

Oregon Star Party Level 3 / Advanced Observing List

2019

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Welcome to the 2019 OSP Level 3 / Advanced Observing List

Each of the fourteen objects on this list has its own page itemizing what it is, why it's interesting to observe, the minimum size telescope that *might* be needed to see it, and the criteria for a successful observation. Also included are the constellation of each object, coordinates, and a photo showing what the object looks like - all you have to do is find, observe, and record your observations. I hope you enjoy the challenge!

Note – you will need your own detailed finder charts for these objects. Paper or computer charts are equally acceptable. Also - star hopping, push-to and goto are all appropriate ways to find these objects.

Stretch your skill and imagination - see something new, something unimaginably old, something unexpected

- Even though this is a challenging list, you don't need twenty years of observing experience or a 20-inch telescope to successfully observe ten of these objects. The only way to know if you can see them is to have a look for yourself.
- The minimum aperture listed for each object is a rough estimate. The idea is to show approximately the smallest size telescope that might be needed to successfully observe each object. The range is 4-inches to "no idea" this year.
- The visibility of each object assumes dark, transparent, steady and non-smoky OSP observing conditions.

Requirements to receive a certificate

1. To receive the observing certificate, you need to have descriptive notes and/or sketches that clearly show you observed ten (10) objects on this year's list.
2. Simply noting that you saw ten objects doesn't count.
3. Observers who successfully observe ten objects also qualify to receive a cool observing pin.

NGC 5609

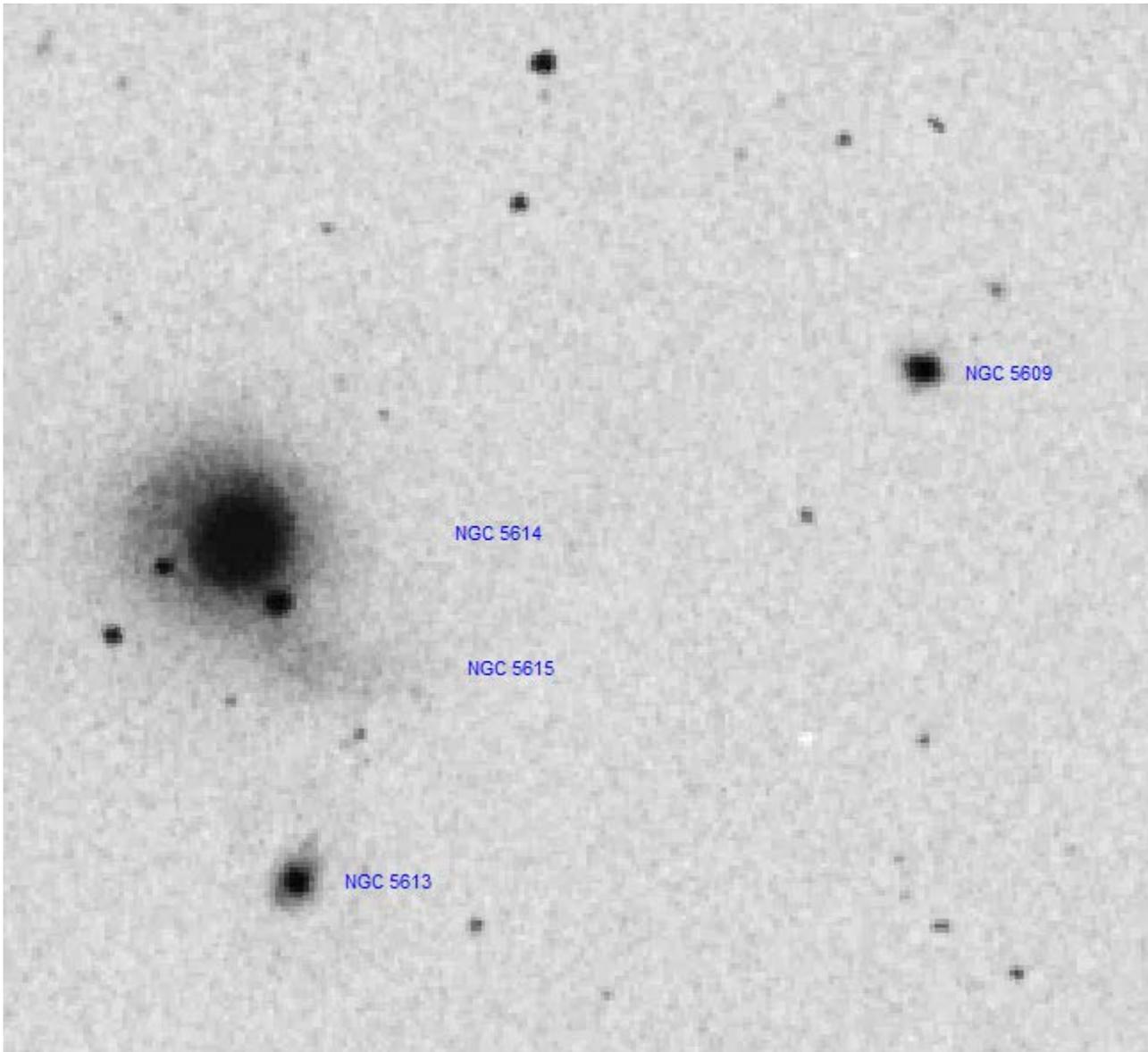
What is it? The farthest galaxy in the NGC catalog. Perhaps.

