

Texas Star Party
Advanced Observing Program
Years 2007 to 2012

List created by Larry Mitchell

Star charts compiled by Alvin Huey

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Introduction

This is a quick compilation of all Texas Star Party Advanced Observing (AO) lists compiled by Larry Mitchell to encourage you to go out and challenge yourself to seek them out visually through the eyepiece.

As Larry said, please star hop to the object versus using a computer or a Goto system. You will learn the sky well if you do that. Use the upper left chart (or top chart) as the first step to point your telescope in the right place, then use the bottom chart with your finder scope or a low-power eyepiece to zero in on the object. The provided DSS image is typically 15' (or more for extended objects). Since this is a quick compilation, I didn't take the time to notate the actual field, but this gives you more than enough information to find the object.

Each "chapter" is a year, and each PDF contains six or seven years. The first volume is from 2000 to 2006, the second is from 2007 to 2012, and the third is from 2013 to 2018. The 2019 to 2021 Advanced Observing Lists are curated lists of the best of the best of 2000 to 2018 AO programs.

I should note several things in this *quick* compilation.

- Each year, the original TSP AO list by Larry is provided at the beginning of each chapter.
- Many of the objects in Larry's lists are in one or more of our observing guides, so I merely copied/pasted from them. So some charts may be inconsistent in formatting from page to page, but captures the essence of the object.
- I have included the **Urano 2** (Uranometrica 2000.0, the Second Edition) and the interstellarium Deep Sky Atlas (**iDSA**) page numbers. The object may not necessarily be plotted on the charts, but the page number references the part of the sky where the object is located.
- A few AO lists are entirely captured in one or more of our guides, so I included a chart with the page numbers of the corresponding guide. For example, the 2004 AO program is for globular clusters; the entire AO list is in the globular cluster guide. Same with 2010 super-thin galaxies.
- This compilation is only available as a PDF.

2007: The A, B, Cs of Galaxies

Advanced Observing List – The Texas Star Party - 2007

The A, B, C's of Galaxies

Larry Mitchell - Houston Astronomical Society

| <u>Object</u> | <u>2000</u> | <u>Const.</u> | <u>Mag.</u> | <u>Size</u> | <u>Type</u> | <u>RV</u> | <u>U1</u> | <u>U2</u> |
|---------------------------------|-----------------------|---------------|-------------|-------------|-------------|-----------|-----------|-----------|
| A. __Ant Galaxy, U6046, VV149 | 10 56 50.9 + 06 54 21 | Leo | 14.6 (P) | 1.1 x 0.6' | SBcd | -- | 191 | 92L |
| __Arakelian 320 | 11 45 33.0 + 58 58 42 | UMa | 13.9 (B) | 1.0 x 0.8' | SO? | +2,979 | 47 | 24R |
| __Arakelian 450, UGC 9241 | 14 25 20.9 + 32 28 47 | Boo | 14.5 (P) | 0.6 x 0.5' | S? | +4,157 | 111 | 52R |
| B. __Bears Paw, NGC2537 | 08 13 14.5 + 45 59 31 | Lyn | 11.7 (V) | 1.9 x 1.7' | SB(s)mpec | +444 | 69 | 40L |
| __The "Box", Hickson 61A | 12 12 18.5 + 29 10 47 | Com | 13.2 (B) | 12.1 x 3.0' | Cluster | +3783 | 107 | 72L |
| C. __Coddington's Neb, DDO81 | 10 28 22.5 + 68 24 59 | Uma | 10.8 (B) | 13.2 x 5.3' | SAB(s)m | -4 | 24 | 14L |
| __Copeland's Septet, Hic 57A | 11 37 53.8 + 21 58 51 | Leo | 14.5 (B) | 4.6 x 2.3' | Cluster | +8,717 | 147 | 72R |
| __Cygnus A, MCG +7-41-3 | 19 59 28.4 + 40 44 02 | Cyg | 15.5 (V) | 0.6 x 0.4' | S? | +16,837 | 84 | 33L |
| D. __DDO 70, Sextan's B | 09 59 59.6 + 05 19 53 | Sex | 11.9 (B) | 5.1 x 3.5' | IB(s)m | +301 | 189 | 113L |
| __Denis J10110217-3941366 | 10 11 02.2 - 39 41 37 | Ant | 14.0 (P) | 1.2 x 0.8' | Dbl | -- | 399 | 169R |
| __DDO 180, MCG-2-35-10 | 13 38 10.3 - 09 48 04 | Vir | 12.8 (B) | 2.2 x 1.8' | SB(s)m | +1,300 | 286 | 131L |
| E. __ESO 508-48, NGC5078 | 13 19 50.1 - 27 24 37 | Hya | 12.0 (B) | 4.0 x 1.9' | SA(s): sp | +2,157 | 330 | 149R |
| __ESO 510-11, MCG-4-33-10 | 13 54 26.4 - 26 34 33 | Hya | 14.4 (P) | 1.6 x 0.8' | SABra | +5,892 | 331 | 149L |
| F. __Fairall 32, PGC 42715 | 12 42 48.2 - 39 32 02 | Cen | 15.0 | 0.4 x 0.3' | -- | -- | 402 | 167R |
| __Flywing Galaxy, N5152/53 | 13 27 50.2 - 29 37 05 | Hya | 13.3 (P) | 2.2 x 0.9' | SB(s)b | +4,456 | 370 | 167L |
| __Fath 703, NGC5892 | 15 13 48.2 - 15 27 52 | Lib | 12.3 (P) | 3.5 x 2.8' | SA(s)jd | +2,375 | 289 | 130L |
| G. __Gamma Leo Group, N3190 | 10 18 05.7 + 21 49 57 | Leo | 12.1 (B) | 18.3 x 8.3' | Cluster | +1,289 | 144 | 73R |
| __GMP 2440, IC 4045 | 13 00 48.7 + 28 05 26 | Com | 15.0 (B) | 0.7 x 0.4' | E4 | +6,911 | 109 | 71R |
| H. __Holmberg 233A, UGC6219 | 11 10 57.2 + 19 10 56 | Leo | 14.9 (P) | 1.5 x 0.3' | S? | +6,233 | 146 | 73L |
| __Harcastle's Galaxy | 13 12 55.2 - 32 41 16 | Cen | 13.3 (P) | 5.6 x 1.5' | SB(s)dsp | +2,382 | 370 | 167R |
| __Holmberg V, UGC 8658 | 13 40 40.3 + 54 20 00 | UMa | 13.1 (B) | 2.8 x 1.8' | SAB(rs)c | +1,977 | 49 | 23R |
| I. __IRAS 11290-3001, N3717 | 11 31 32.1 - 30 18 25 | Hya | 12.2 (B) | 7.4 x 1.5' | SAB : sp | +1,724 | 367 | 168R |
| __IC 750 & 749 | 11 58 51.8 + 42 43 20 | UMa | 12.9 (B) | 2.6 x 1.1' | Sab : sp | +703 | 74 | 38L |
| __IC 1017, UGC 9276 | 14 28 07.3 + 25 52 08 | Boo | 14.7 (P) | 1.0 x 0.6' | SO? | +4,370 | 152 | 70R |
| __IC 1042, UGC 9457 | 14 40 39.0 + 03 28 11 | Vir | 14.3 (P) | 1.0' | SO ? | +7,929 | 243 | 109L |
| J. __"Jet"- M87, NGC4486 | 12 30 49.7 + 12 23 24 | Vir | | | Jet | +1282 | 193 | 91L |
| __J1406-34 (HIPASS), E384-53 | 14 06 35.5 - 34 18 46 | Cen | 12.9 (P) | 2.2 x 1.8" | SAB(rs)bc | +4,881 | 371 | 166R |
| K. __Kug 0913+346B, N2793 | 09 16 47.1 + 34 26 22 | Lyn | 16.5 | 0.4 x 0.3' | -- | -- | 103 | 56R |
| __Kara 72, NGC3545 A/B | 11 10 12.3 + 36 57 52 | UMa | 14.8 | 53 x 40" | Dbl | +8,956 | 106 | 55L |
| __Kug1748+144,CGCG83-28 | 17 50 28.8 + 14 23 35 | Her | 15.0 | 0.7 x 0.2' | Sb | -- | 203 | 86R |
| L. __LEDA 25654, NGC2772 | 09 07 41.7 - 23 37 03 | Pyx | 14.2 (P) | 1.5 x 0.8' | Sb: pec sp | -- | 322 | 152R |
| __Leo I, DDO74, Regul Dwarf | 10 08 27.5 + 12 18 27 | Leo | 11.2 (B) | 9.8 x 7.4' | E3 | +168 | 189 | 93L |
| __Longmore's Group | 13 27 56.0 - 41 08 13 | Cen | 15.8 | 55 x 47" | Cluster-4 | +15,237 | 403 | 184L |
| M. __Miniature Spiral, NGC 3928 | 11 51 47.6 + 48 40 59 | UMa | 13.2 (B) | 1.5 x 1.5' | DA(s)b | +957 | 74 | 38L |
| __Mitchell's Object | 12 17 48.5 + 46 34 54 | CVn | 15.0 | 31 x 25" | Pair | | 74 | 37R |
| __MAC 1554+7046 | 15 54 55.3 + 70 46 17 | UMi | 15.0 | 0.8 x 0.2' | | | 28 | 11R |

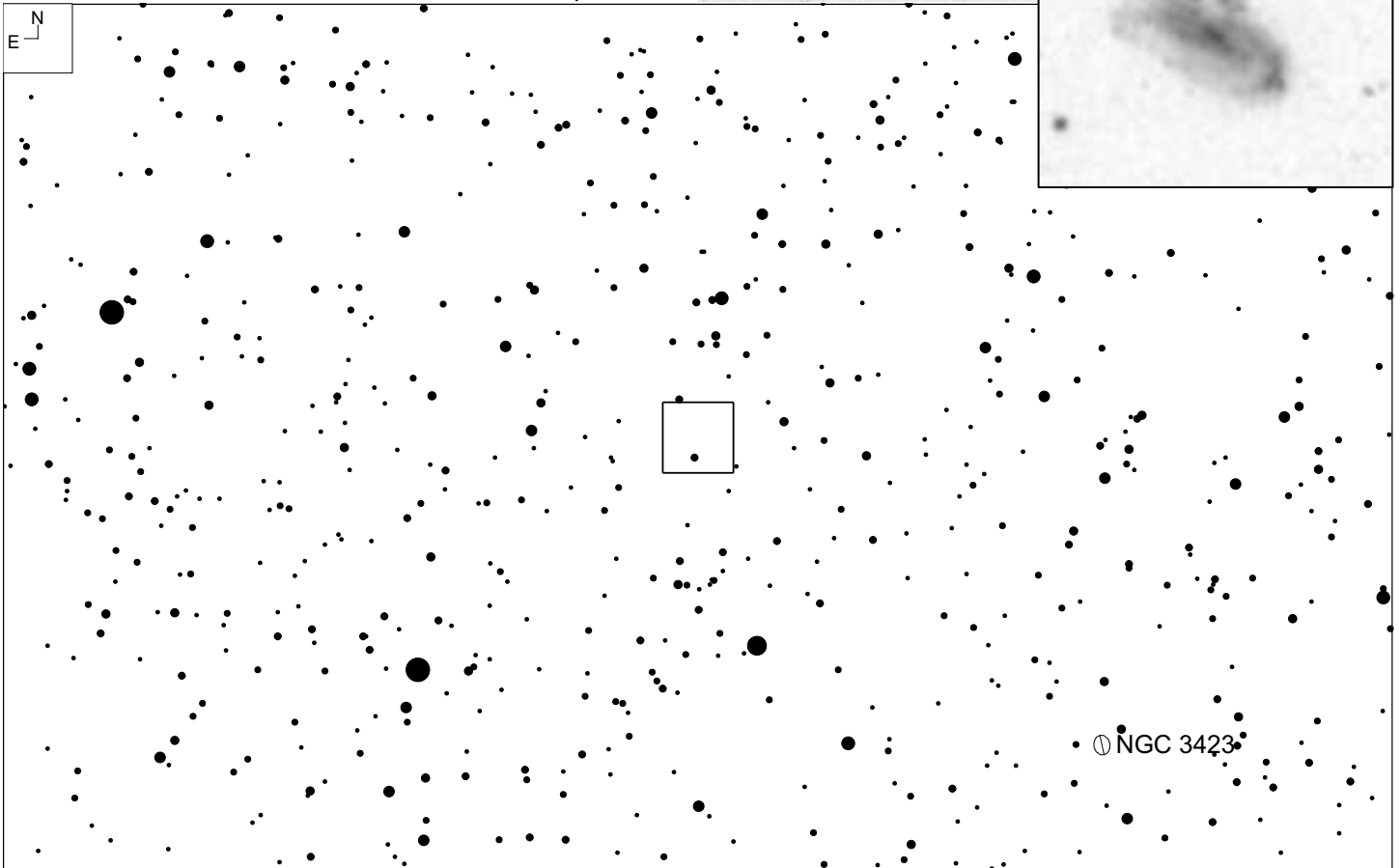
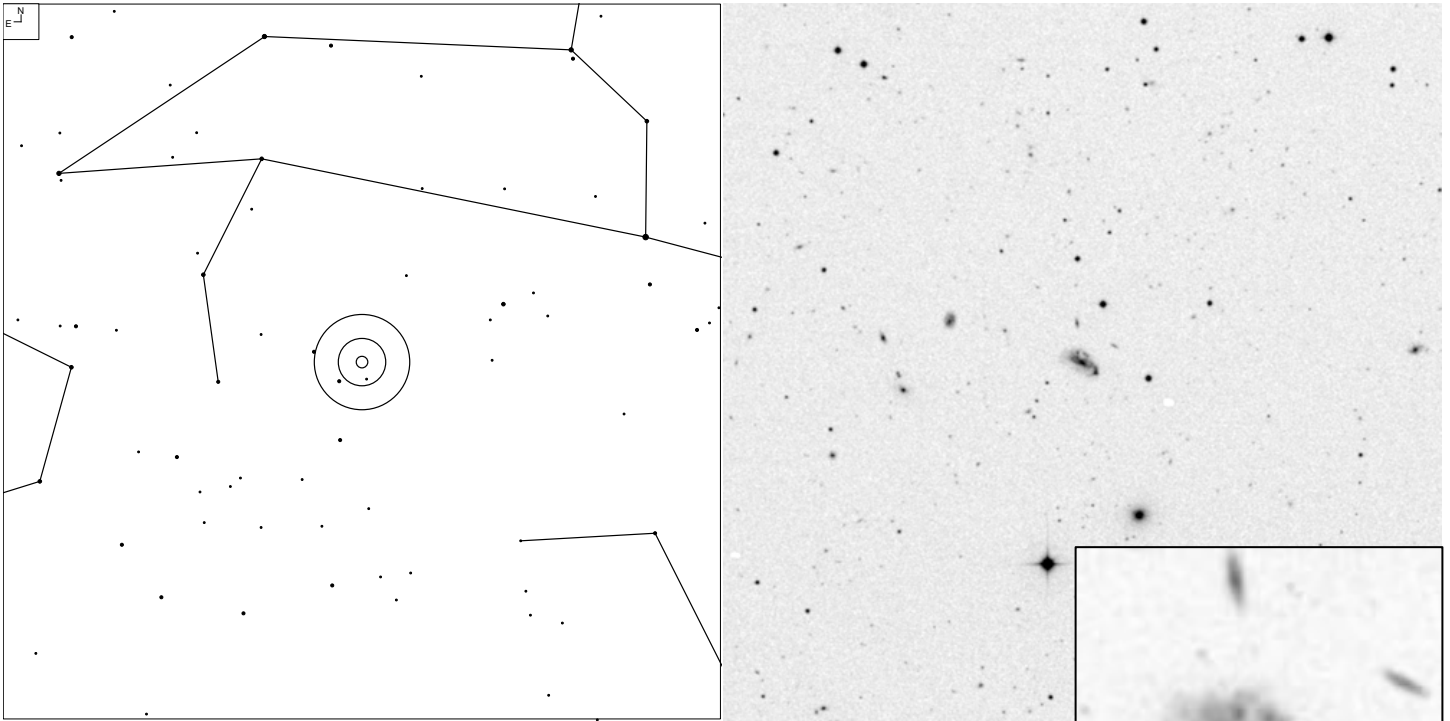
| <u>Object:</u> | <u>2000:</u> | <u>Const.</u> | <u>Mag.</u> | <u>Size</u> | <u>Type</u> | <u>RV</u> | <u>U1</u> | <u>U2</u> |
|-------------------------------|-----------------------|---------------|-------------|-------------|----------------------|-----------|-----------|-----------|
| N. __New 2, Tol 97, NGC4507 | 12 35 36.7 – 39 54 33 | Cen | 12.9 (B) | 1.6 x 1.2' | (R')SAB(rs)h | +3,499 | 402 | 168L |
| __New 3, MCG-2-33-15 | 12 49 23.6 – 10 07 03 | Vir | 12.1 (P) | 4.0 x 3.1' | SB(s)m | +1,319 | 284 | 131R |
| __New 5, IC4946 | 20 23 58.0 – 43 59 44 | Sgr | 12.6 (B) | 2.4 x 1.0' | SAB(rs) o/a | +2,921 | 411 | 179R |
| O. __OQ 240, 1424+240 | 14 27 00.4 + 23 47 59 | Boo | 15.0 var | -- | Blazar | | 152 | 70R |
| P. __Papillon, IC 708 | 11 33 59.2 + 49 03 43 | UMa | 14.0 (P) | 1.1 x 1.1' | E | +9,591 | 73 | 38L |
| __Polarissima Borealis, N3172 | 11 47 14.4 + 89 05 34 | UMi | 14.8 | 1.2 x 1.1' | Sb | -- | 1 | 1R |
| __POX 36, ESO 572-34 | 11 58 58.4 – 19 01 41 | Crv | 14.2 (p) | 1.1 x 0.8' | 1Bm | +1,075 | 327 | 150R |
| Q. __Q0957+561, Dbl. Quasar | 10 01 20.7 + 55 53 56 | UMa | 17.3 | Stellar | Quasar | z=1.413 | 45 | 25L |
| __QRM 95 1320-32 | 13 24 37.7 – 32 28 48 | Cen | 13 (?) | Stellar | | | 370 | 167L |
| __QRM 95 1320-31 | 13 26 54.4 – 31 58 14 | Cen | | Stellar | | | 370 | 167L |
| R. __RR 210a, NGC4105 / 06 | 12 06 40.9 – 29 45 42 | Hya | 11.6 (B) | 3.2 x 2.6' | Dbl | +4,943 | 368 | 168L |
| __Reinmuth 80, NGC4517a | 12 32 28.1 + 00 23 22 | Vir | 12.5 (V) | 5.1 x 3.4' | SB(rs)dm | +1,501 | 239 | 111L |
| __RBS 1372, ESO 511-30 | 14 19 22.3 – 26 38 40 | Hya | 13.3 (P) | 3.3 x 2.5' | SA(rs)c pec | +6,683 | 332 | 148R |
| __Reitz 4115, DDO 190 | 14 24 43.9 + 44 31 35 | Boo | 13.3 (B) | 2.2 x 2.2' | IAM | +153 | 77 | 36R |
| S. __Spindle Galaxy, NGC 3115 | 10 05 13.8 – 07 43 05 | Sex | 9.9 (B) | 7.2 x 2.4' | SOsp | +670 | 279 | 133R |
| __Shapley – Ames 4, U8041 | 12 55 12.8 + 00 06 59 | Vir | 12.6 (P) | 3.0 x 1.8' | SB(s)d | +1,340 | 239 | 110R |
| __Sancho's Object | 15 10 15.8 + 58 10 42 | Dra | 16.0 | 41 x 34" | | | 50 | 22R |
| __Shakhbazian 16 | 16 49 11.5 + 53 25 10 | Dra | 15.6 | 4.1 x 1.1' | Cluster | | 52 | 22L |
| T. __Tol 9, ESO 436-42 | 10 34 38.9 – 28 35 02 | Hya | 13.4 (P) | 0.9 x 0.4' | SB9rs)bc | +3,451 | 366 | 151R |
| __Tol 60, ESO 379-22 | 12 01 20.6 – 33 52 36 | Hya | 14.1 (P) | 1.1 x 0.7' | S? | +3,031 | 368 | 168L |
| __Tol 74, IC 3639 | 12 40 52.7 – 36 45 21 | Cen | 13.9 (P) | 1.2 x 1.1' | SB(rs)bc | +3,309 | 369 | 167R |
| U. __UM 500, UGC7531 | 12 26 11.8 – 01 18 16 | Vir | 14.4 | 1.0 x 0.8' | 1Bm pec | +1,800 | 238 | 111L |
| __UGC 7883, CGCG 15-2 | 12 42 57.4 – 01 13 44 | Vir | 13.7 (P) | 2.6 x 0.6' | SA(s)cd sp | -- | 239 | 110R |
| __UGCA 382 / 383 | 14 04 37.2 – 24 49 53 | Hya | 14.0 (P) | 3.9 x 2.5' | SB(s)cd? | +2,333 | 331 | 148R |
| V. __VV 229, UGC6204, Arp 301 | 11 09 51.7 + 24 15 40 | Leo | 14.8 (P) | 1.8 x 1.6' | Dbl | +6,288 | 146 | 73L |
| __VCC 1535, NGC4526 | 12 34 02.9 + 07 42 01 | Vir | 10.7 (B) | 7.2 x 2.3' | SAB(s)O [^] | +575 | 194 | 91L |
| __VCC 1555, NGC 4535 | 12 34 20.3 + 08 11 53 | Vir | 9.9 (V) | 7.1 x 5.0' | SAB(s) | +1,973 | 194 | 91L |
| W. __Wild's Triplet, Arp 248 | 11 46 42.5 – 03 50 50 | Vir | 13.7 | 5.9 x 1.9' | Trio | +5,008 | 237 | 111R |
| __WBL 426-063, NGC4864 | 12 59 13.2 + 27 58 35 | Com | 14.6 (B) | 0.7 x 0.7' | E2 | +6,805 | 149 | 71R |
| X. __XXM 2002, Mrk 273, | 13 44 41.9 + 55 52 57 | UMa | 15.1 (P) | 1.3 x 0.3' | Pec | +11,274 | 49 | 23R |
| __XSS J15042+1046, Mrk 841 | 15 04 01.2 + 10 26 16 | Boo | 14.0 | Stellar | XRay S | +10,939 | 198 | 88R |
| Y. __YE 94, 1422+231 | 14 24 38.1 + 22 56 01 | Boo | 16.5 | Stellar | Grav. Lens | z = 3.62 | 152 | 70R |
| Z. __Zwicky #2, DDO 105 | 11 58 29.9 + 38 04 33 | UMa | 13.8 (B) | 5.6 x 2.5' | IB(s)m | +909 | 107 | 54R |
| __Zwicky's Triplet, Arp 103 | 16 49 28.1 + 45 27 42 | Her-- | | 3.3 x 1.0' | Sa | +9,405 | 80 | 34R |

