this development, as at the listed magnitude of 12.2 and a size of about 2.0 arc minutes, NGC 6482 should've been detectable. I did have the opportunity to observe NGC 6482 with a unique eyepiece device. My fellow astronomer and the owner of the Dob has a Collins Image Intensifier. When placed in the focuser, NGC 6482 immediately and brightly appeared in the weird green field of the "night vision eyepiece." So, there was no doubt about having the right field location selected. The brightness parameters, magnitude, and mean surface brightness are substantially equal to last month's object. NGC 5377 was challenging but conquerable, so I attribute my lack of success this night to a slightly brighter background sky.

I failed to have a second opportunity in July to observe NGC 6482, but definitely will be making a repeat effort to log this visually small galaxy in Hercules.

Richard Nugent: Observer from Massachusetts

I was able to observe galaxy NGC 6482 with a group using the ATMoB's 25-inch Dob. We had a NELM of approximately 5.1, with average seeing. The moon was absent from the sky. I use Sky Safari 6 Pro at the telescope. This digital atlas allows me to customize the field of view as well as a scope's limiting magnitude on any given night. The depth of the atlas makes star-hopping easy.

I started the process of finding this faint galaxy by noting two arcs of stars 2.7° south of mu Her. About 3° south-east of the arcs I found HD 163547 (mag. 5.6) and HD 162570 (mag. 6.2). NGC 6482's location was noted on the star atlas relative to these stars, and the telescope was trained on that spot.

Using a magnification of 222×, the galaxy appeared as a faint, diffuse nebulosity associated with a mag. 13 foreground star. The eyepiece view (0.37° TFOV) showed the glow inside a triangle of mag. 10-11 stars. The galaxy was easy to see with direct vision, but appeared brightest using averted vision. Considering the galaxy's faintness, a very dark sky might be a necessity when using smaller apertures.

Corey Mooney: Observer from Massachusetts

I live stacked NGC 6482 from my driveway in Maynard, MA on July 8, 2019 around 10:50PM. I was using my 4.5-inch f/4 Newtonian and my IMX290 based mono CMOS camera.

From a previous attempt with my color camera, I knew there was a pair of faint galaxies (PGC 61042 & PGC 61044) to the east, so I adjusted the framing to include them. While I was framing with short 2 second exposures, I could see the faint glow of NGC 6482's concentrated nucleus nearly on top of the nearby mag. 12.4 star.

Once I was happy with the framing, I switched to 8 second exposures, and I was greeted with very slightly more extension. It was then that I realized just how small and condensed this fuzzy little blob was. I started live stacking the 8 second frames, and pushing the histogram stretch as far as the decreasing noise level would let me, but I could only push the stretch so far before losing the star in the glow of the galaxy.

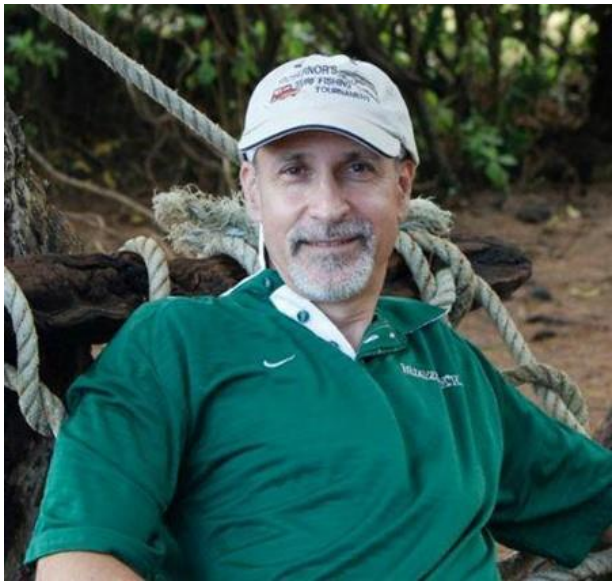
One of the IMX290's shortcomings is its low dynamic range. I was compounding that issue by using it at its highest gain, further reducing its range. If I were to try again I would use a lower gain and longer exposures to try and get more dynamic range in hopes of clearly separating the galaxy from the star.

91 stacked 8-second frames at max gain.