Why you want to see it: With a light travel time of 1.3 billion years, this magnitude 15.7 galaxy is probably the farthest galaxy in the NGC catalog (NGC 1262 may be further but there's uncertainty about its distance). 5609 will be a small, faint smudge, so use your imagination as much as your vision to enjoy this incredibly distant galaxy.

Minimum aperture needed: 10-inches.

Criteria for successful observation: Detect the faint smudge of this galaxy.

Bootes RA 14 h 23m 48s Dec +34 degrees 50m 34s



IC 4593 – the White-Eyed Pea

What is it? Planetary nebula

Why you want to see it: This small greenish-blue planetary nebula is 12 arc seconds in diameter, glows at magnitude 11.0 and was discovered photographically in 1907 by Williamina Fleming. Plus, it has a cool nickname. Look for the color at low power and use as high a power as the seeing allows to note details.

Minimum aperture needed: 4-inches.

Criteria for successful observation: See the nebula's greenish-blue color and the central star.

Hercules RA 16h 11m 44s Dec +12 degrees 04m 17s



Palomar 6

What is it? Globular cluster

Why you want to see it: Heavily obscured by dust along the plane of the Milky Way, this small magnitude 11.7 globular will need a transparent sky. It's in a beautiful, starry Milky Way field of view.

Minimum aperture needed: 12-inches.

Criteria for successful observation: See the soft glow of the globular.

Ophiuchus RA 17h 43.7m Dec -26 degrees 13.3m



IC 1296

What is it? Barred spiral galaxy

Why you want to see it: It's hiding right next to M57, the Ring Nebula, and at magnitude 14.8, and only 1.0 x 0.5 arc minutes in size, it's *almost* overwhelmed by the brightness of M57. It's best to look at M57 after observing IC 1296...

Minimum aperture needed: 18-inches.

Criteria for successful observation: Detect the faint glow of IC 1296's core. *Seeing both spiral arms counts as a second observation.*

Lyra RA 18h 53m 19s Dec +33 degrees 03m 57s



Arp GC 2

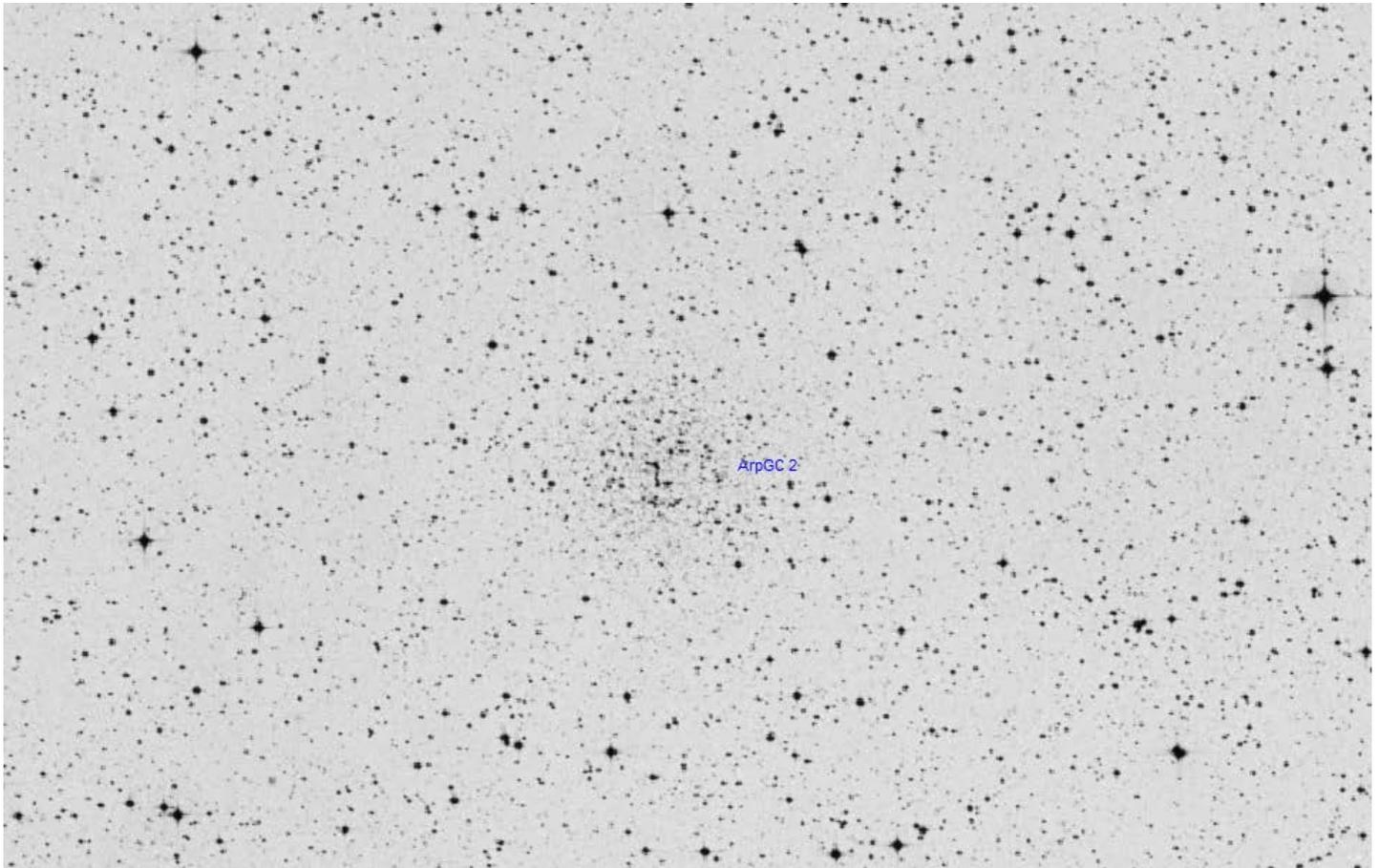
What is it? Globular cluster (not a peculiar galaxy!)