Good Luck - Good Hunting – Good Times

<>Observe any 20 Letters – Your Choice<>

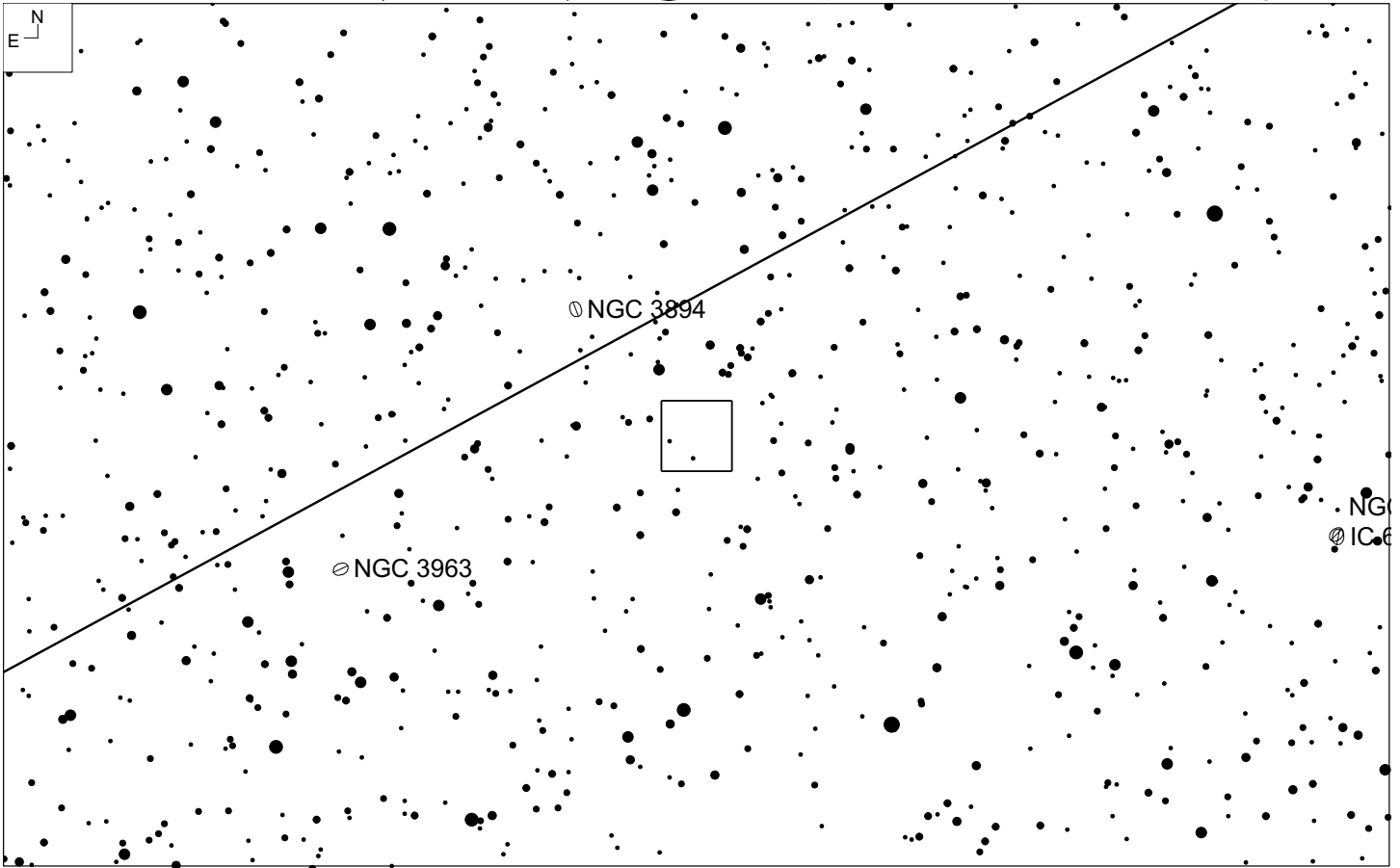
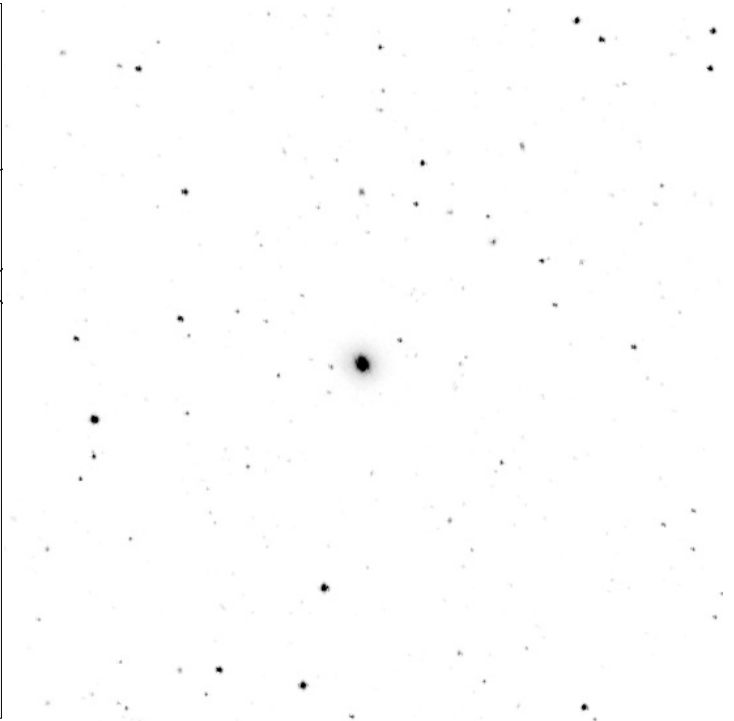
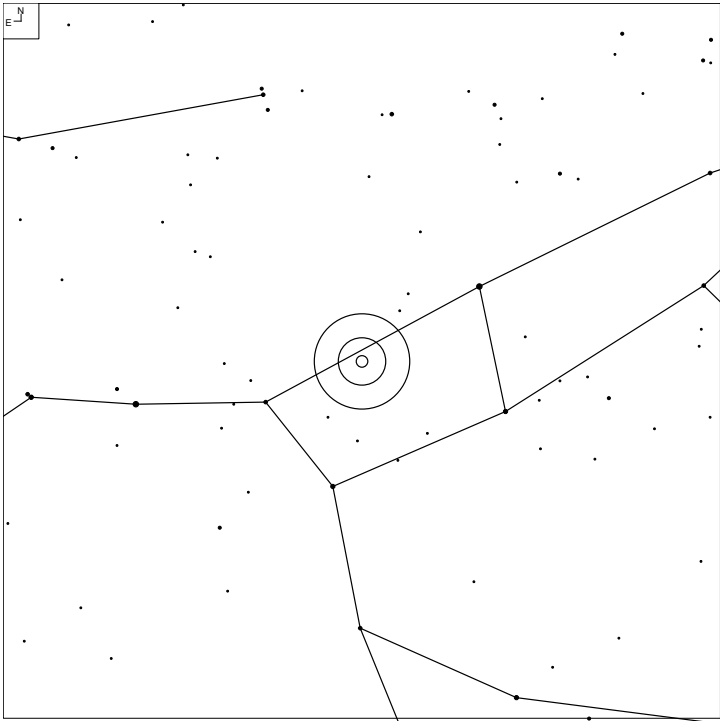
LARRY MITCHELL

Ant Galaxy (Leo)



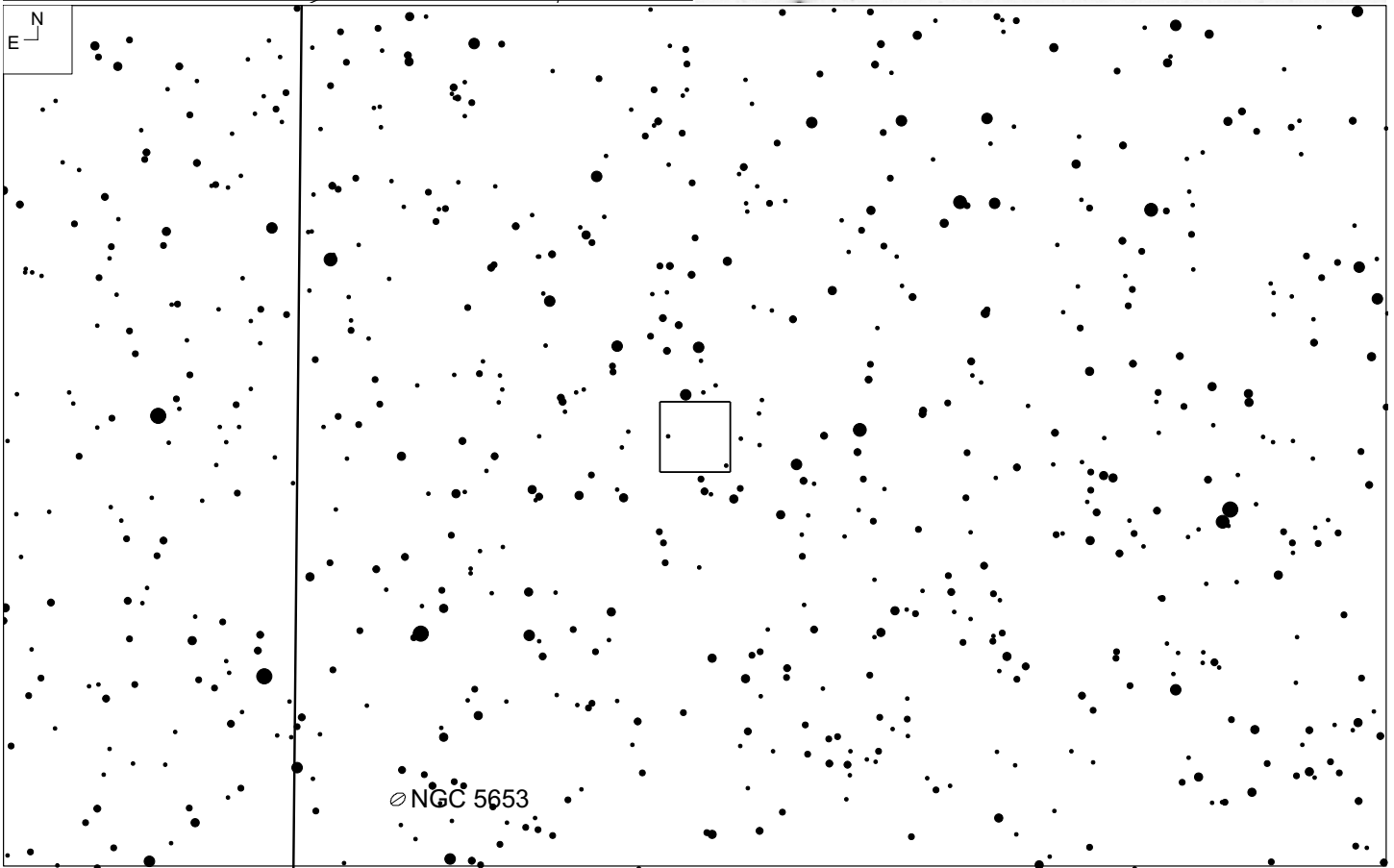
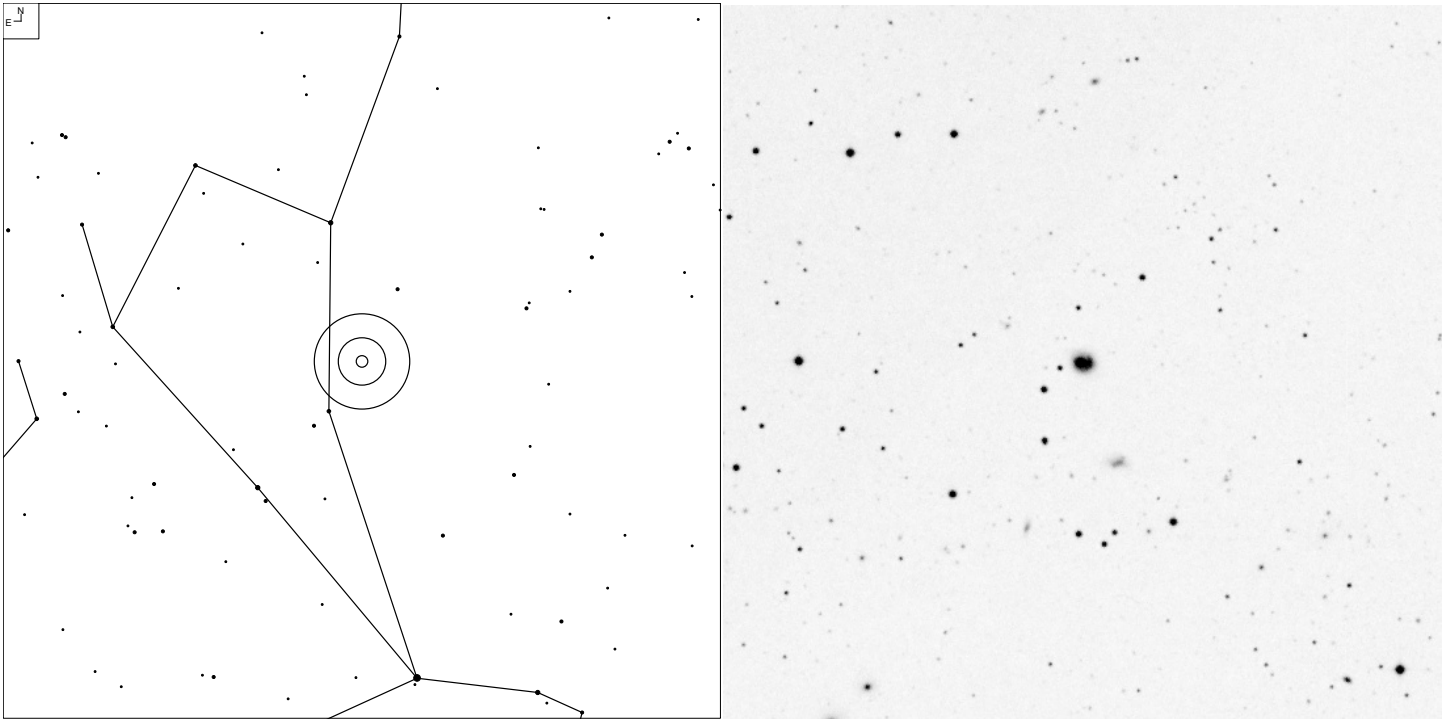
| Other ID | RA | Dec | Mag | Size | Type | Urano2 | iDSA |
|-----------------|------------|-----------|-------|------------|------|--------|------|
| UGC 6046, VV149 | 10 56 50.9 | +06 54 21 | 14.6p | 1.1 x 0.6' | SBcd | 92L | 58 |