42.9′ x 24.3′ FOV

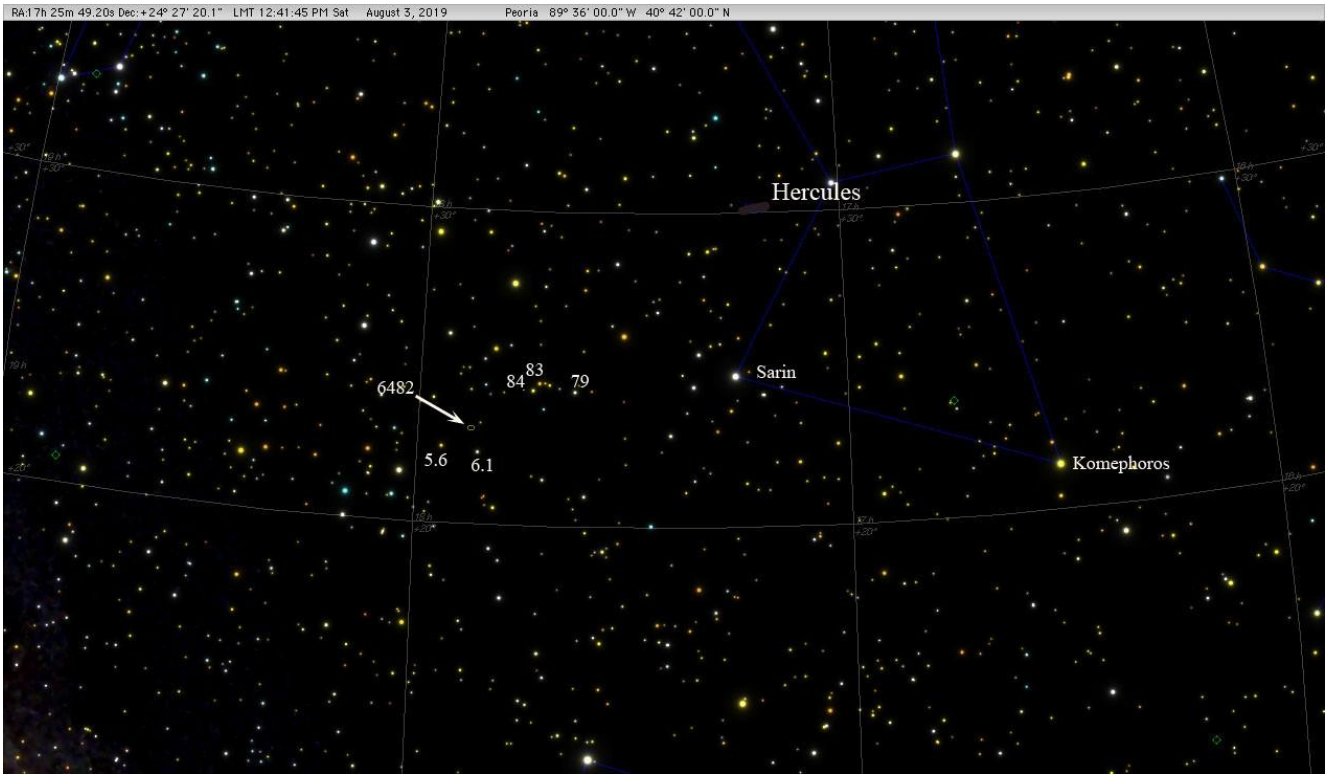
After reviewing the saved live stack result, I noticed something strange. In the lower middle of the FOV, there's an uncanny amount of star pairs that have a similar brightness, separation and direction (NNE to SSW). At first glance, I thought I had a tracking/stacking issue resulting in a double image, but that would've affected the whole FOV and the brighter stars, which is not the case here. After checking Cartes du Ceil with UCAC4 mag. 16 catalog installed, sure enough, the many pairs of stars were there. Weird.

James Dire: Observer from Illinois



NGC 6482 is a mag. 11 elliptical galaxy in the constellation Hercules. In amateur telescopes, the galaxy measures approximately 2.0′ × 1.7′ arc-minutes. Like most elliptical galaxies, there's no visible structure to the galaxy, either visually or photographically.

To find NGC 6482, go about 6° due east of Sarin (δ Herculis) to a chain of stars stretching from 79 Herculis to 84 Herculis that resembles a hockey stick. The blade of the hockey stick roughly points to NGC 6482. 3° southeast of the blade reside a pair of stars shining at mag. 5.6 and 6.1. NGC 6482 forms a nearly equilateral triangle with the two stars and is the northernmost vertex. See the accompanying finder chart where I have labeled the hockey stick stars with their Flamsteed numbers and the two stars around NGC 6482 with their mags.

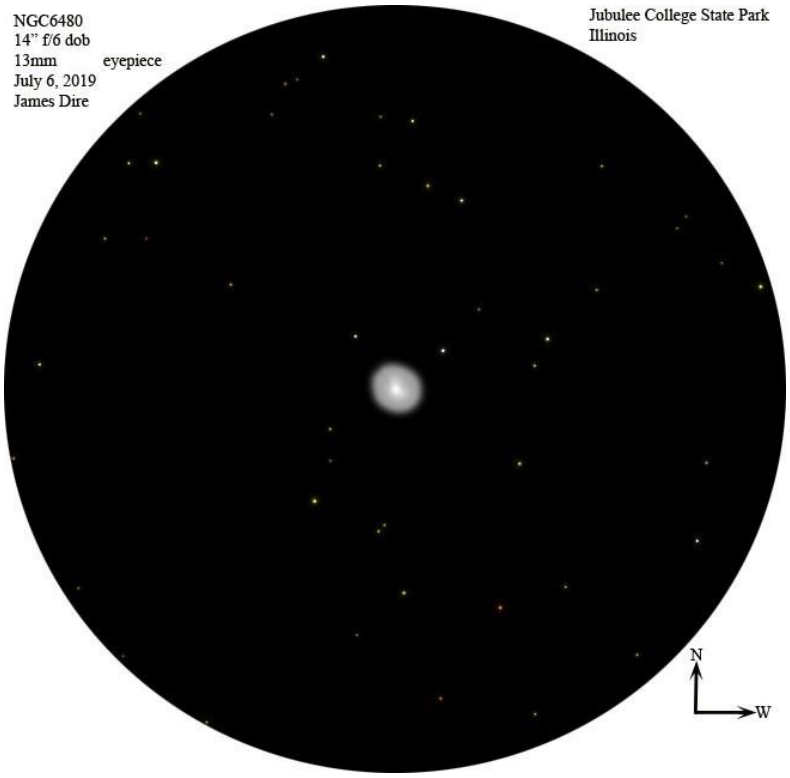


I observed NGC 6482 on July 6, 2019 from approximately 20 miles northwest of Peoria, IL. The seeing was 2 arc-seconds and the skies were around mag. 5, not the best transparency due to the summer humidity. I could clearly find and center the hockey stick in my 8×50mm finder scope and pan with it to the mag. 5.6 and 6.1 stars. However, I couldn't see the galaxy in the finder scope. Centering the finder's crosshairs where NGC 6482 should've been, it was an easy find in my 14-inch f/6 Dob using a 13mm eyepiece.