Why you want to see it: This 15th magnitude globular cluster is one of several extra-galactic globulars captured by the Milky Way from the Sagittarius Dwarf Spheroidal Galaxy. It's located about two degrees west of M55, which makes a great place to start your star hop.

Minimum aperture needed: 12-inches.

Criteria for successful observation: See the faint glow of the globular.

Sagittarius **RA 19h 28m 44s** **Dec -30 degrees 21m 20s**



WR 134 nebula

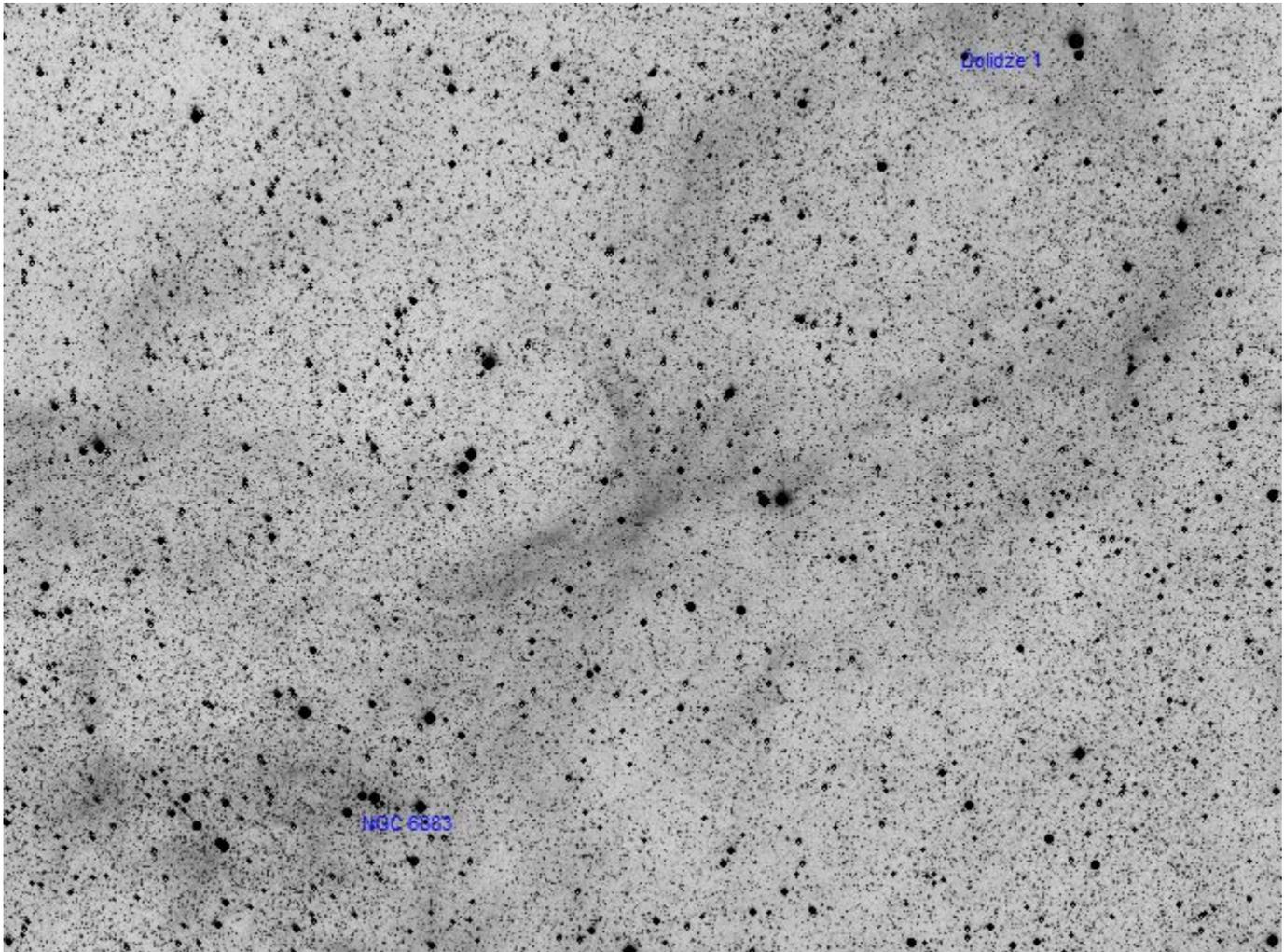
What is it? Wolf-Rayet nebula

Why you want to see it: Just two degrees south of the larger, brighter and better-known Wolf-Rayet nebula, NGC 6888, WR 134 is tucked away among a crowded Milky Way star field making it a challenge to find. Use an OIII filter for best results.