Arakelian 320 (Ursa Major)



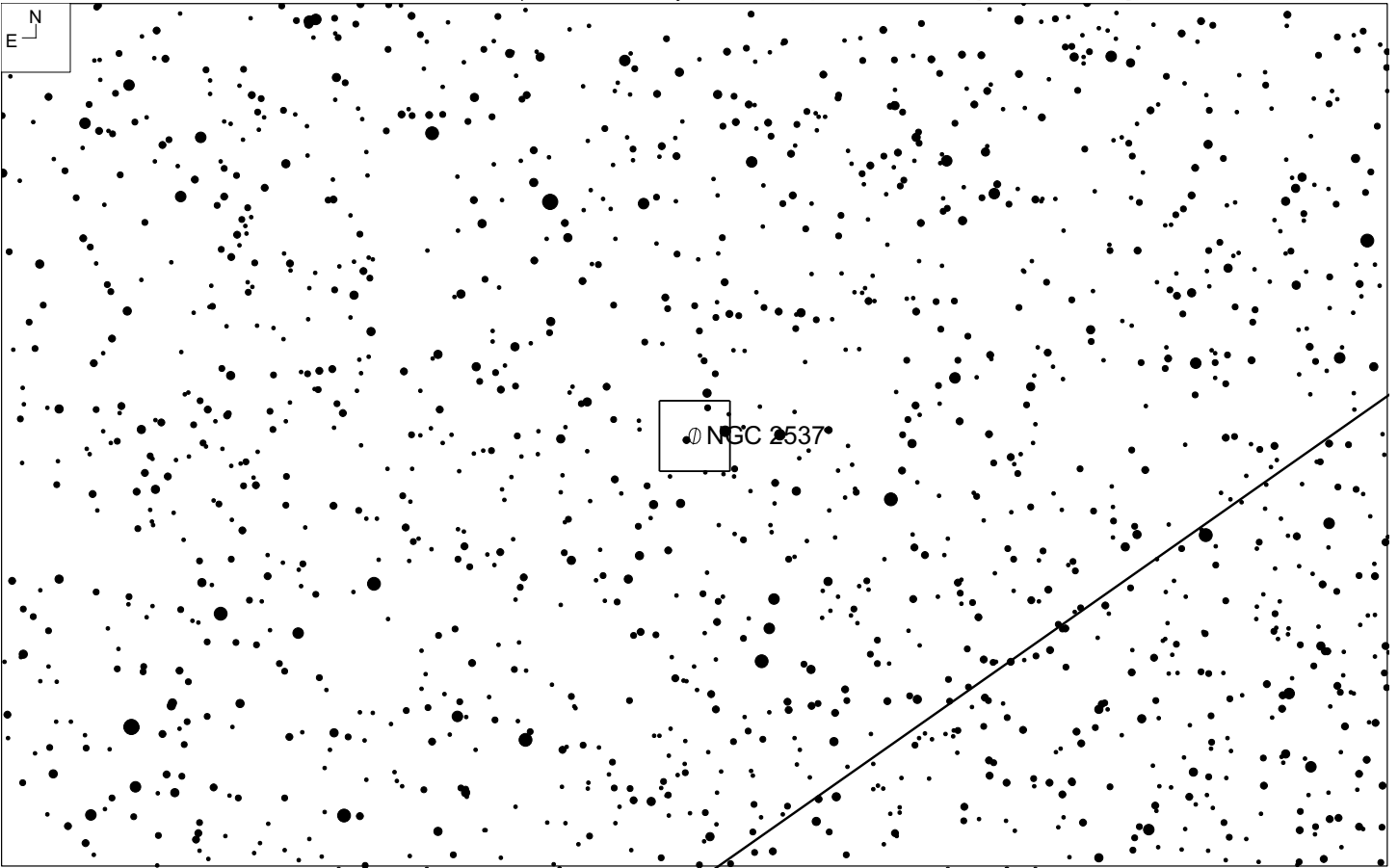
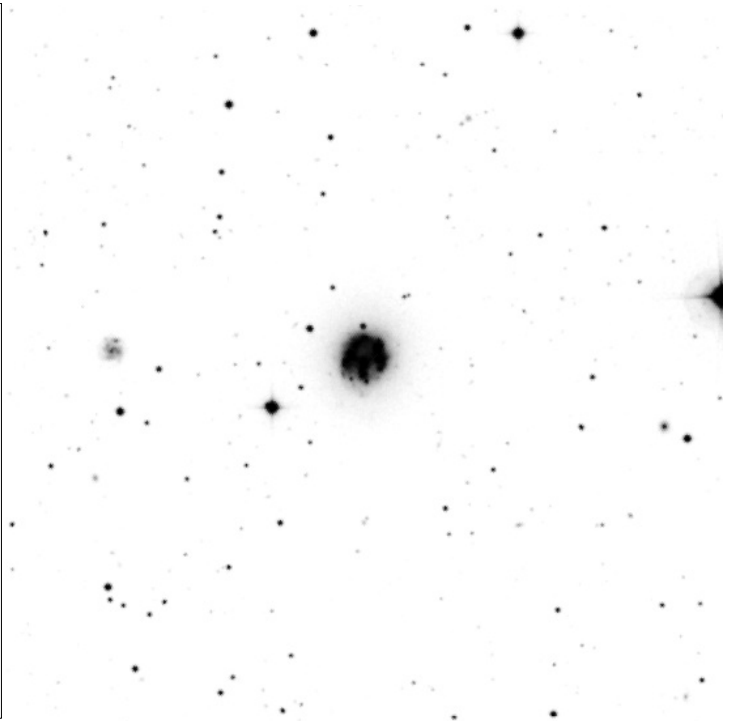
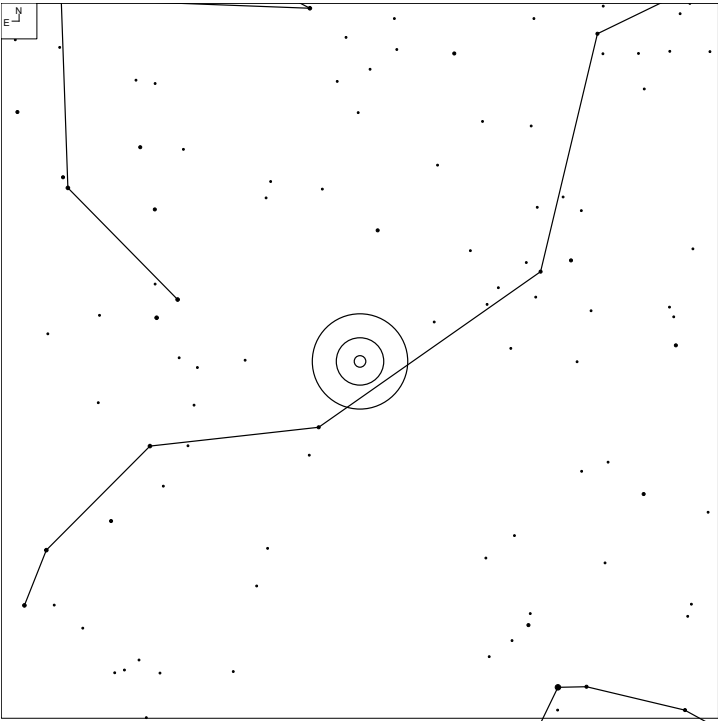
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|----------|------------|-----------|-------|------------|------|---------|------|
| UGC 6732 | 11 45 33.0 | +58 58 42 | 13.9b | 1.0 x 0.8' | SO? | 24R | 12 |

Arakelian 450 (Boötes)



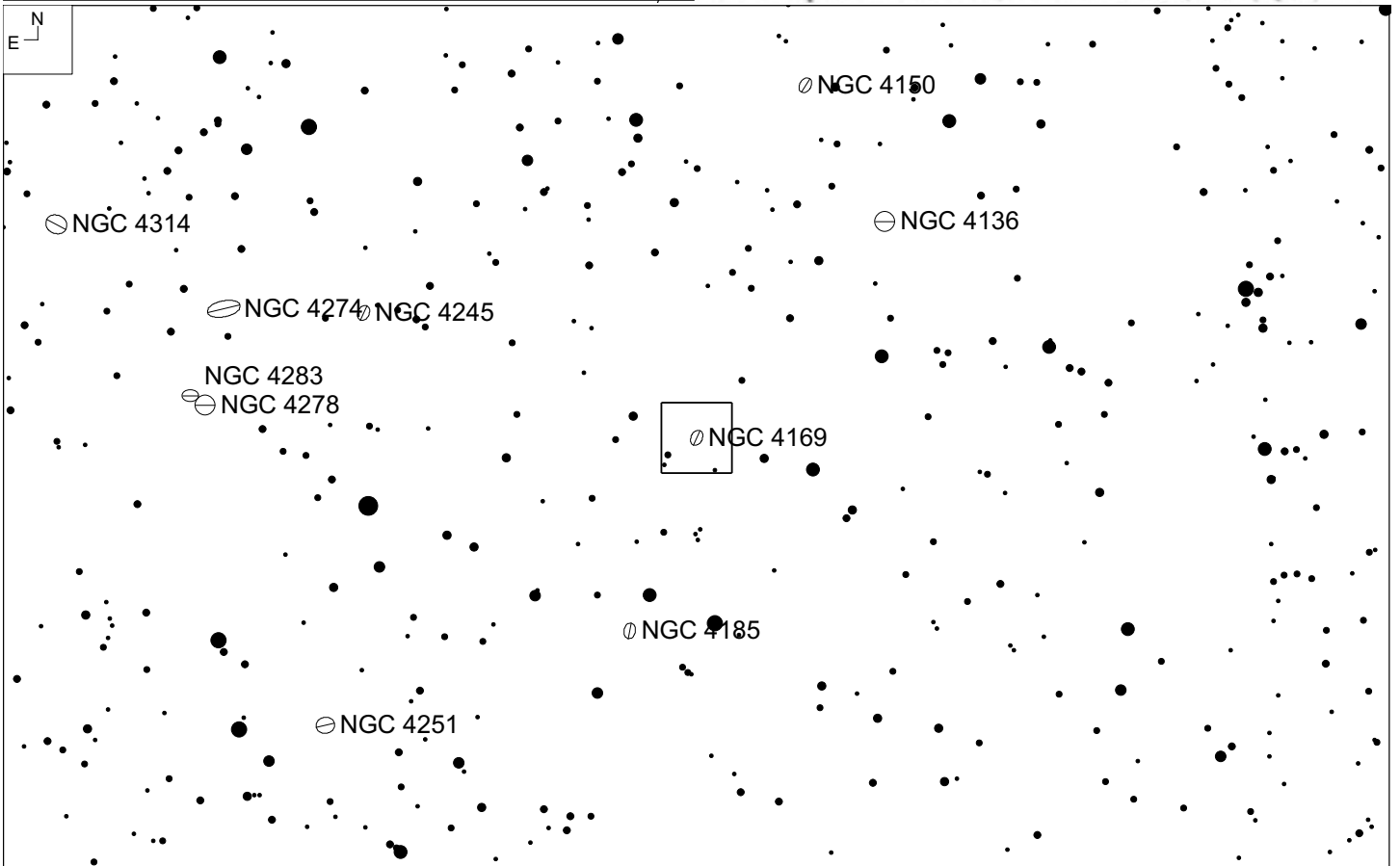
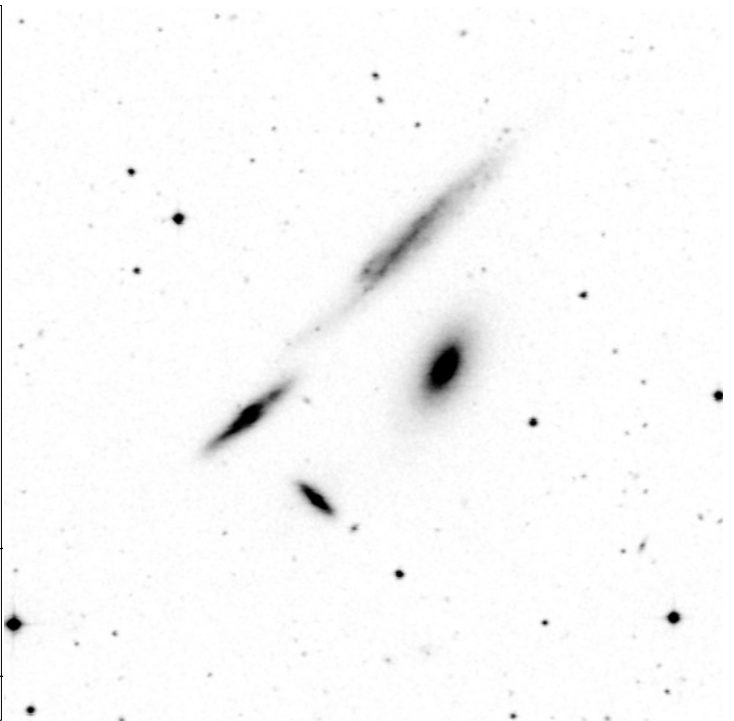
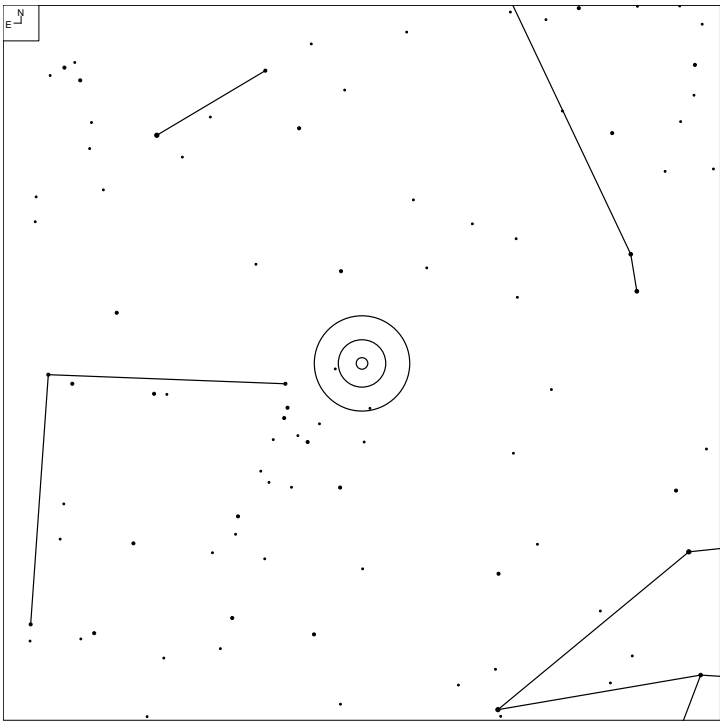
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-------|------------|------|---------|------|
| UGC 9241 | 14 25 20.9 | +32 28 47 | 14.5p | 0.6 x 0.5' | S? | 52R | 32 |

Bears Paw (Hydra)