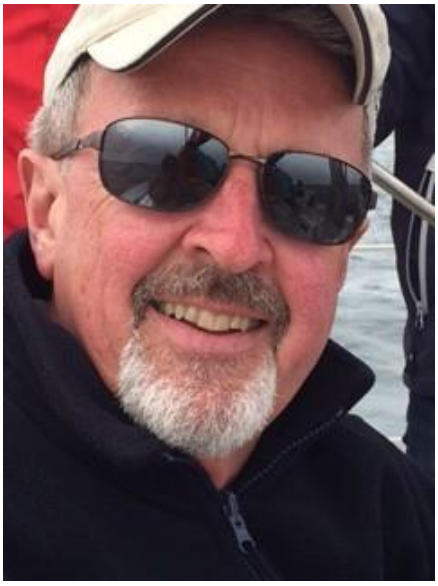
The accompanying drawing shows the eyepiece view of NGC 6482. I've plotted and could see stars down to mag. 13. The galaxy was a fairly round blur with a star-like bright nucleus.

NGC6480
14" f/6 dob
13mm eyepiece
July 6, 2019
James Dire

Jubulee College State Park
Illinois



John Bishop: Observer from Massachusetts



While on vacation on Cape Cod (Wellfleet, MA), I was able to observe NGC 6482 from the deck of a cottage, about a quarter mile from the shore, on the quiet Harbor side (fewer sharks, we think). I observed with my 8.25-inch f/11.5 reflector (210/2415mm).

Wellfleet is a surprisingly dark observing site. On July 27, 2019, conditions were near perfect: the sky was clear, the seeing was steady, and humidity was low. The Milky Way was very prominent, bright enough to look like actual clouds. As an observer from suburban Boston, I found it strangely challenging to identify constellations because there were so many more stars than I'm used to seeing!

As another plus, NGC 6482 was well positioned, high in the sky. So, I assumed I'd pick up the galaxy fairly easily, possibly even by sweeping with my 48× wide field eyepiece. I was wrong. I then centered the FOV with my Telrad and finder where 6482 forms one corner of a triangle with mag. 5th and 6th stars. I slowly scanned the whole FOV with direct and averted vision. Again, initially nothing, until finally I noticed a "star" that got fuzzy when I looked away.

This proved to be NGC 6482. It took plenty of magnification to be sure. The galaxy is small and faint, and easy to overlook. At lower power, with averted vision, the galaxy was round, but at higher power (192×) it had an elongated halo. 192× showed an attractive image: it was centered in a very dark background, with three bright field stars forming a triangle across part of the FOV.

One thing remains unclear to me. My rough notes called 6482 "stellar"", and a "fuzzy star", because there was a tight, bright "center" to the object. I cannot say whether that brightness was the mag. 13 star that lies near the center, or whether it was the galaxy core (or

possibly both?) It seems unlikely my modest scope would pick up the core, but the center seemed brighter than a mag. 13 star alone would be.

This was a challenging object. Only at 192× could I see the galaxy easily with direct vision.

Joseph Rothchild: Observer from Massachusetts

I observed galaxy NGC 6482 on July 3, 2019 at my dark sky site in Cape Cod. This was my first observation of this object. Transparency was fair. I observed with my 10-inch reflector. However, I had been unsuccessful in locating it on an earlier observing session.

This night I observed at higher power. The galaxy appeared as a fuzzy star as other observers have reported. It was located in a triangle of stars. I didn't see it at lowest powers, but was identified initially at 89×. I saw it much more clearly at 156×.

Doug Paul: Observer from Massachusetts

I imaged NGC 6482 around 2:30 AM on May 9, 2019. Temps were fairly comfortable (~50°F) although there was frost on the ground by dawn. There was no moon, and the NELM was about 4.3.

The image shows a star 6-7 arc-seconds to the west of center, and well within the galaxy oval. The processing was set to show this star.

(When I looked around the web, I found that a number of the images of NGC 6482 had overexposed the center of the galaxy thus obscuring the star.)

The galaxy is at the center of the image—the "skirts" around a number of the overexposed brighter stars are due to the Airy pattern (due to diffraction at the lens aperture) around them.