Minimum aperture needed: 10-inches.

Criteria for successful observation: See the wide, short arc of the 8th magnitude Wolf-Rayet nebulosity.

Cygnus RA 20h 10.2 m Dec + 36degrees 11m



IC 1311

What is it? Open Cluster

Why you want to see it: IC 1311 is a beautiful, condensed open cluster that everyone should see. The total magnitude of the cluster is 13.1 but the magnitude of the brightest individual stars is 17.0.

Minimum aperture needed: 4-inches for the cluster, 16 inches for individual stars.

Criteria for successful observation: Resolve the open cluster into individual stars.

Cygnus RA 20h 10m 47s Dec +41 degrees 10m 19s



Henize 1-5 and FG Sge

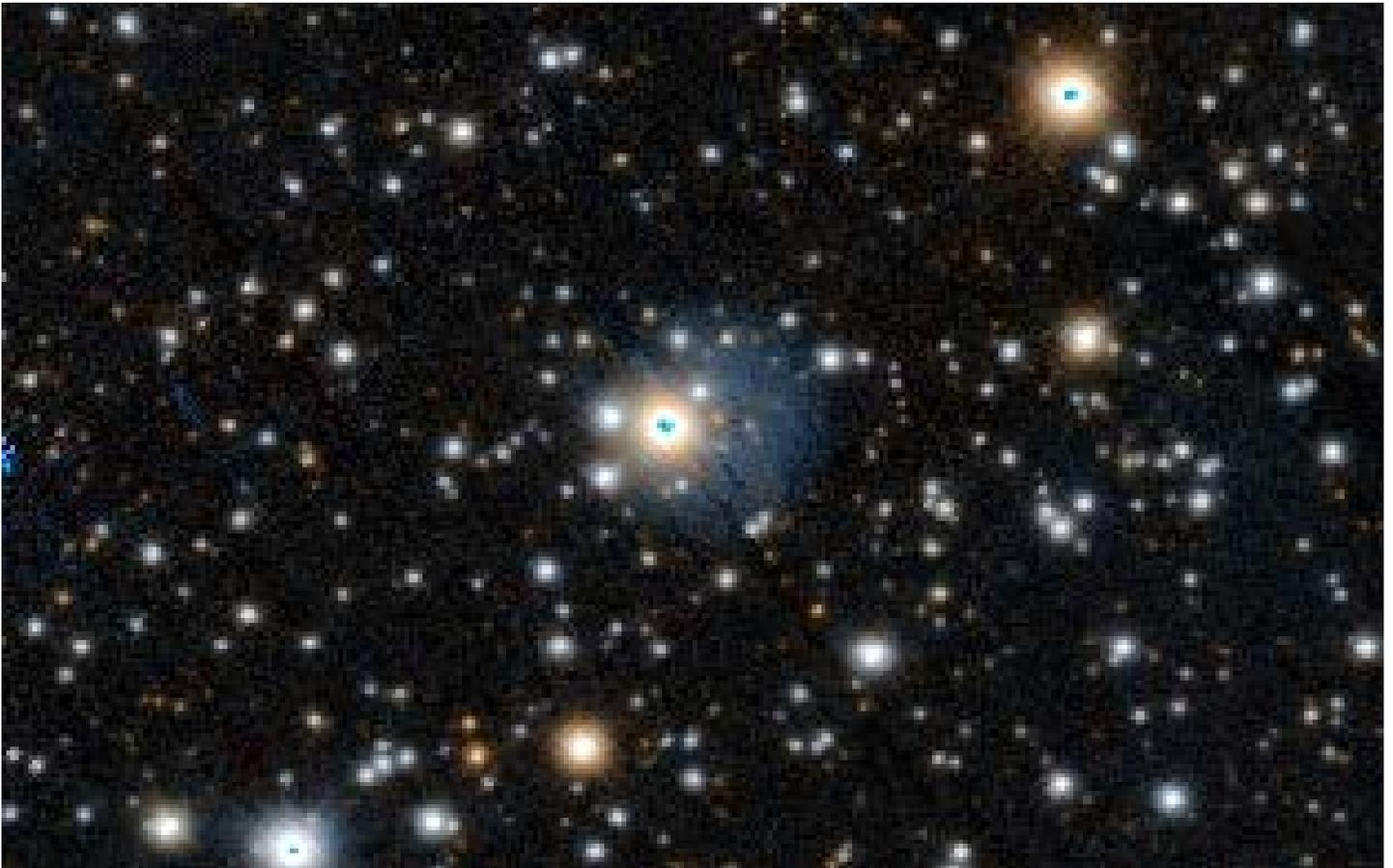
What is it? Henize 1-5 is a planetary nebula and FG Sge is its variable central star