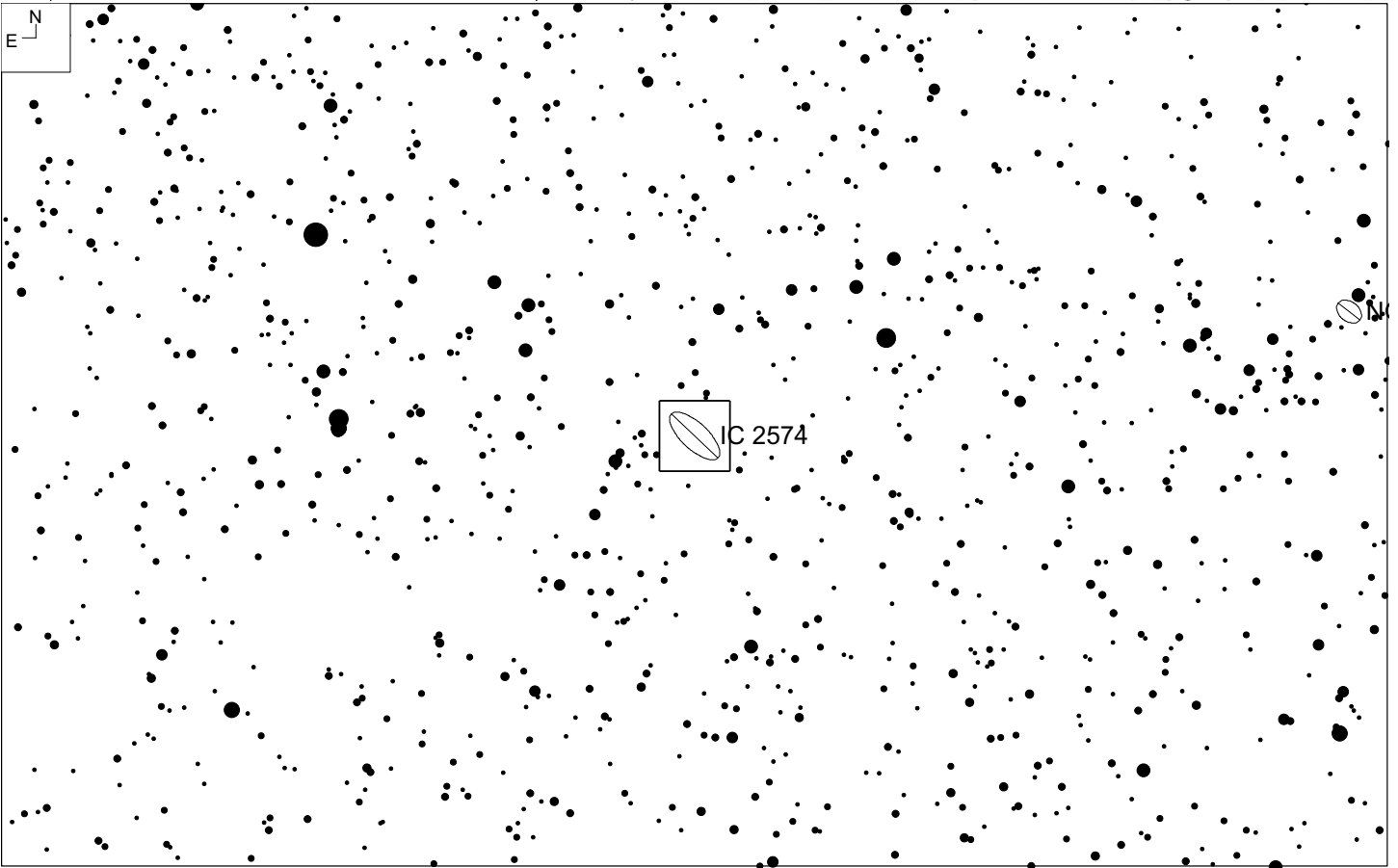
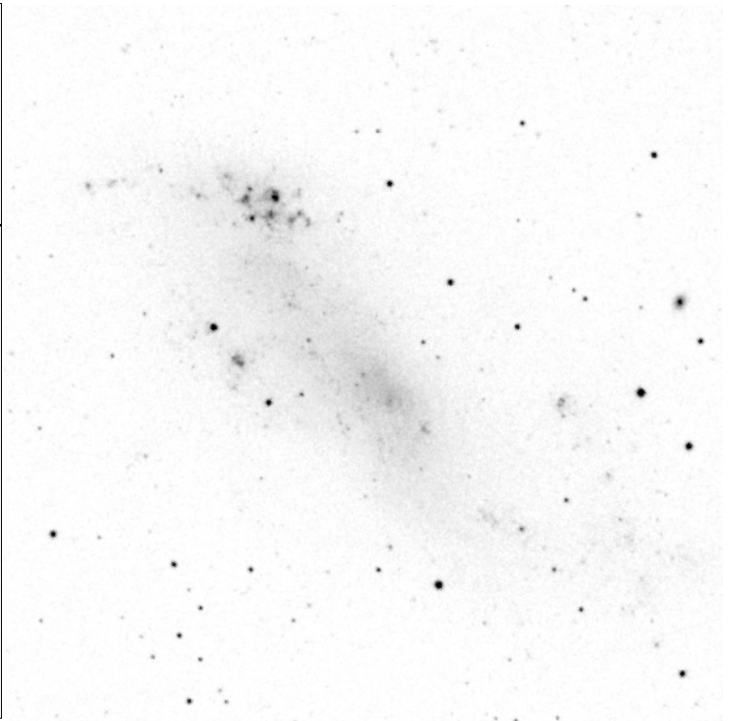
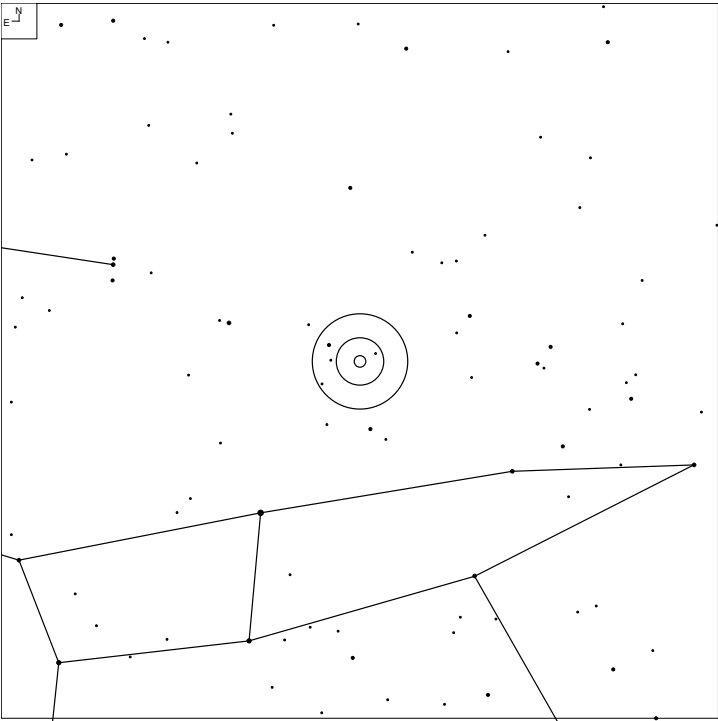
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-------|------------|-----------|---------|------|
| NGC 2537 | 08 13 14.5 | +45 59 31 | 11.7v | 1.9 x 1.7' | SB(s)mpec | 40L | 23 |

The Box (Coma Berenices)



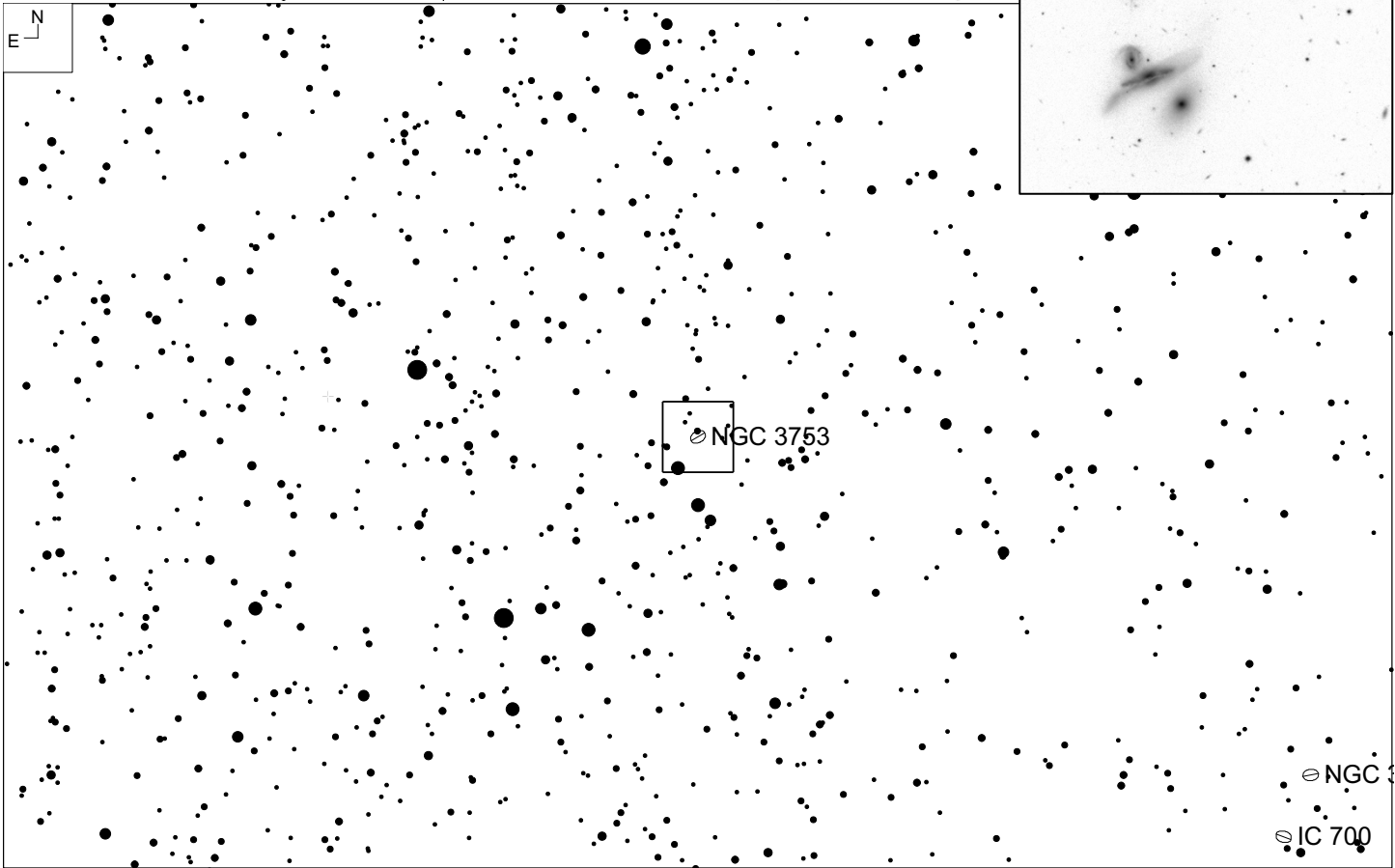
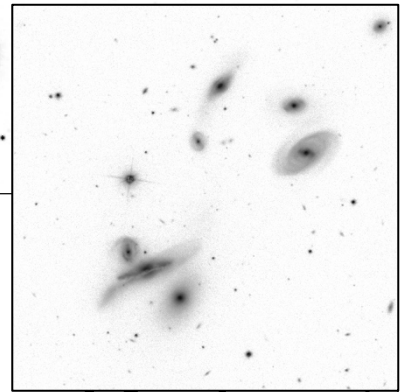
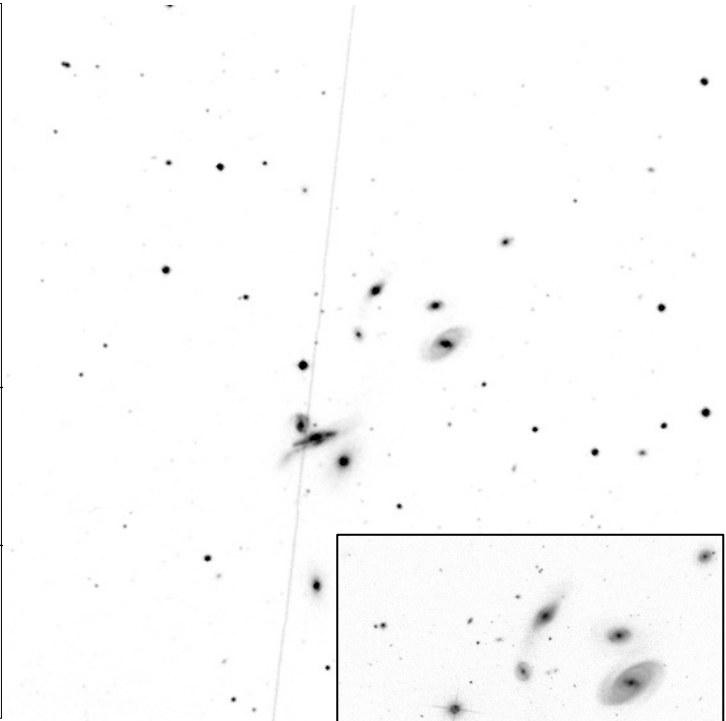
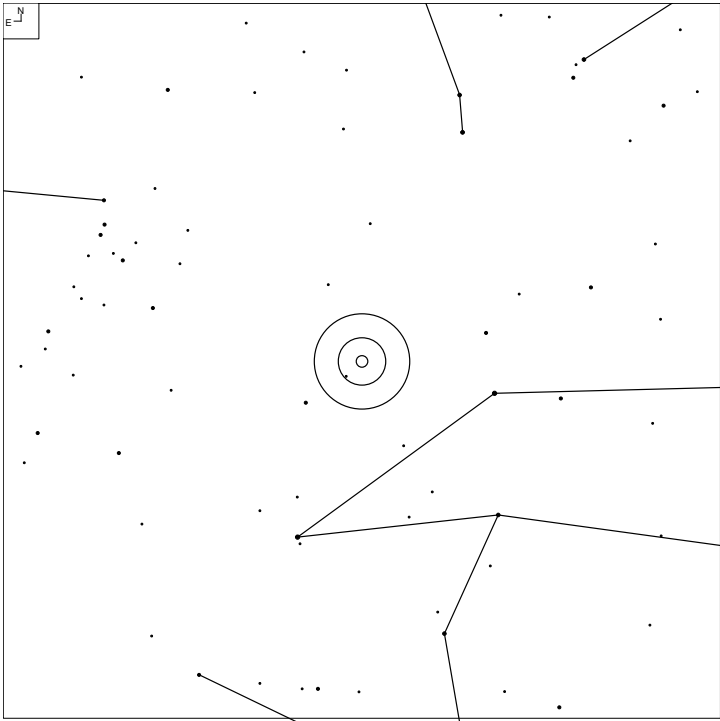
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|----------------------|------------|-----------|-----|------|------|---------|------|
| Hickson 61, NGC 4169 | 12 12 18.5 | +29 10 47 | | | | 72L | 33 |

Coddington's Nebula (Ursa Major)



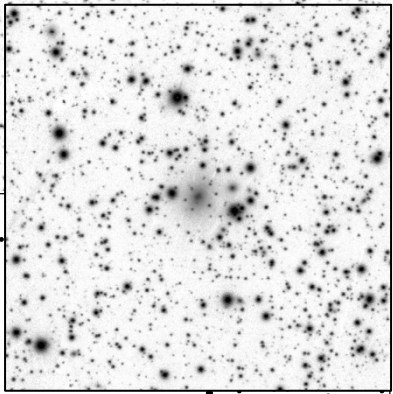
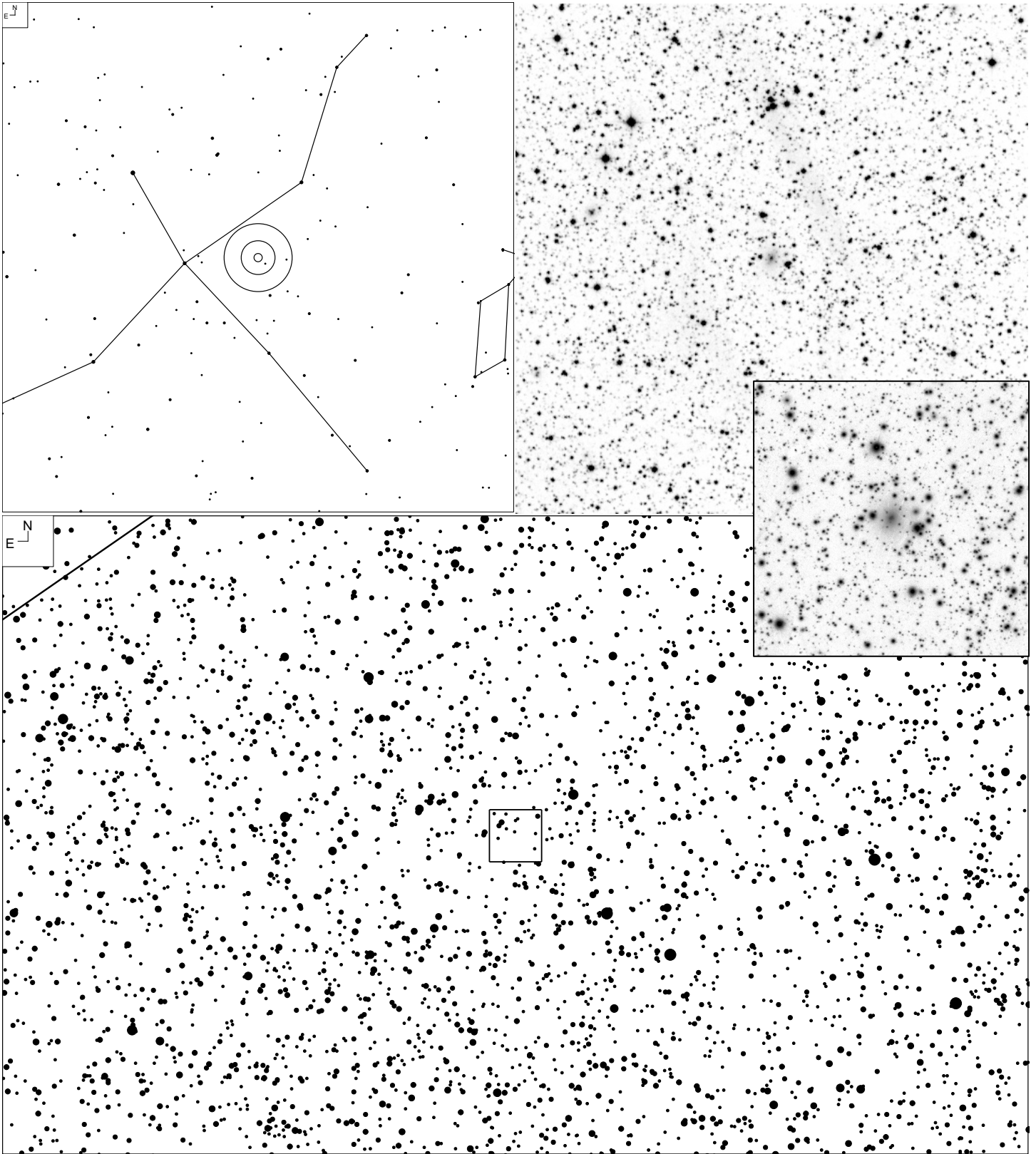
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|-----------------|------------|-----------|-------|-------------|---------|---------|------|
| DDO 81, IC 2574 | 10 28 22.5 | +68 24 59 | 10.8b | 13.2 x 5.3' | SAB(s)m | 14L | 5 |

Copland's Septet (Leo)