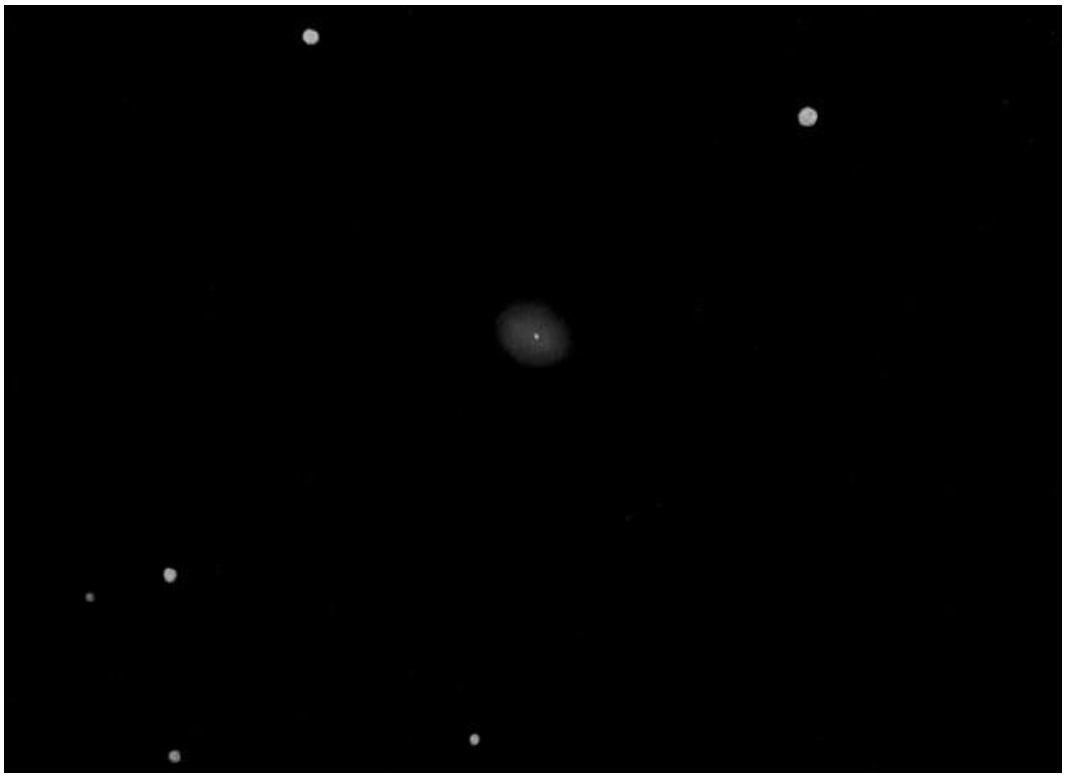
Technical info: Canon 80D, 600mm f/4.0 lens (aperture 150mm), ISO 800, 71 subs × 30 sec = 35.5 min, scale 1.3 arc-seconds/pixel.

Sue French: Observer from New York

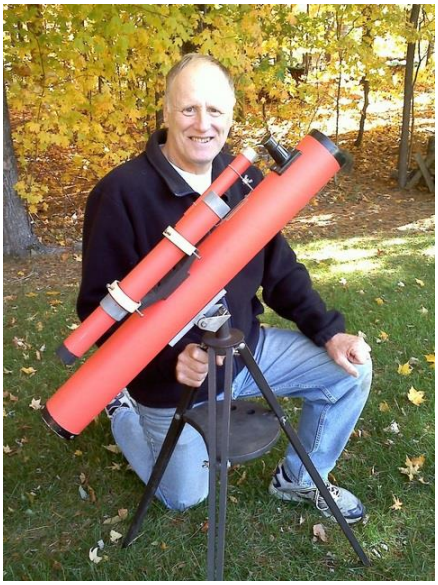
I took a look at NGC 6482 on Friday, May 24,2019 at 12am EDT with my 254/1494mm (10-inch f/5.8) Newtonian. The seeing was below average, and the transparency was fair.

At 43×, NGC 6482 is just a little fuzzball. It dangles beneath (south of) the base of a slender, 6.3°-tall trapezoid made by four mag. 11 stars. At 115×, the galaxy presents an oval glow tipped northeast by east and sports a superimposed star near the galaxy's center. The sketch was made at 187×, at which this petite galaxy wears a fainter fringe and appears roughly 0.7′ long. The galaxy showed no core, and I'll be interested in finding out whether anybody else spotted one. Perhaps the proximity of the superimposed star hid the core, or maybe one would show if viewed higher in the sky. It was about 52° above the horizon when I observed it.

I also made two attempts to nab this galaxy's elusive core in late June, when the galaxy was higher. The first attempt was with the 10-inch on a night when the seeing and transparency were fair. At 187×, the galaxy did look brightest just east of the superimposed star, but despite considerable study, there was no distinct core. For the second endeavor, I took out the 381/1727mm (15-inch f/4.5) Newtonian. The seeing was below average, but the transparency was good. Perused at magnifications of 133× to 216×, the view looked much as it had a few nights before with the 10-inch, but brighter. No additional detail was seen.



Glenn Chaple: Observer from Massachusetts



NGC 6482 – Elliptical Galaxy in Hercules (Mag: 11.3 Size: 2.1′ X 1.8′)