Why you want to see it: The central star, FG Sge, has varied from magnitude 9.5 to 18 and its current brightness will determine how easy or difficult it will be to see its planetary nebula, Henize 1-5. The planetary responds well to an OIII filter. Note that in the photo below the central star FG Sge is quite faint – the bright star immediately to its left is not related to Henize 1-5.

Minimum aperture needed: 12-inches.

Criteria for successful observation: See the nebula and its central star.

Sagitta RA 20h 11m 56s Dec +20 degrees 20m 05s



Parsamyan 22

What is it? Bi-polar reflection nebula

Why you want to see it: This nebula is part of the evolution of a pre-main sequence star and will be dissipated by the time the star reaches the main sequence. The nebula appears as a short arc, and is framed by the open cluster Dolidze 8.

Minimum aperture needed: 16-inches

Criteria for successful observation: See the short arc of nebulosity, and enjoy the open cluster Dolidze 8.

Cygnus RA 20h 24m 29s Dec +42 degrees 14m 02s



VV 738

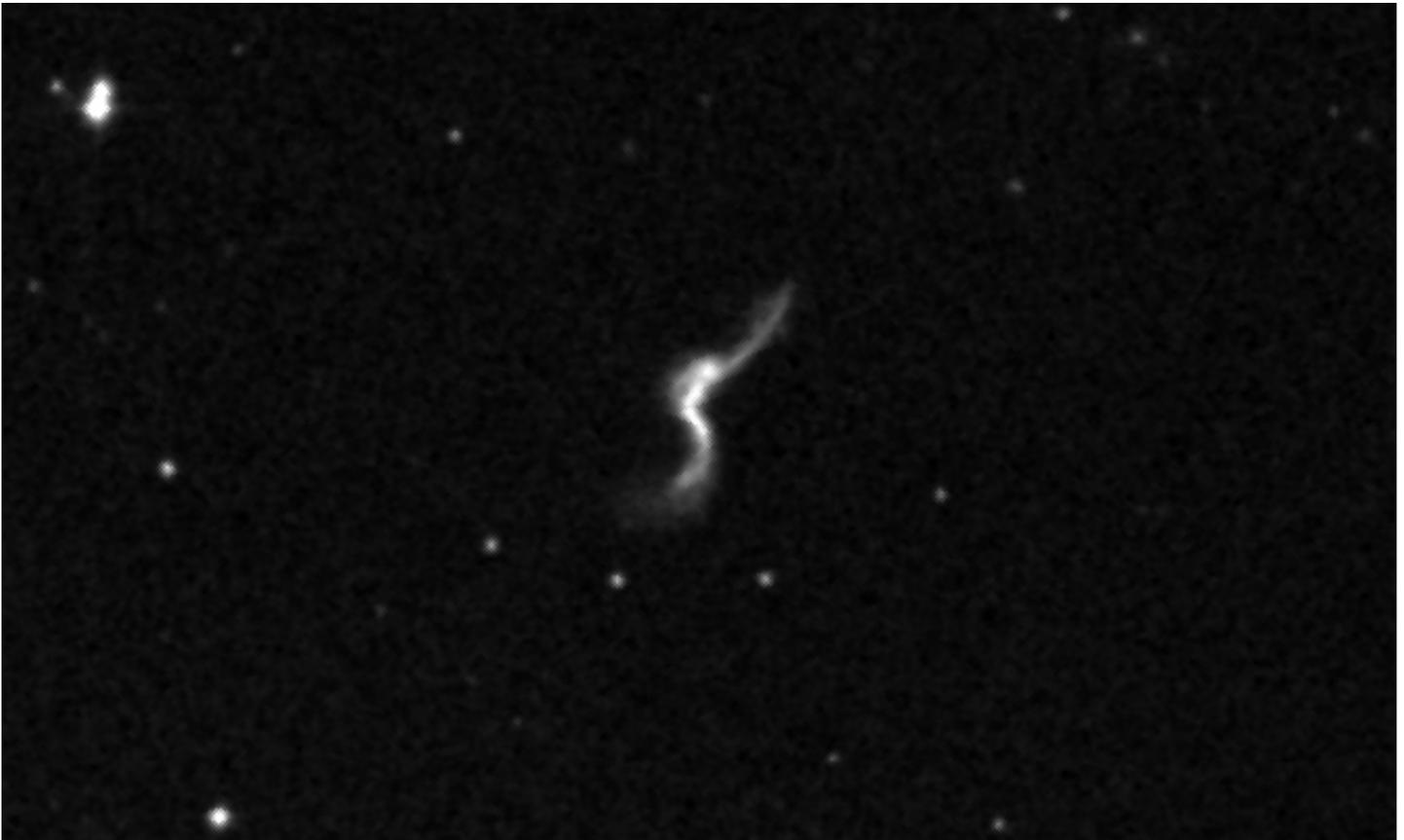
What is it? Two interacting galaxies

Why you want to see it: If you like seeing tidal streams of stars and dust created by the interaction of two galaxies, this should be irresistible. This is relatively faint at 15th magnitude but is 13 x 5 arc minutes in size. Try to keep the 11th magnitude double star (upper left corner of photo) out of your field of view to best see these merging galaxies.

Minimum aperture needed: 16-inch.

Criteria for successful observation: See at least one of the tidal tails. *Seeing both tidal tails counts as two observations.*