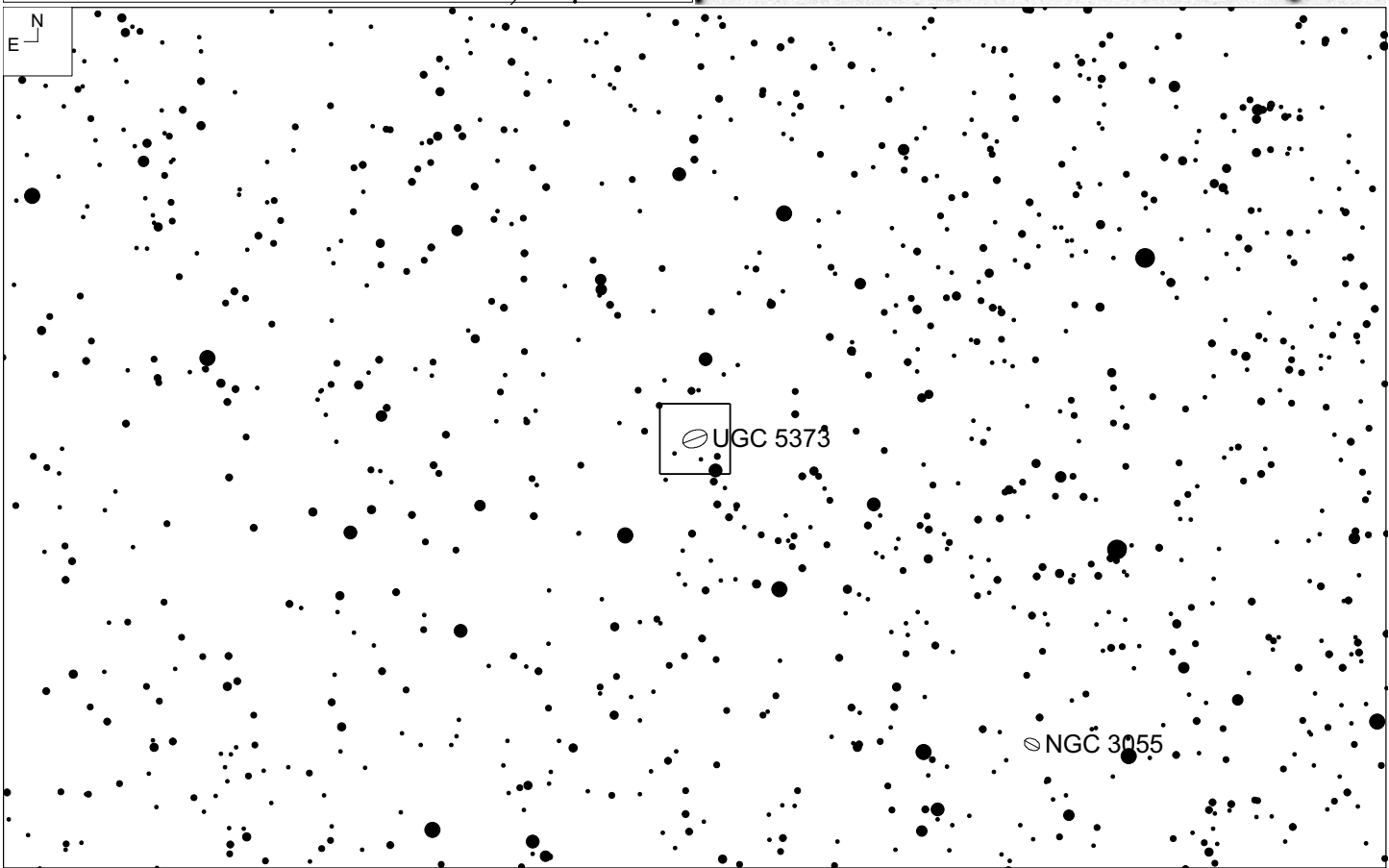
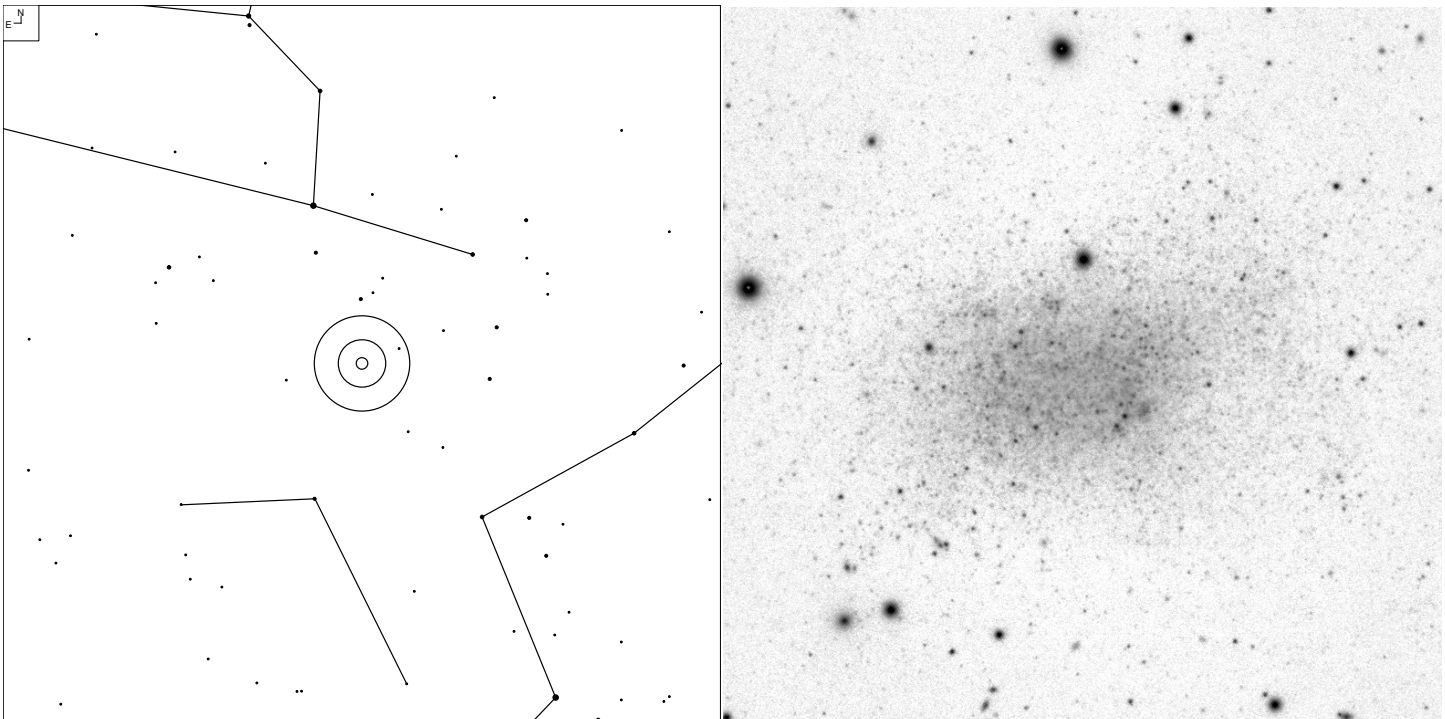
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|------------|------------|-----------|-----|------|------|---------|------|
| Hickson 57 | 11 37 53.8 | +21 58 51 | | | | 72R | 46 |

Cygnus A (Cygnus)



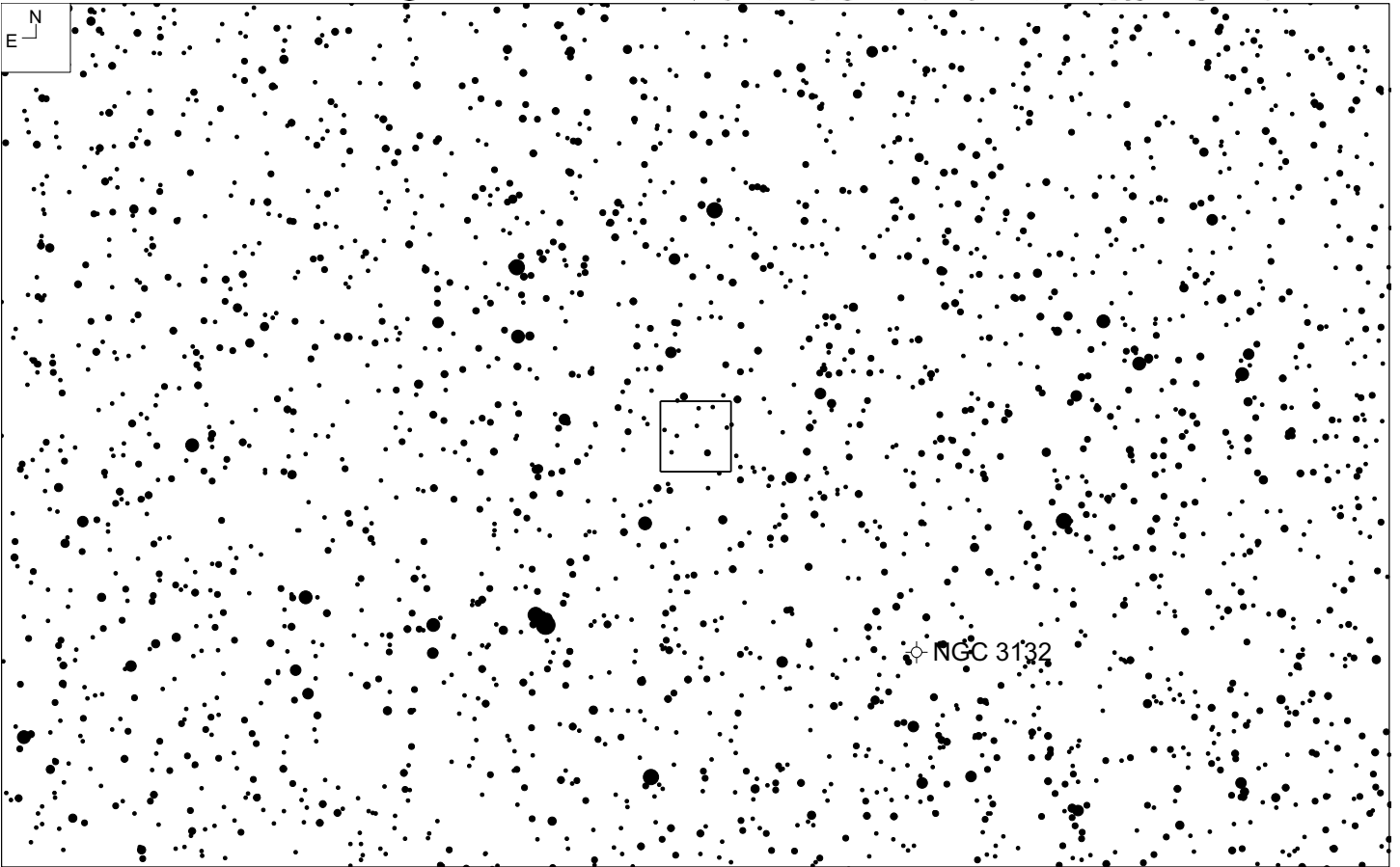
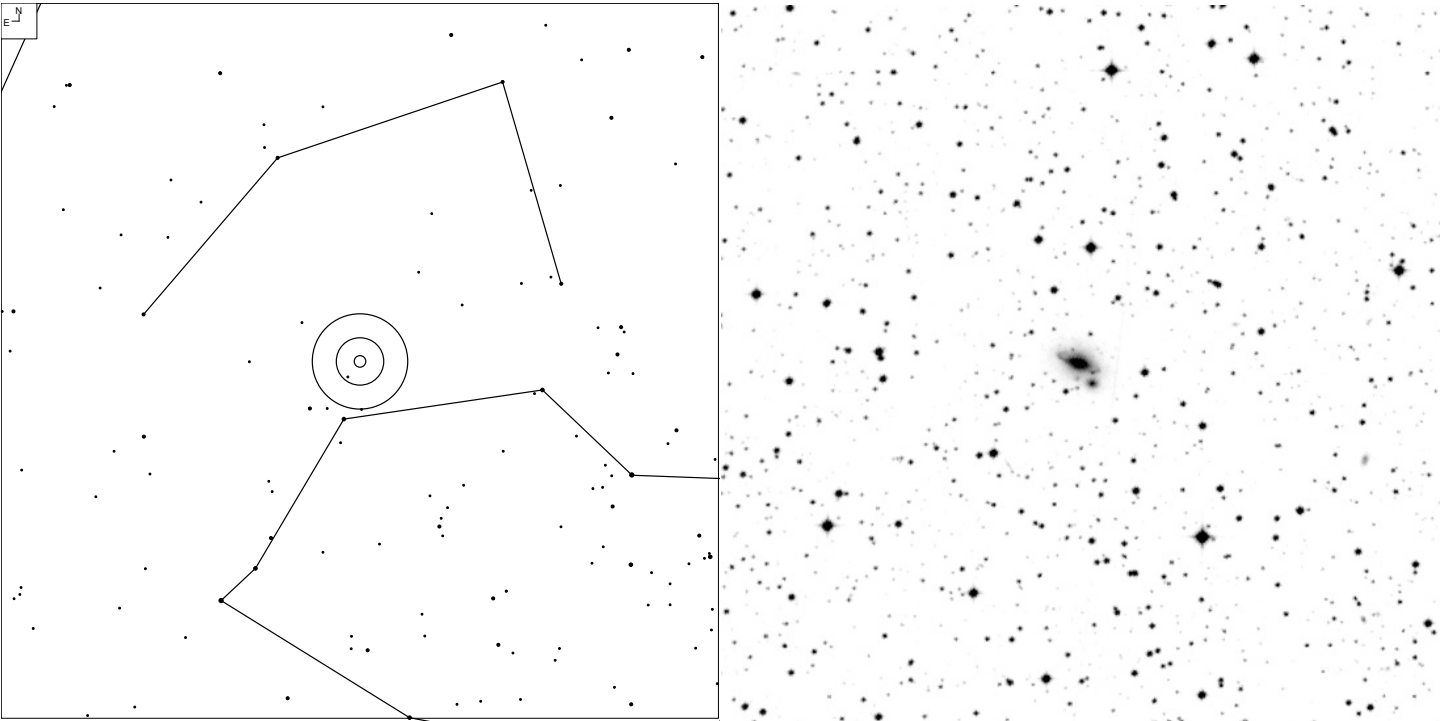
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|-------------|------------|-----------|-------|------------|------|---------|------|
| MCG +7-41-3 | 19 59 28.4 | +40 44 02 | 15.5v | 0.6 x 0.4' | S? | 33L | 18 |

DDO 70 (Sextans)



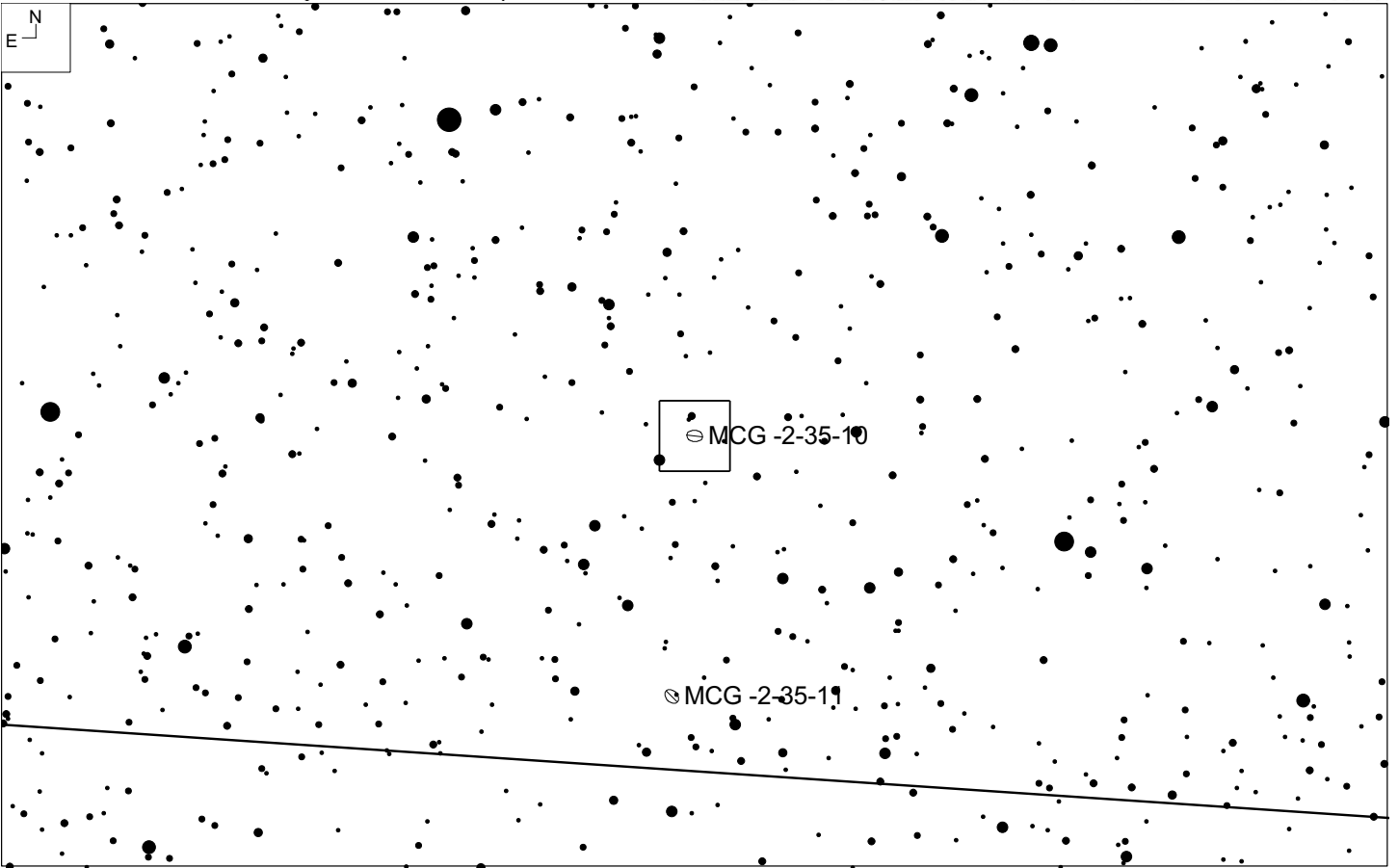
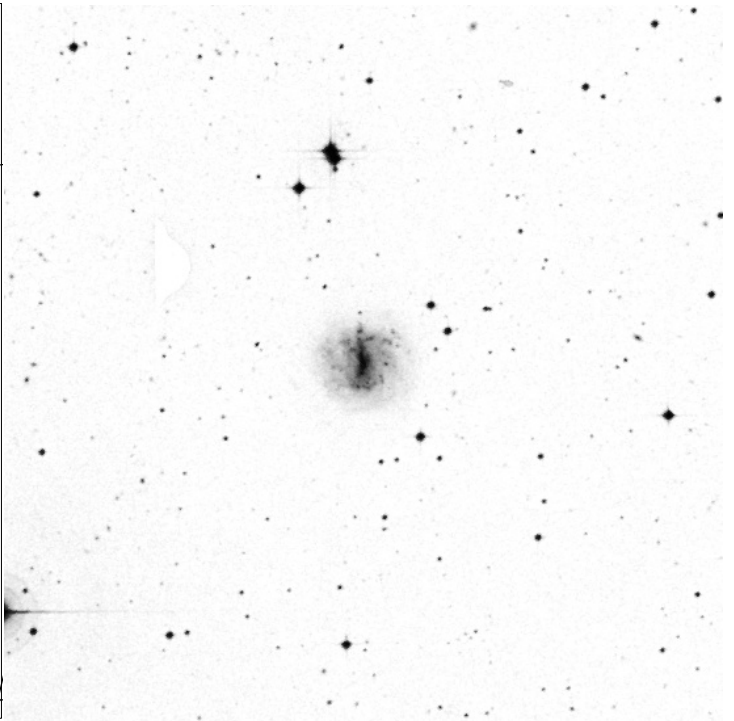
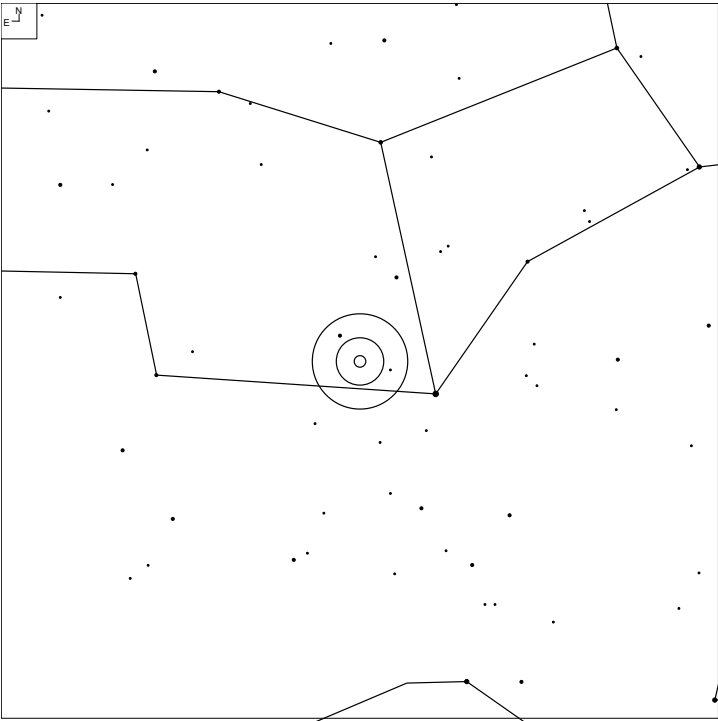
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | IDA |
|------------|------------|-----------|-------|------------|--------|---------|-----|
| Sextan's B | 09 59 59.6 | +05 19 53 | 11.9b | 5.1 x 3.5' | IB(s)m | 113L | 59 |