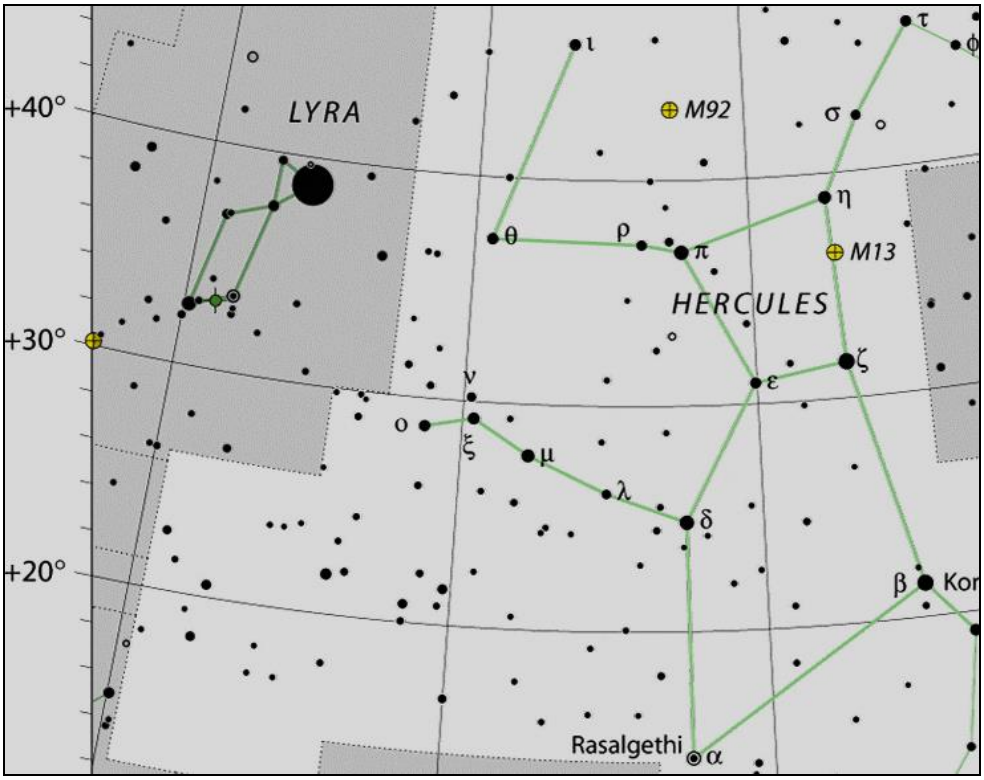
Our Observer's Challenge "Galaxy Quest" continues this month with NGC 6482, an elliptical galaxy tucked away in the southeast quadrant of Hercules. Missed by William Herschel, it was discovered by his son, John, on July 12, 1830. In Dreyer's *New General Catalogue* (1888), NGC 6482 is described as, "a remarkable object, very faint, small, round, very suddenly very much brighter middle and very small round nucleus."

NGC 6842 is located at 2000.0 coordinates $17^h\ 51^m\ 48.8^s$, +23° 04′ 19.0″. The accompanying charts will show the way, should you prefer to find it by star-hopping. You can either work your way SSE from Mu Her or NW from 95 Her. I recommend the latter path, as 95 Her is a showpiece double whose mag. 4.9 and 5.2 components are currently separated by 6.4 arc-seconds.

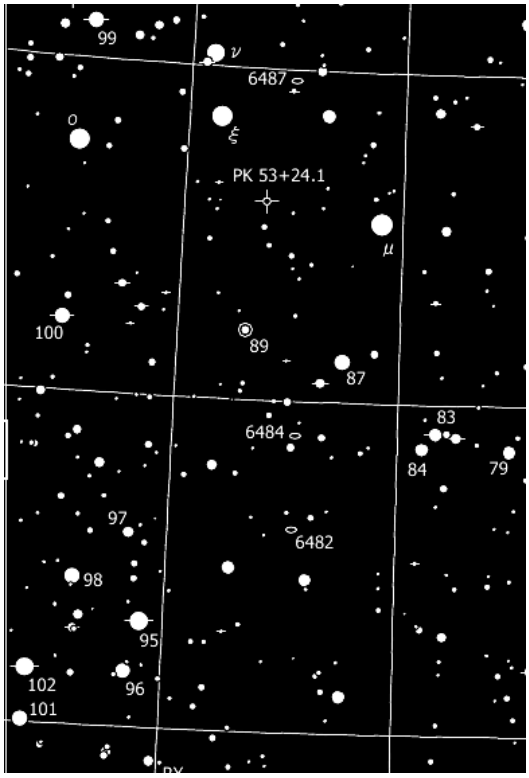
The elder Herschel likely missed NGC 6482 because of its small size. The nucleus is a planetary-nebula-sized 40 by 30 arc-seconds, mandating a magnification of 200× or more. Viewed with my 10-inch f/5 reflector at 208×, NGC 6482 looked stellar when viewed directly, a roundish smudgy patch when viewed with averted vision.

Before you dismiss NGC 6482 as just another run-of-the-mill elliptical galaxy, think again. That insignificant-looking puffball is the nearest example of what astronomers refer to as a "fossil galaxy" or "fossil group" – an isolated giant galaxy whose mass (particularly in dark matter) and X-ray luminosity are comparable to those or an entire group of galaxies. It's