Pegasus RA 23h 04m 53s Dec +16 degrees 40m 42s



NGC 7742 – the Fried Egg galaxy

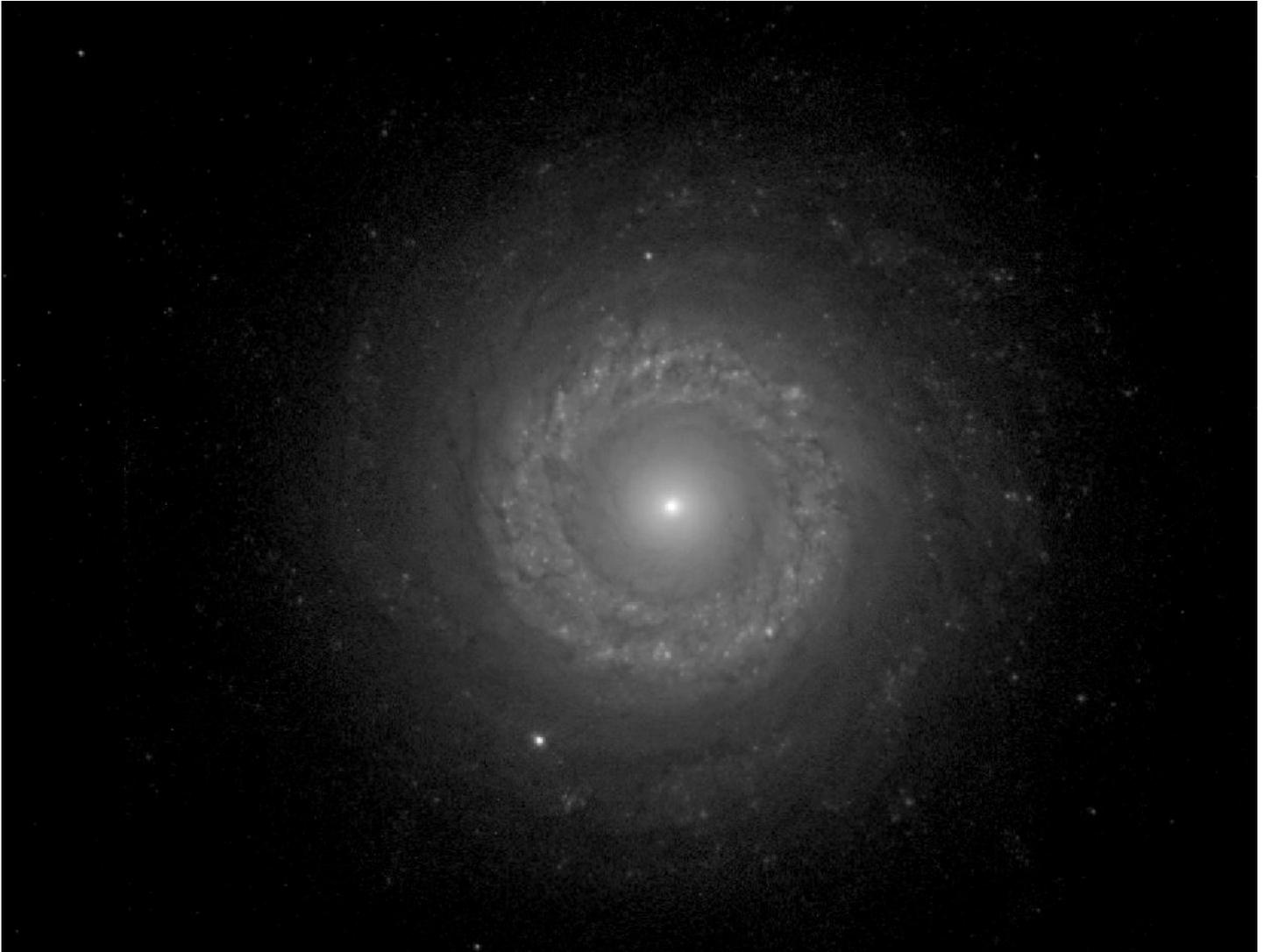
What is it? Seyfert II AGN SA galaxy

Why you want to see it: This is a highly unusual, magnitude 11.9 galaxy that combines a bright AGN core with a nuclear ring, and has a faint outer halo of spiral arms. It's in the same class of galaxies as Hoag's Ring, and we'll need steady seeing and very transparent skies to see the nuclear ring.

Minimum aperture needed: 18-inches.

Criteria for successful observation: See the core and the nuclear ring.