Denis J10110217-3941366 (Antlia)



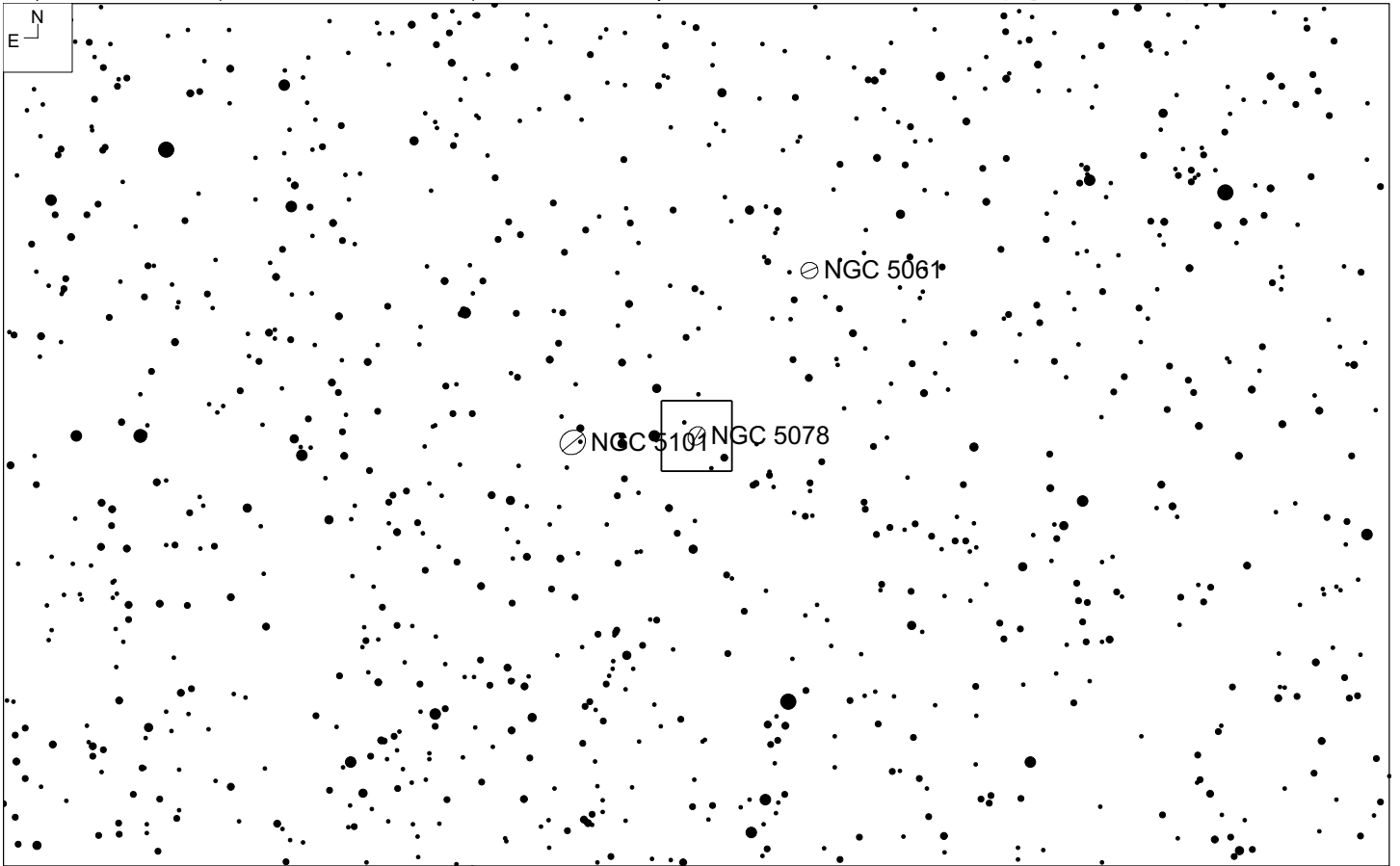
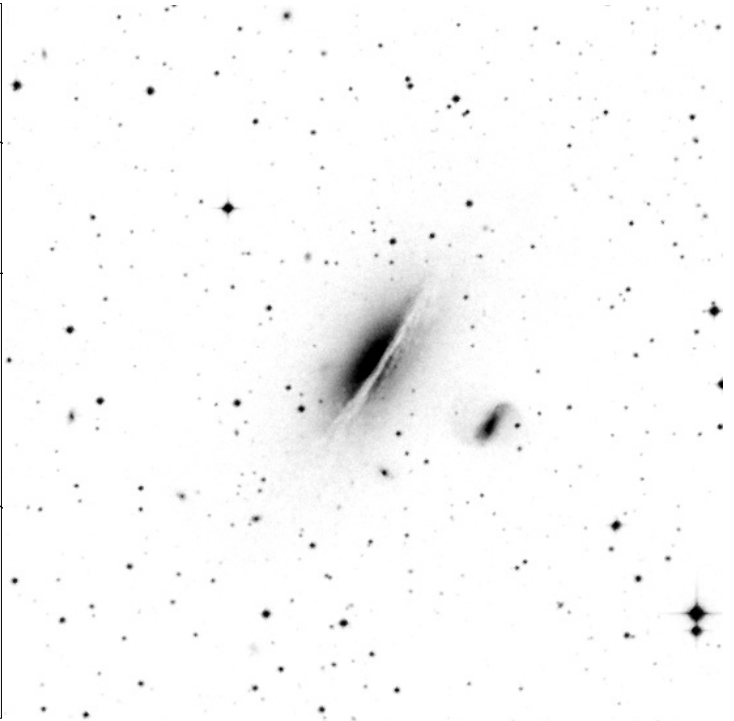
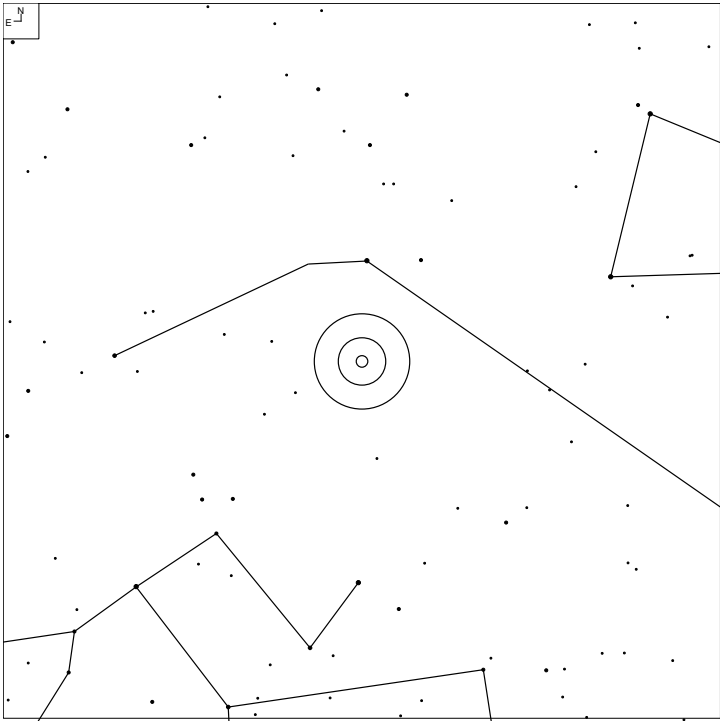
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-------|------------|------|---------|------|
| | 10 11 02.2 | -39 41 37 | 14.0p | 1.2 x 0.8' | Dbl | 169R | 94 |

DDO 180 (Virgo)



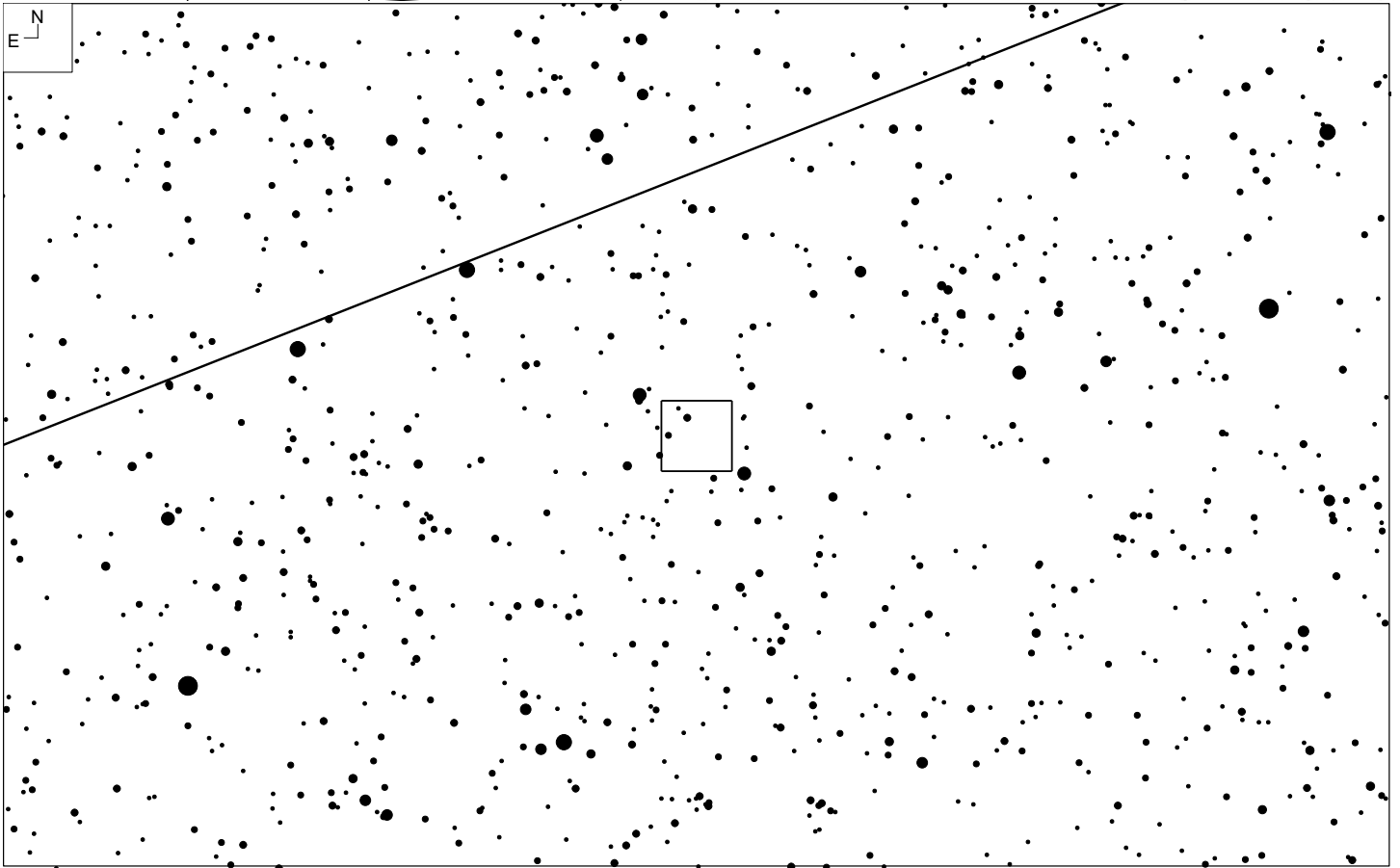
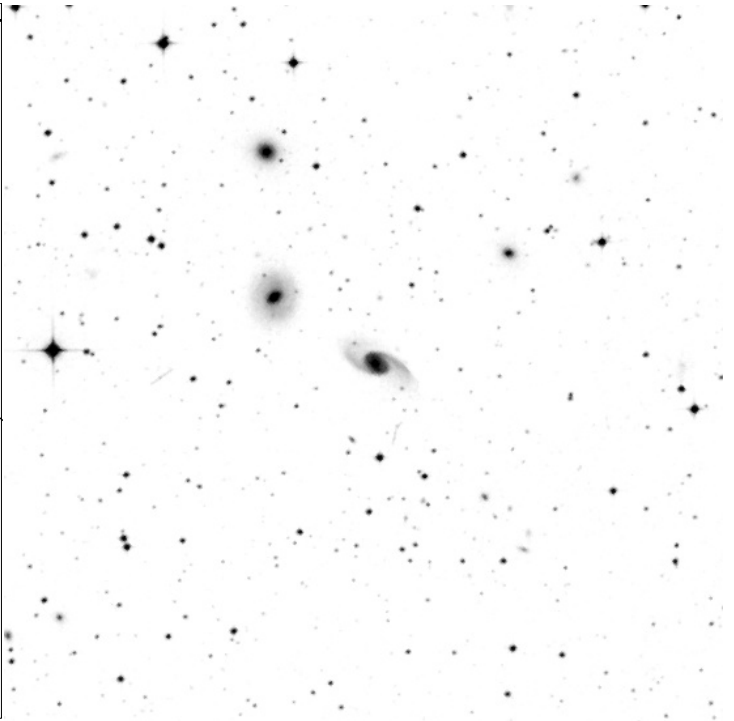
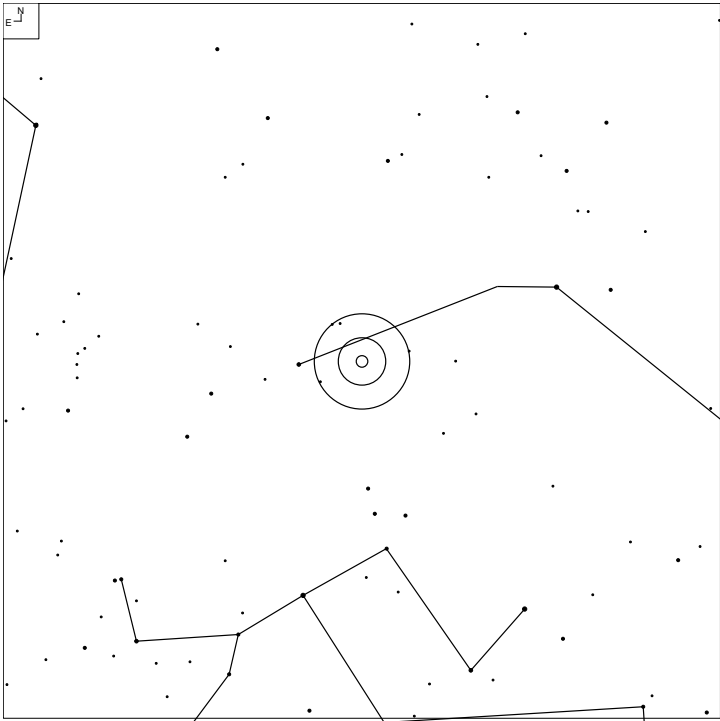
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|-------------|------------|-----------|-------|------------|--------|---------|------|
| MCG-2-35-10 | 13 38 10.3 | -09 48 04 | 12.0b | 4.0 x 1.9' | SB(s)m | 131L | 69 |

ESO 508-48 (Hydra)