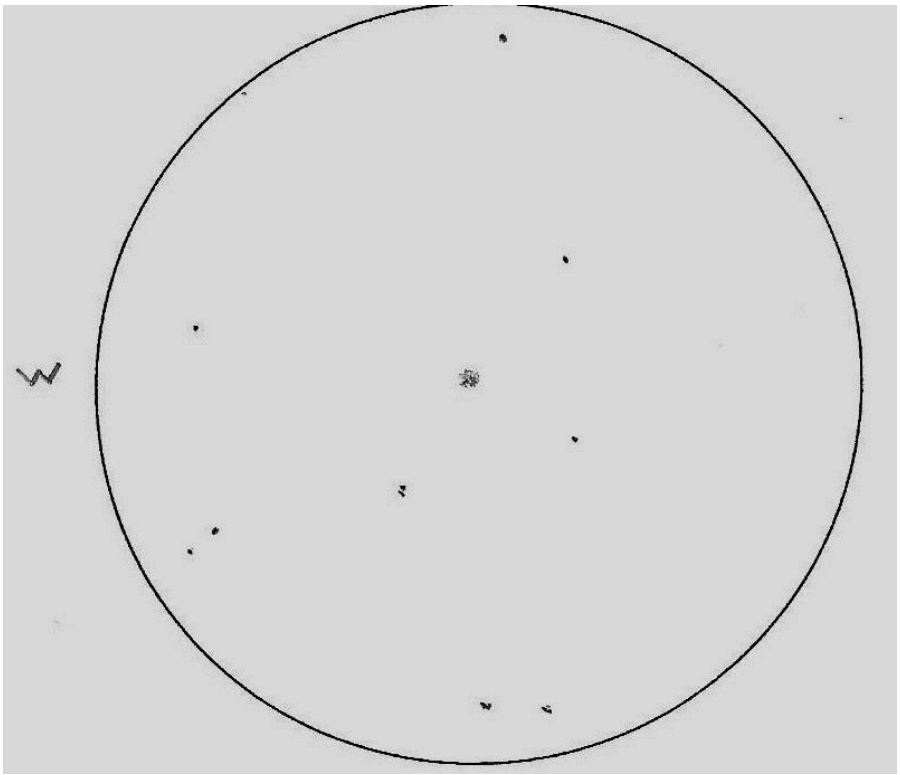
possible that NGC 6842 is a result of the mergers of a group of galaxies into one. Distances to NGC 6842 are uncertain, with several sources citing 190 million light years.

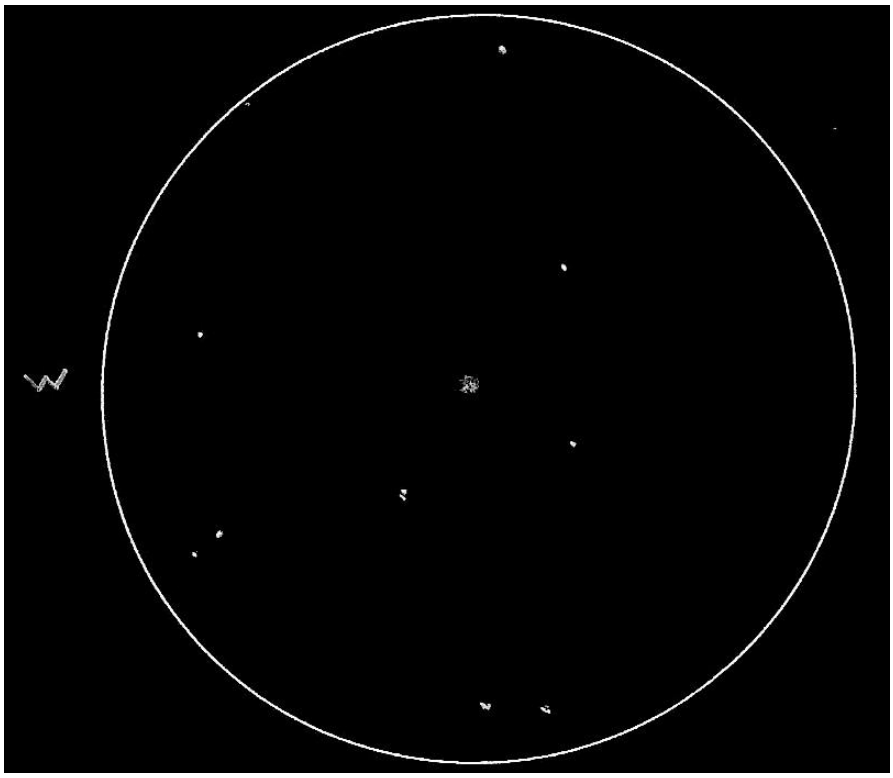


IAU and Sky & Telescope



bristolweather.org.uk (Map by Toshimi Taki. Stars shown to mag. 8.5)

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Chris Elledge: Observer from Massachusetts

On June 9, 2019 @1:00am EDT, I used a 10-inch f/5 reflector to observe NGC 6482 from the ATMoB Clubhouse. Sky conditions were: Bortle Scale 6. NELM 4.5. Transparency good. Seeing good.

I found NGC 6482 by starting at Mu Herculis and hopping to 87 Herculis, then to a trio of mag. 7 stars in a right triangle (HD 162428, HD 162828, & HD 162280), and finally the mag. 7 star HD 162527.

At 35× (35mm 1.9° FOV), there was an irregular hexagon of mag. 7 to 9 stars surrounding NGC 6482. They were HD 162527, HD 162848, SAO 85518, SAO 85514, SAO 85478, & SAO 85454. HR 6655 was in the view near the SSW edge. The galaxy was visible as a small faint smudge near the middle of the hexagon. Together with the two HD stars, it formed a right triangle with the right angle where the galaxy was. It was only visible with averted vision.

At 115× (11mm 0.71° FOV), more faint stars were visible, filling the inside of the hexagon. NGC 6482 was visible as a small fuzzy spot with direct vision. With averted vision, a point of light appeared in the middle. This might have been the mag. 13 star overlapping the galaxy.

At 270× (4.7mm 0.3° FOV), NGC 6482 was no longer visible. With averted vision, there was a faint hint of light which might have been the mag. 13 star again.