Pegasus RA 23h 44m 15s Dec +10 degrees 46m



Donatiello I – Mirach’s Goblin

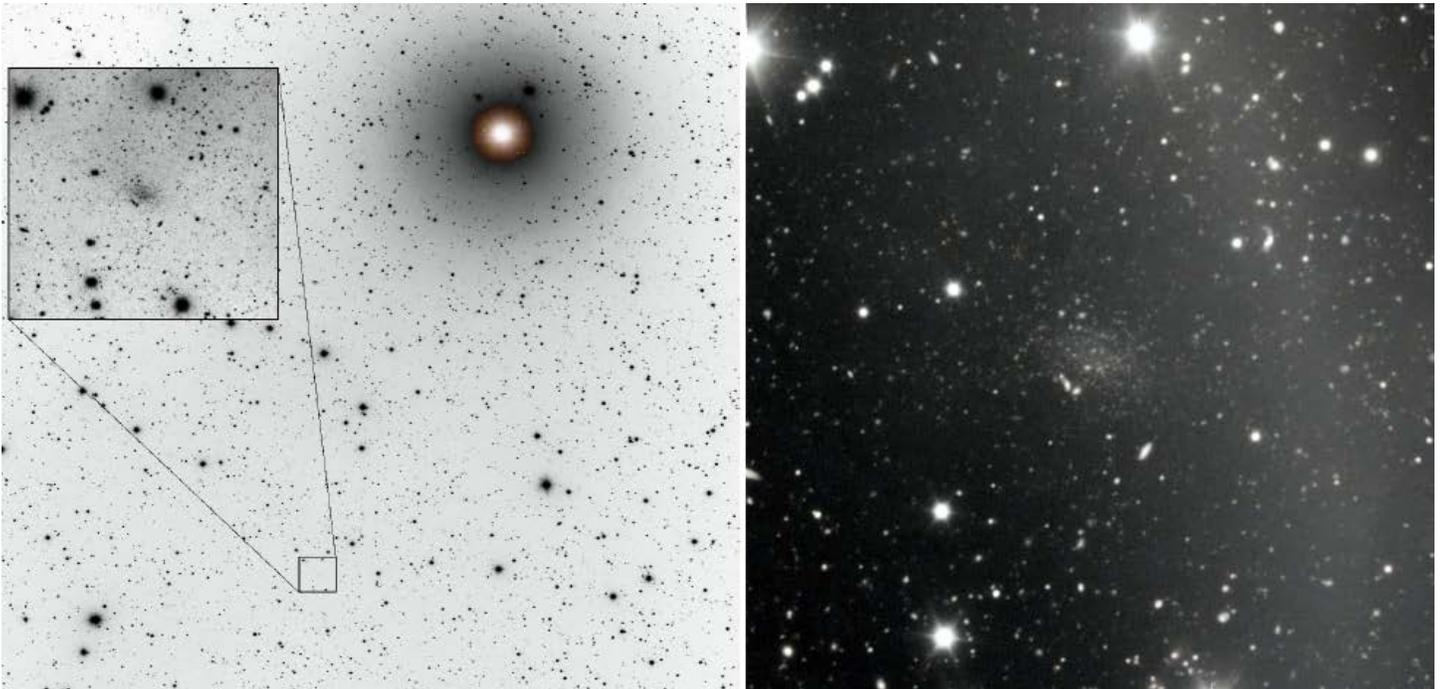
What is it? Dwarf spheroidal galaxy

Why you want to see it: It was photographically discovered by an amateur astronomer with a 5-inch telescope, and at an estimated distance of 10 million light years is a possible companion to the galaxy NGC 404, aka Mirach’s Ghost.

Minimum aperture needed: No idea, this galaxy is barely brighter than the background sky.

Criteria for successful observation: Detect any trace of the galaxy.

Andromeda RA 01h 11m 40s Dec +34 degrees 36m 03s



Arp 273 – Hubble’s Rose

What is it? Two interacting galaxies

Why you want to see it: As its nickname implies, these two galaxies, UGC 1810 (upper right) and UGC 1813, (lower left) create a flower like appearance in long exposure photos. The galaxy’s cores are listed at visual magnitudes 12.9 and 14.2, but the graceful spiral arms are much fainter. You’ll need a good night to have a chance to detect them.

Minimum aperture needed: 14-inches.

Criteria for successful observation: See at least one spiral arm. *Seeing more than one spiral arm counts as two observations.*

Andromeda RA 02h 21m 29s Dec +39 degrees 22 m 31s



Object	Object type	RA	Dec	Constellation	V Mag	Criteria for successful observation - observe any 10 objects to qualify for the Level 3 certificate and pin.
NGC 5609	The farthest galaxy in the NGC catalog. Perhaps.	RA 14 h 23m 48s	Dec +34 degrees 50m 34s	Bootes	15.7	Detect the faint smudge of this galaxy.
IC 4593 – the White-Eyed Pea	Planetary nebula	RA 16h 11m 44s	Dec +12 degrees 04m 17s	Hercules	11	See the nebula's greenish-blue color and the central star.
Palomar 6	Globular cluster	RA 17h 43.7m	Dec -26 degrees 13.3m	Ophiuchus	11.7	See the soft glow of the globular.