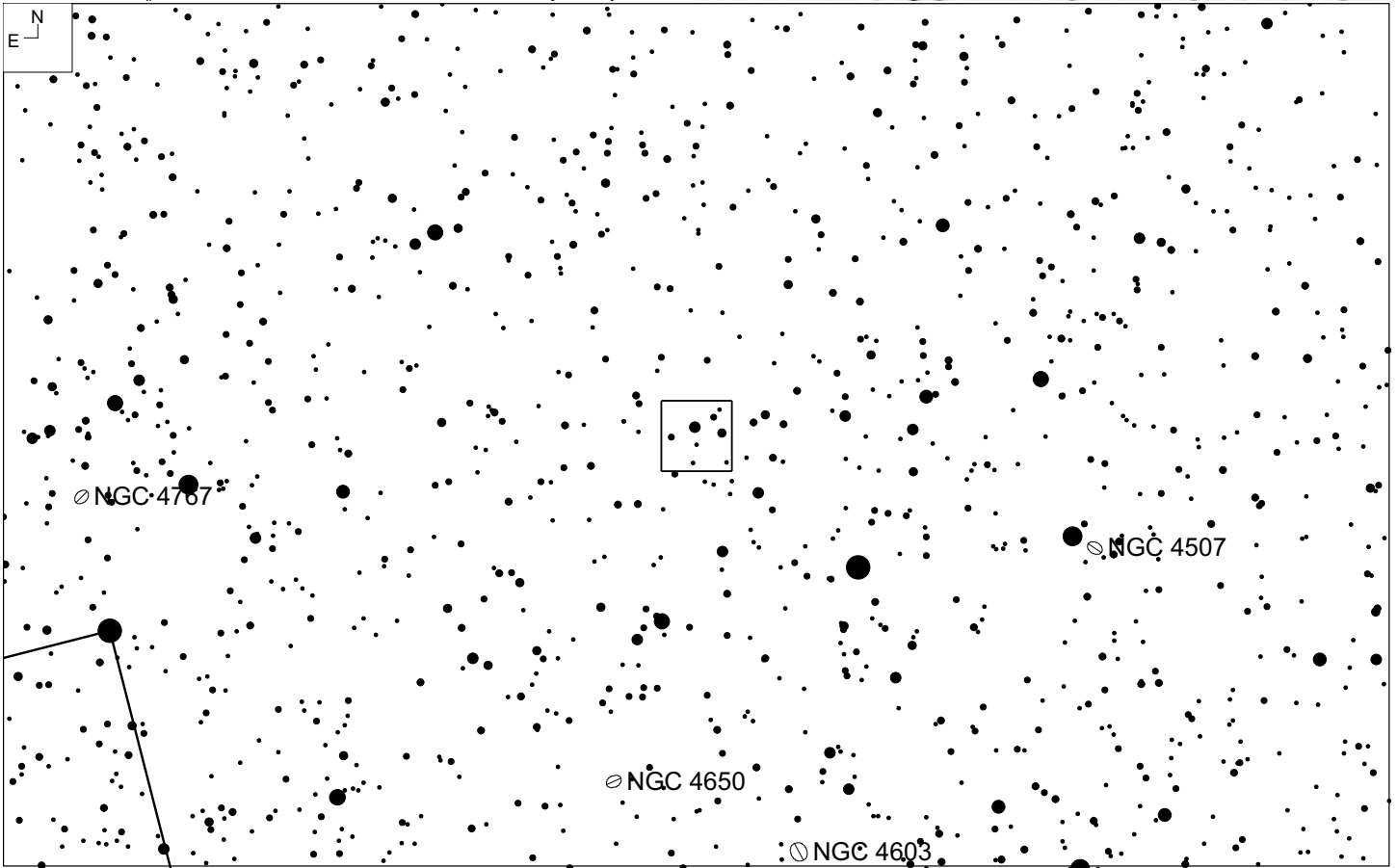
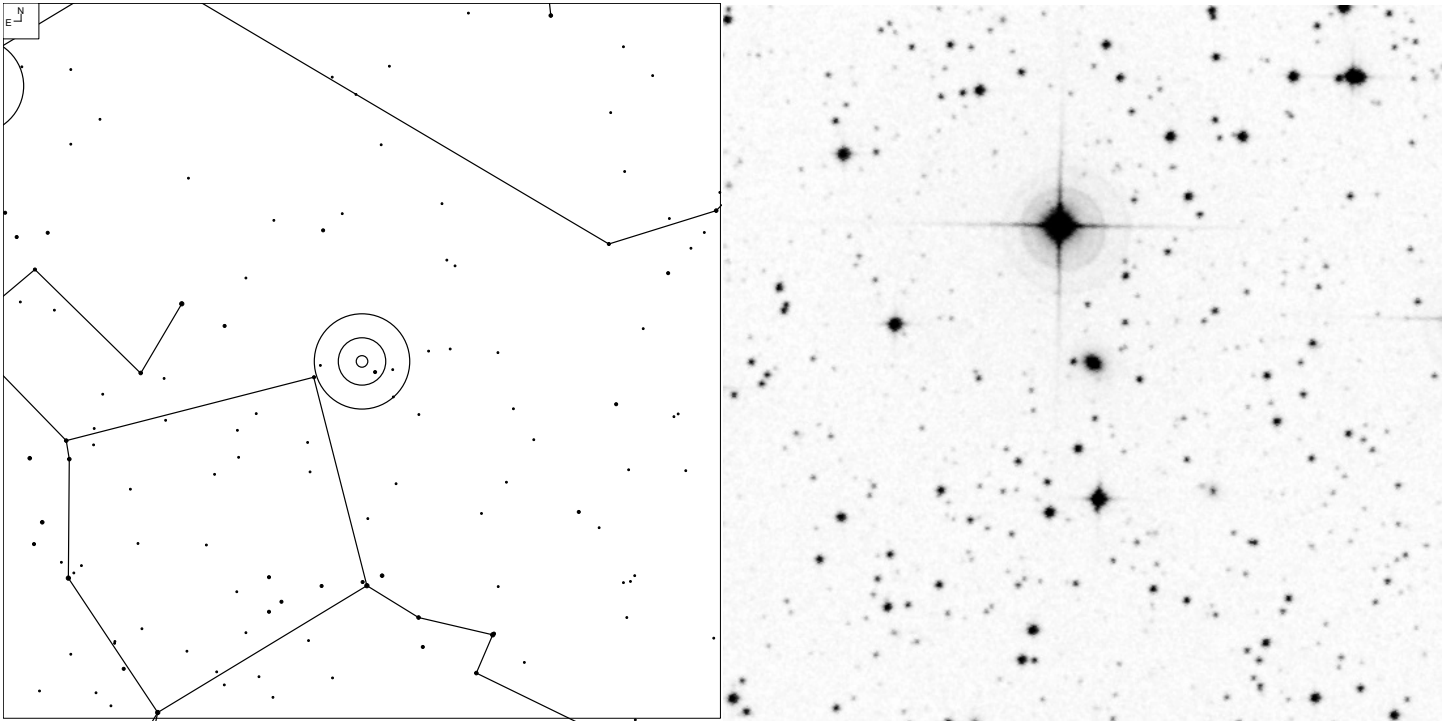
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-------|------------|-----------|---------|------|
| NGC 5078 | 13 19 50.1 | -27 24 37 | 12.0b | 4.0 x 1.9' | SA(s): sp | 149R | 81 |

ESO 510-11 (Hydra)



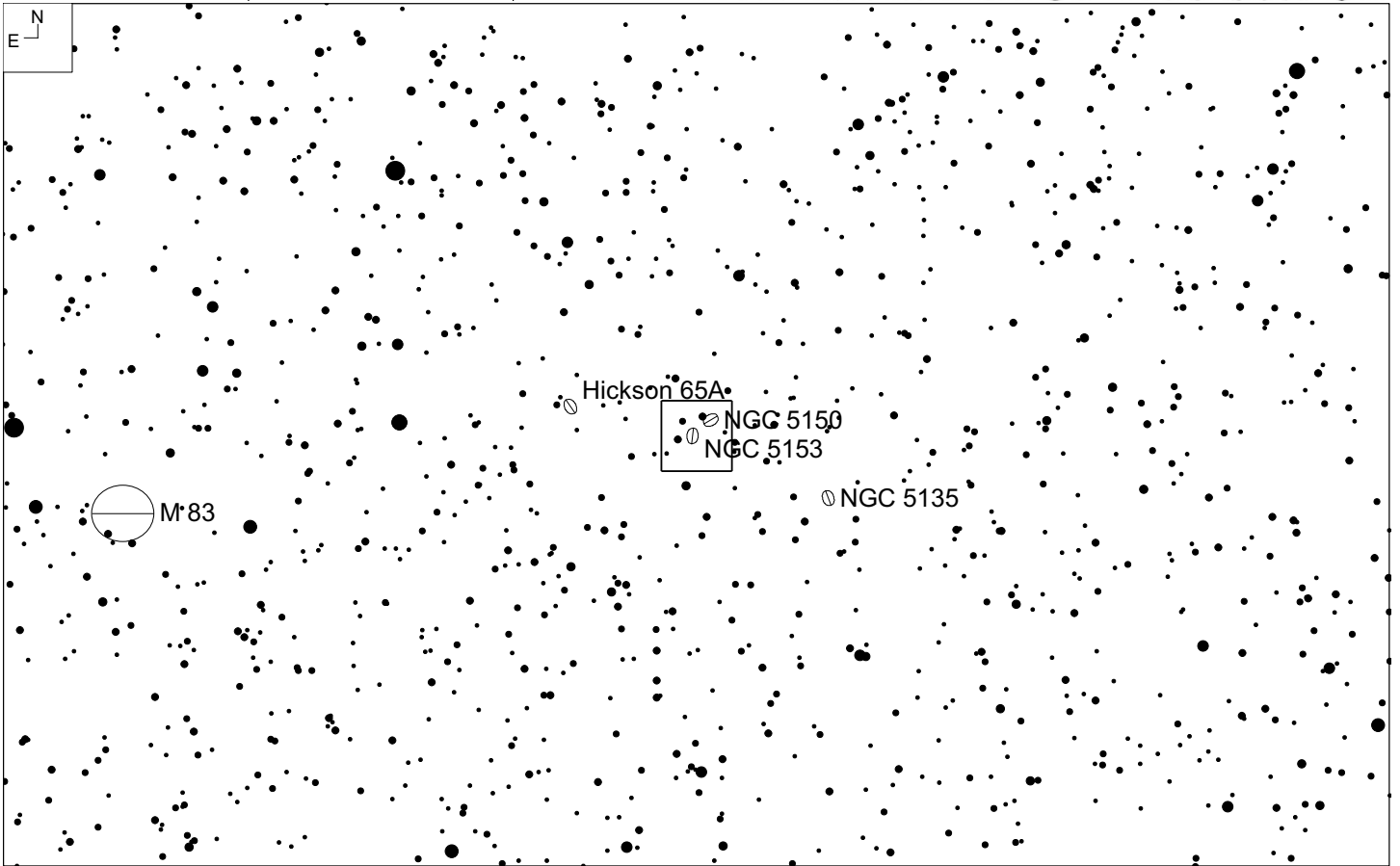
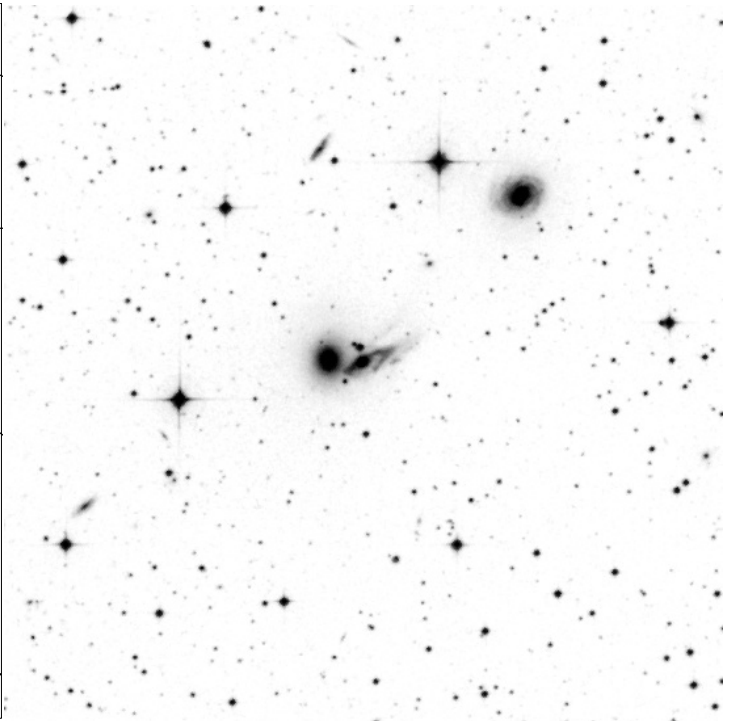
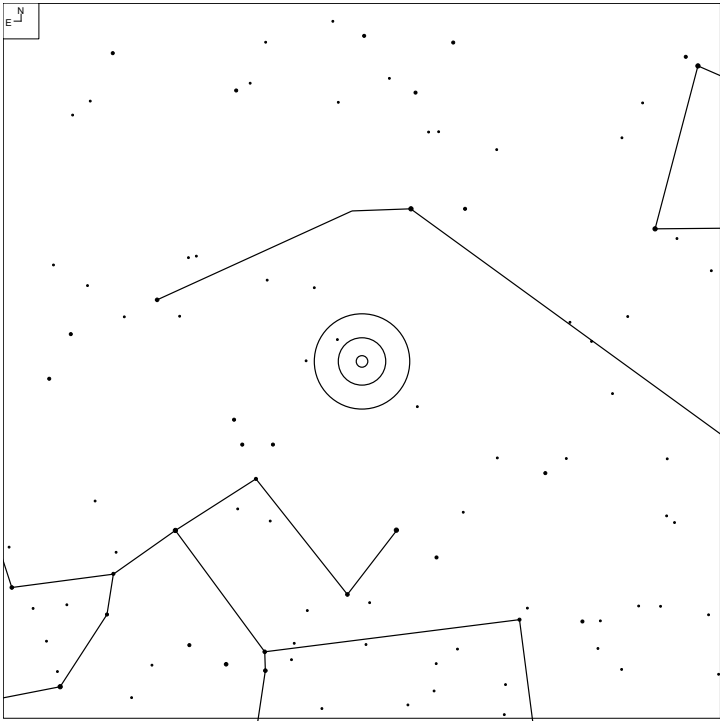
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|-------------|------------|-----------|-------|------------|-------|---------|------|
| MCG-4-33-10 | 13 54 26.4 | -26 34 33 | 14.4p | 1.6 x 0.8' | SABra | 149L | 81 |

Fairall 32 (Centaurus)



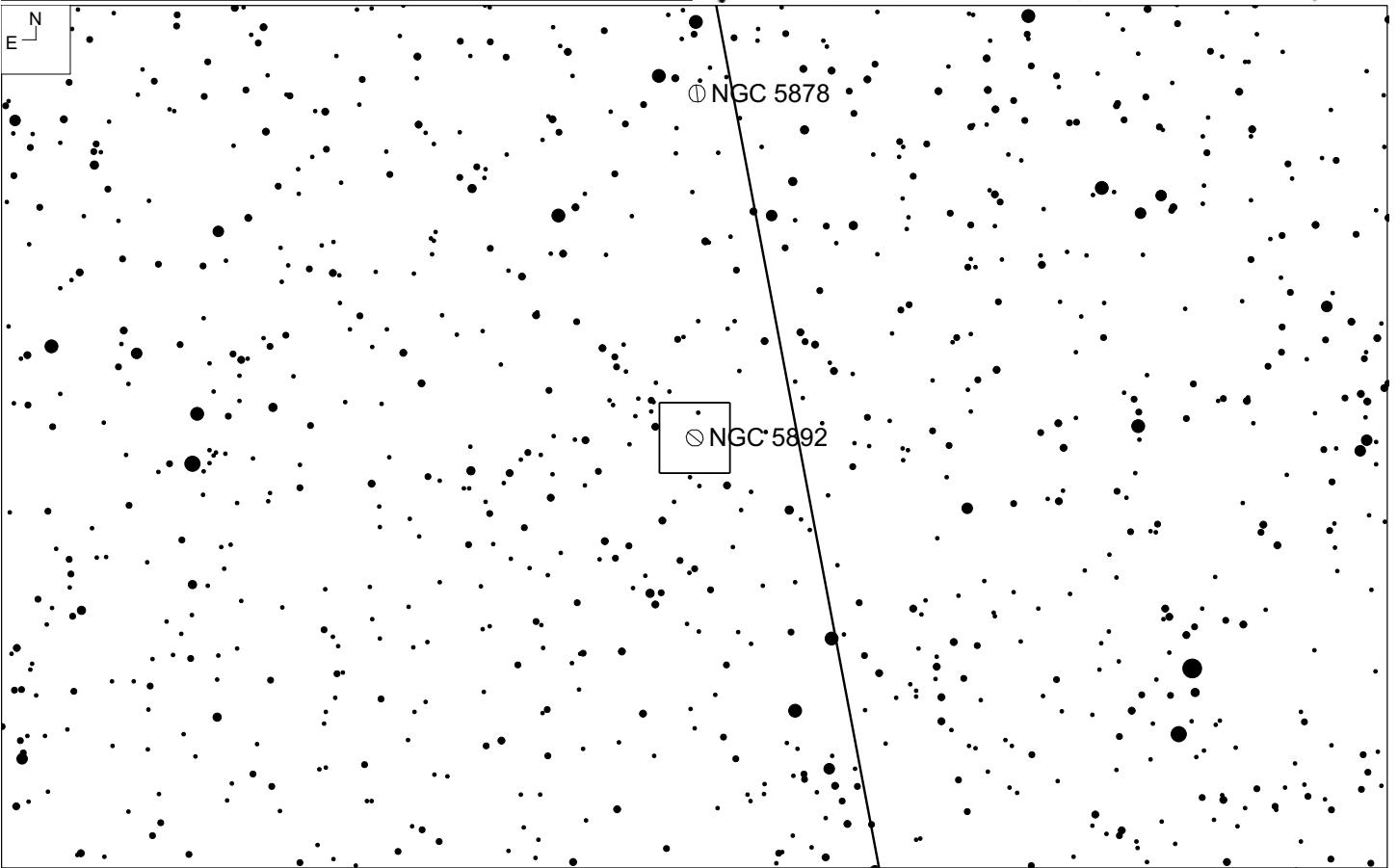
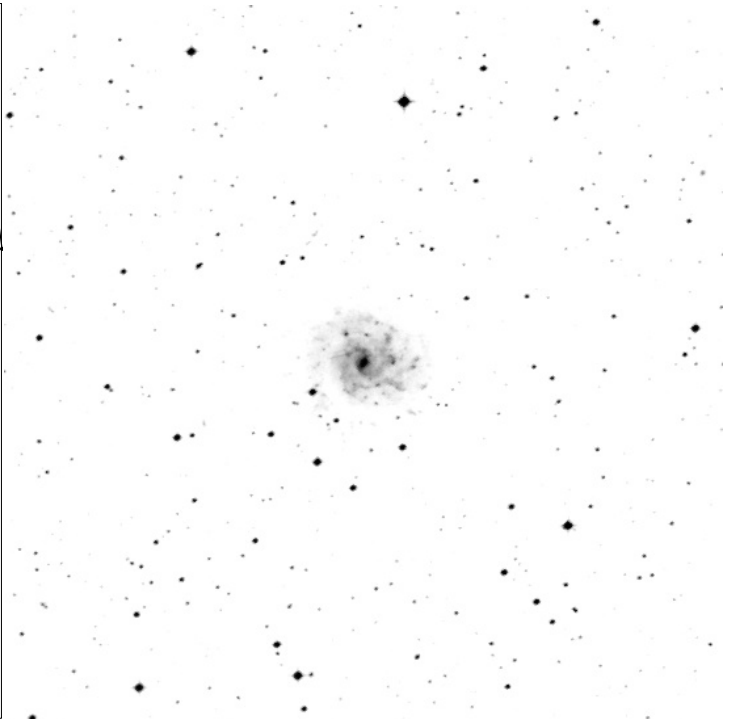
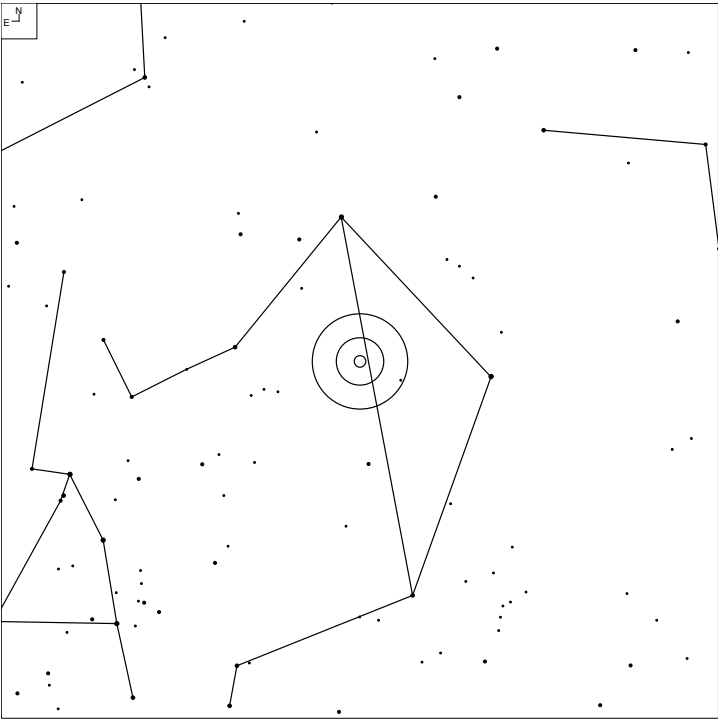
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|-----------|------------|-----------|------|------------|------|---------|------|
| PGC 42715 | 12 42 48.2 | -39 32 02 | 15.0 | 0.4 x 0.3' | - | 167R | 93 |