Mario Motta: Observer from Massachusetts

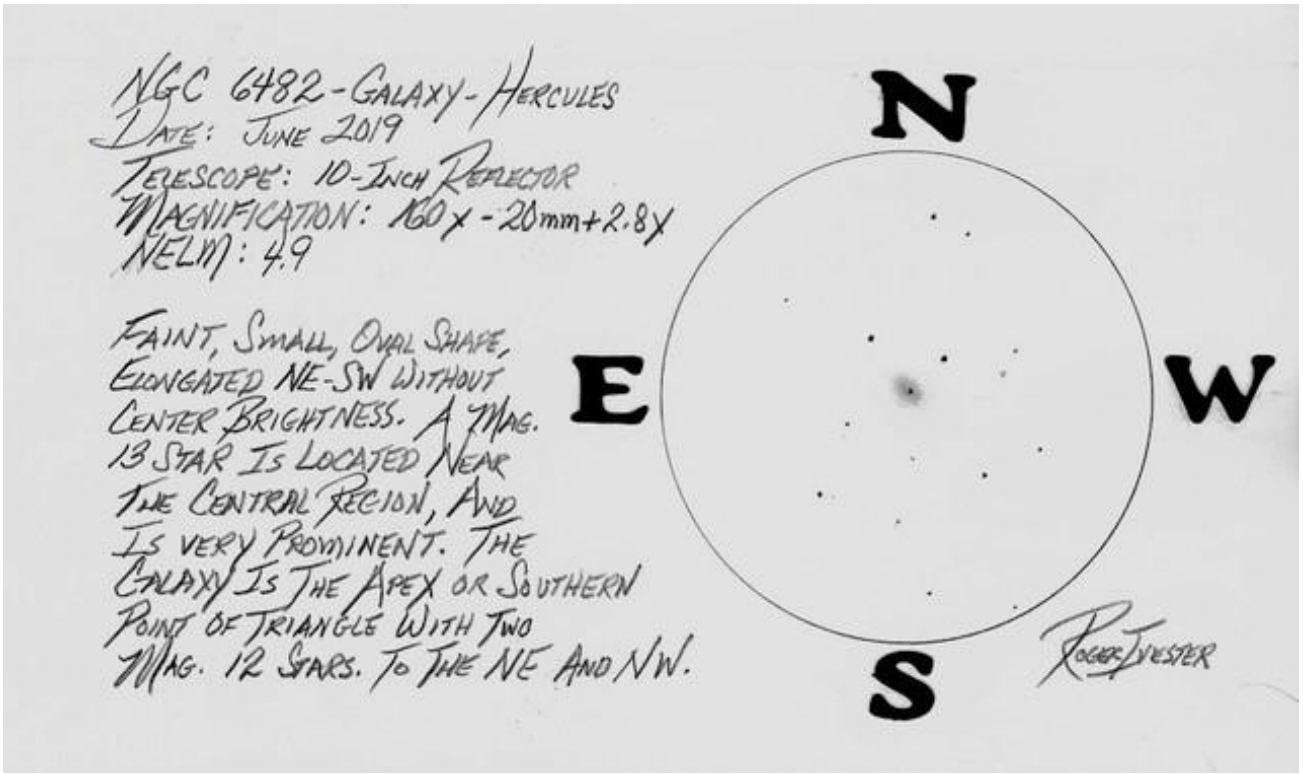
NGC6482, is a small lenticular galaxy.

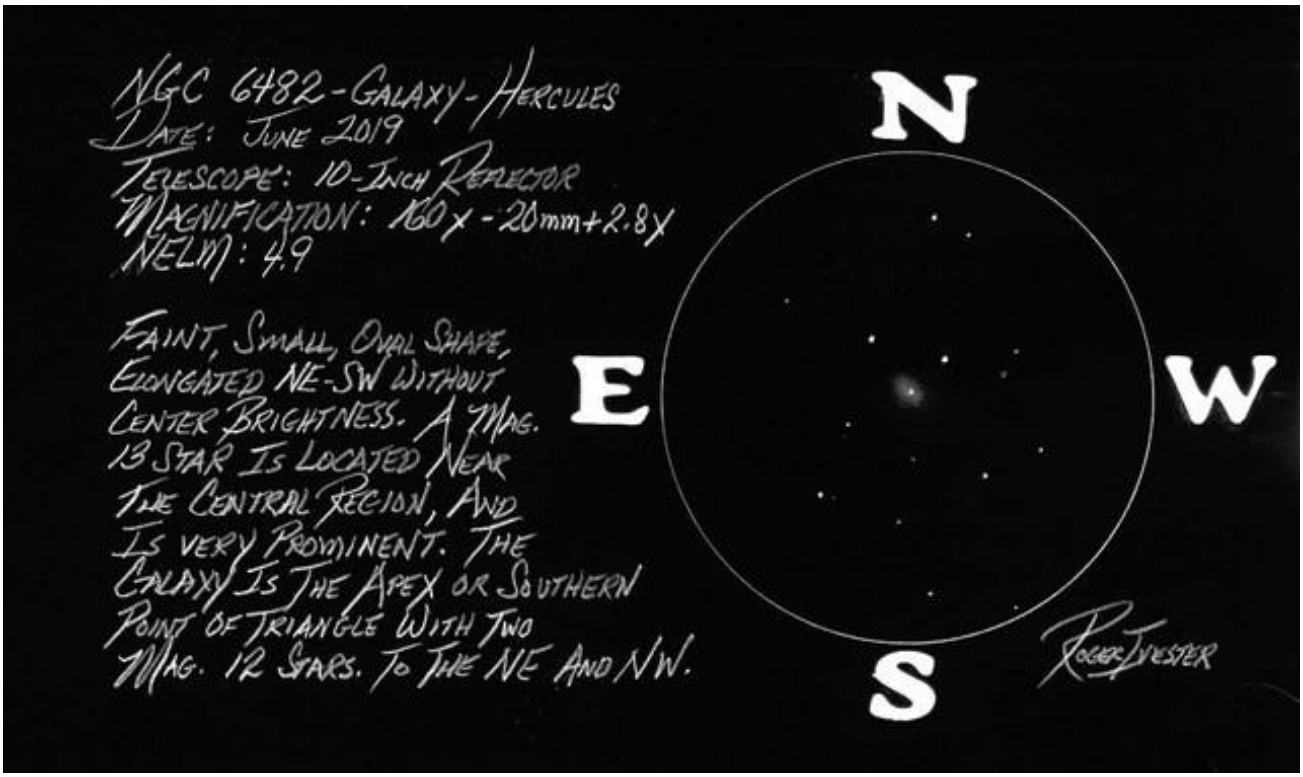
I can see why the visual observer would have difficulty…due to having a star just off center of the galaxy center, and just as bright! So…the slightly fainter outer galaxy would be hard to see by the contrast, a bit or sort of similar to the blinking planetary.