IC 1296	Barred spiral galaxy	RA 18h 53m 19s	Dec +33 degrees 03m 57s	Lyra	14.8	Detect the faint glow of IC 1296's core. Seeing both spiral arms counts as a second observation.
Arp GC 2	Globular cluster (not a peculiar galaxy!)	RA 19h 28m 44s	Dec -30 degrees 21m 20s	Sagittarius	15	See the faint glow of the globular.
WR 134 nebula	Wolf-Rayet nebula	RA 20h 10.2m	Dec + 36degrees 11m	Cygnus	?	See the wide, short arc of the 8th magnitude Wolf-Rayet nebulosity.
IC 1311	Open cluster	RA 20h 10m 47s	Dec +41 degrees 10m 19s	Cygnus	13.1/17	Resolve the open cluster into individual stars.
Henize 1-5 and FG Sge	Henize 1-5 planetary nebula / FG Sge variable central star	RA 20h 11m 56s	Dec +20 degrees 20m 05s	Sagitta	?	See the nebula and its central star.
Parsamyan 22	Bi-polar reflection nebula	RA 20h 24m 29s	Dec +42 degrees 14m 02s	Cygnus	?	See the short arc of nebulosity, and enjoy the open cluster Dolidze 8
VV 738	Two interacting galaxies	RA 23h 04m 53s	Dec +16 degrees 40m 42s	Pegasus	15	See at least one of the tidal tails. Seeing both tidal tails counts as two observations.
NGC 7742 - the Fried Egg galaxy	Seyfert II AGN SA galaxy	RA 23h 44m 15s	Dec +10 degrees 46m	Pegasus	11.9	See the core and the nuclear ring.
Donatiello I – Mirach's Goblin	Dwarf spheroidal galaxy	RA 01h 11m 40s	Dec +34 degrees 36m 03s	Andromeda	?	Detect any trace of the galaxy
Arp 273 – Hubble's Rose	Arp 273 – Hubble's Rose	RA 02h 21m 29s	Dec +39 degrees 22 m 31s	Andromeda	12.9/14.2	See at least one spiral arm. Seeing more than one spiral arm counts as two observations.
ACO 347	Galaxy cluster	RA 02h 25m 27s	Dec +41 degrees 49m 27s	Andromeda	12.1/17	Observe any 15 galaxies within the boundaries of the supplied photo.
						V1.3

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