I had to do some special processing to enhance the star, and slightly de-enhance the galaxy so both can be seen.

Roger Ivester: Observer from North Carolina

With a 10-inch f/4.5 reflector, galaxy NGC 6482 at 160× was a faint, small, oval shape, elongated NE-SW orientation without any center brightness. A mag. 13 star was located near the central region, and was very prominent. The galaxy was the apex or southern point of a triangle with two mag. 12 stars.




NGC 6482 - GALAXY - HERCULES
DATE: JUNE 2019
TELESCOPE: 10-INCH REFLECTOR
MAGNIFICATION: 160x - 20mm + 2.8X
NELM: 4.9
FAINT, SMALL, OVAL SHAPE, ELONGATED NE-SW WITHOUT CENTER BRIGHTNESS. A 7 MAG. 13 STAR IS LOCATED NEAR THE CENTRAL REGION, AND IS VERY PROMINENT. THE GALAXY IS THE APEX OR SOUTHERN POINT OF TRIANGLE WITH TWO MAG. 12 STARS. TO THE NE AND NW.
N
E
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ROGER TESTER

Fred Rayworth: LVAS AL Coordinator and Observer from Nevada

I was surprised to find that this galaxy was not a Herschel object. However, it was not only on my Missing Tirion list, which I derived from the Tirion charts, but the Skiff & Luginbuhl list which I got from the back of their outstanding observing book. In any case, I've never seen NGC 6482 before.

I tried for it the last time I was out at the "undisclosed location," but for some reason, despite the much darker skies than my later successful observation, I couldn't find it. Maybe a random cloud moved in, or my push-to system offset was way out of synch. Whatever the case, I never spotted it that night.

Go figure that I finally caught it from my severely light-polluted red zone back yard on the eastern edge of Las Vegas, with a street light to my north, which I had to edge out of my vision.

Maybe because it was so high in the sky, I was able to get it. If not for my digital push-to system, I never would've spotted it because I certainly couldn't see the guide stars to find it manually.

The other thing was that I had to use a higher magnification eyepiece to observe it because my go-to workhorse, my 18mm 102× EP was, at the time, hooked up to my cell phone for imaging Jupiter and Saturn, the main reason I was out in the back yard in the first place. In fact, I just went for the Challenge Object as a hoot, and never expected to see it at all. I was quite shocked to find it.

NGC 6482 at first just showed the stellar-like nucleus, offset from two brighter stars, GSC 2090:1684 at mag. 10.5 & GSC 2090:3159 at mag. 10.2. As it turns out after looking at the

others notes in this report, apparently this was a foreground star and NOT the real nucleus. After staring at the scene for a few minutes, using averted and direct vision, I could clearly see the surrounding oval fuzz. Despite the magnification, it did nothing to blacken the background which was consistently gray, not helping to give much contrast to the oval, which made it so hard to see. There was no significant detail at all. However, by sweeping the area, it clearly stood out as an extended object compared to the surrounding stars. If I'd have been out at the dark site, I might have been able to spot some of the surrounding Easter eggs, the UGC and CGCG galaxies, but alas, I was probably lucky to see this galaxy given that some people in other parts of the country were having trouble spotting it with ever larger apertures, yet some with smaller scopes were able to spot it. I guess sky quality, despite light pollution plays a significant role. I also need to note that seeing wasn't all that great. When I was imaging the two planets, the views were very mushy.

I got another crack at it on August 3, 2019 from the Red Rocks Visitor's Center on the west side of Las Vegas for a public outreach event. While much darker than right in town, it still wasn't nothing to write home about. This time I used 102× and found the galaxy easy using the push-to system. It looked almost identical to the 208× view from my back yard. In fact, outside of being magnified, I could've substituted views and never known the difference, appearance wise. It was still just a fuzzy star in appearance with a halo around it. This was probably because of the magnification versus the sky darkness this time. Maybe if I'd upped things to 208×, the view might have been more rewarding.