Flying Galaxy (Centaurus)



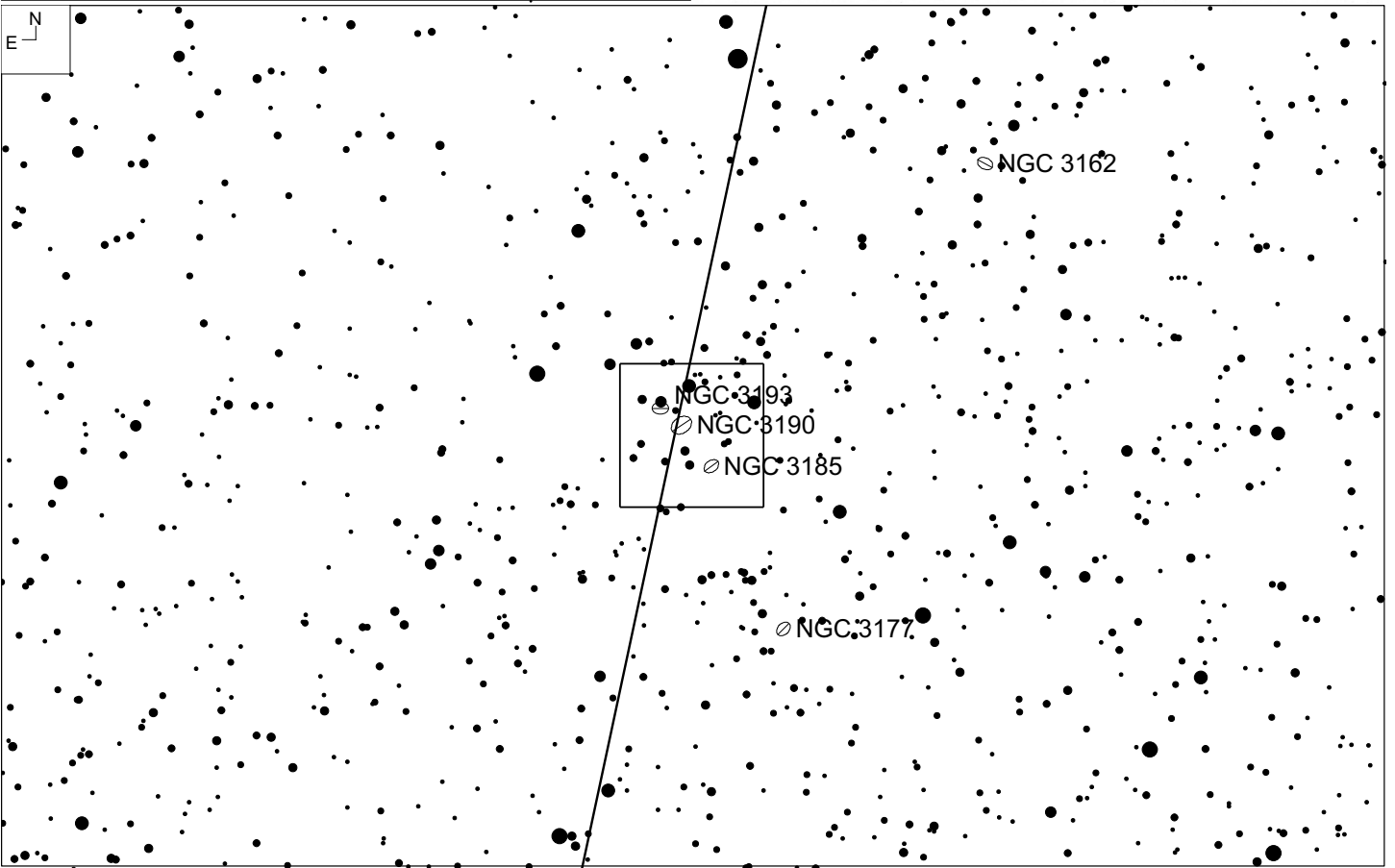
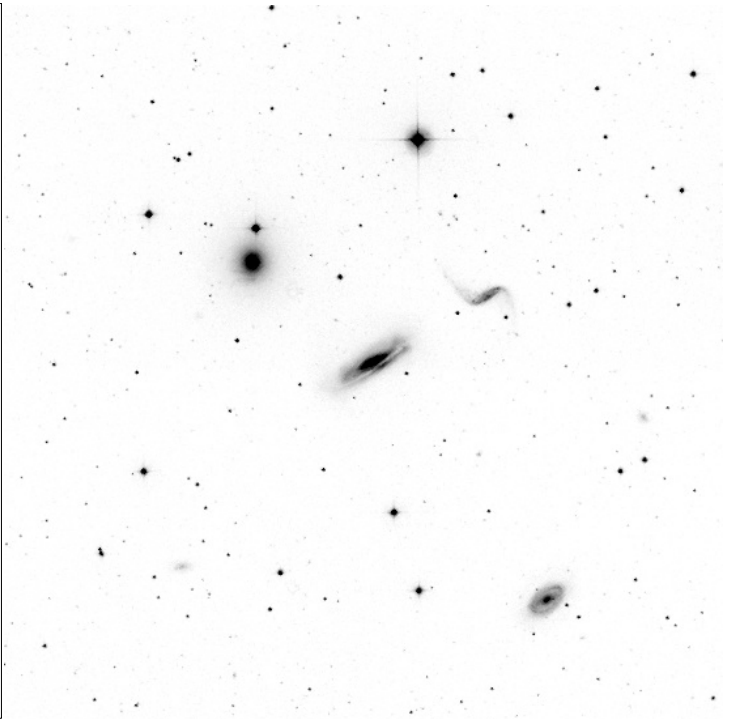
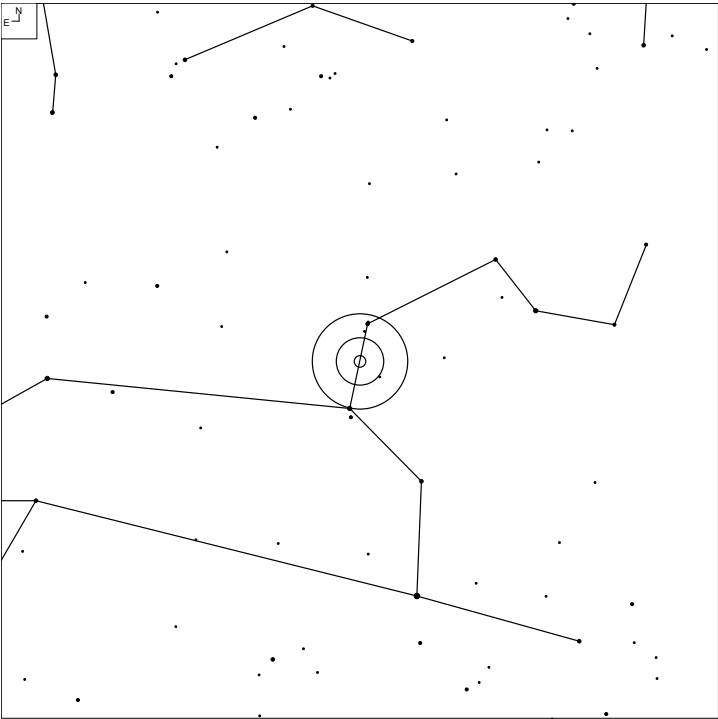
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|-------------|------------|-----------|-------|------------|--------|---------|------|
| NGC 5152/53 | 13 27 50.2 | -29 37 05 | 13.3p | 2.2 x 0.9' | SB(s)b | 167L | 81 |

Fath 703 (Libra)



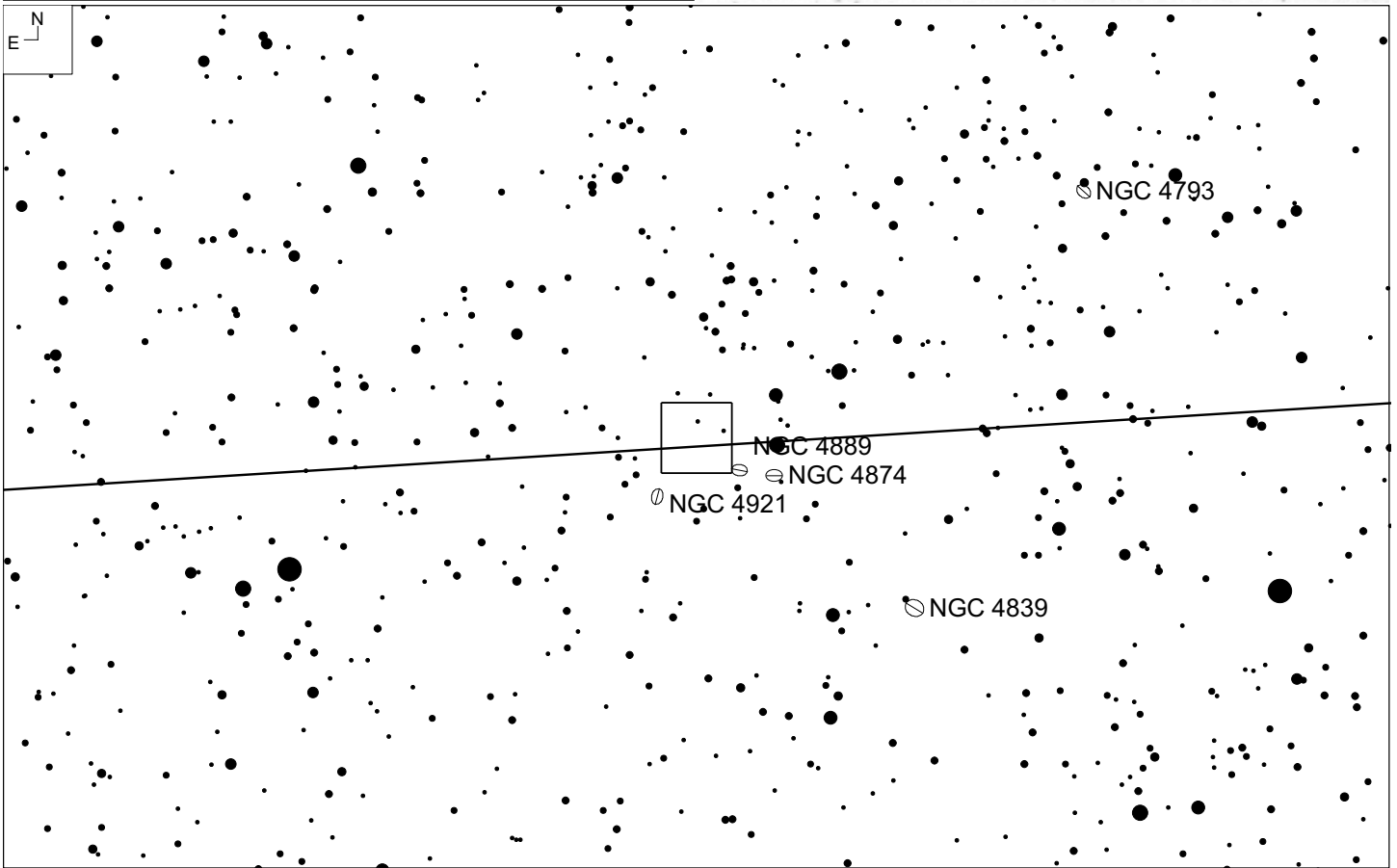
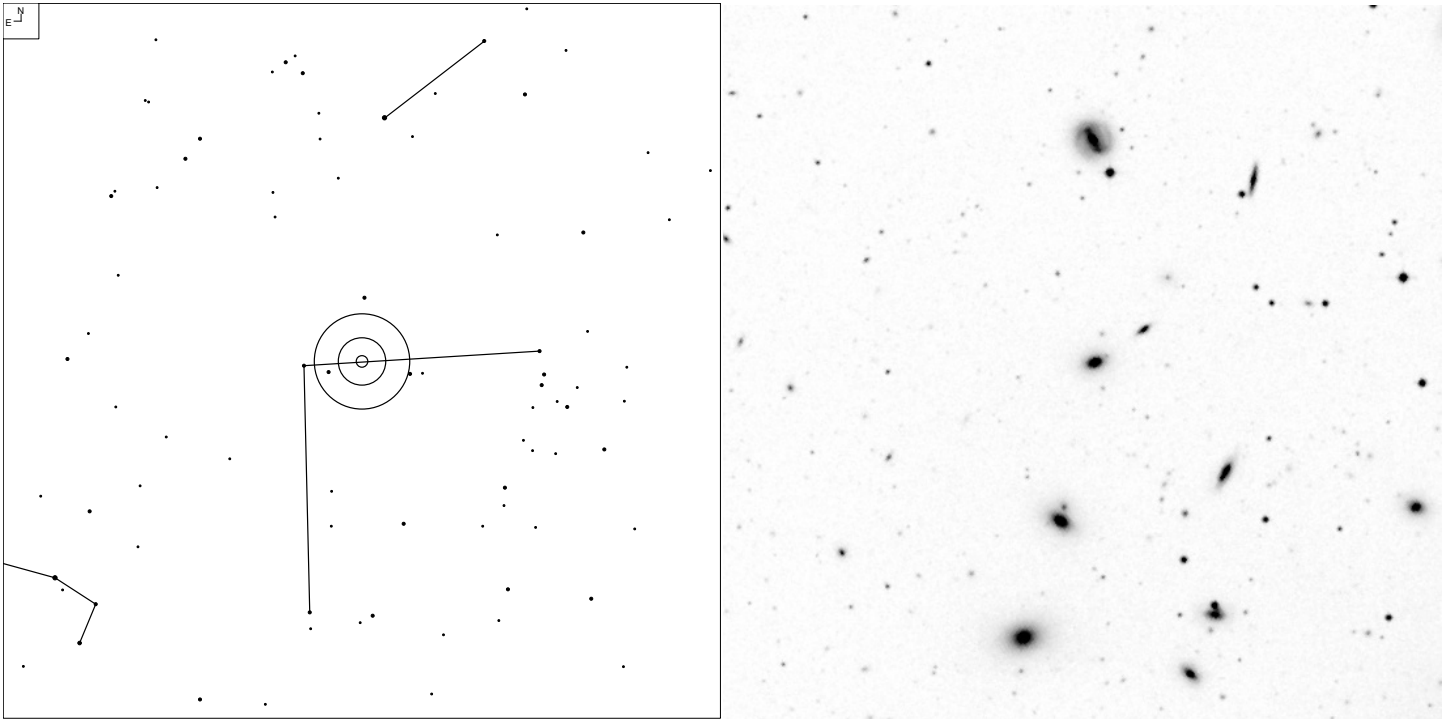
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-------|------------|--------|---------|------|
| NGC 5892 | 15 13 48.2 | -15 27 52 | 12.3p | 3.5 x 2.8' | SA(s)d | 130L | 68 |

Gamma Leo Group



| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-------|-------------|---------|---------|------|
| NGC 3190 | 10 18 05.7 | +21 49 57 | 12.1b | 18.3 x 8.3' | Cluster | 73R | 46 |

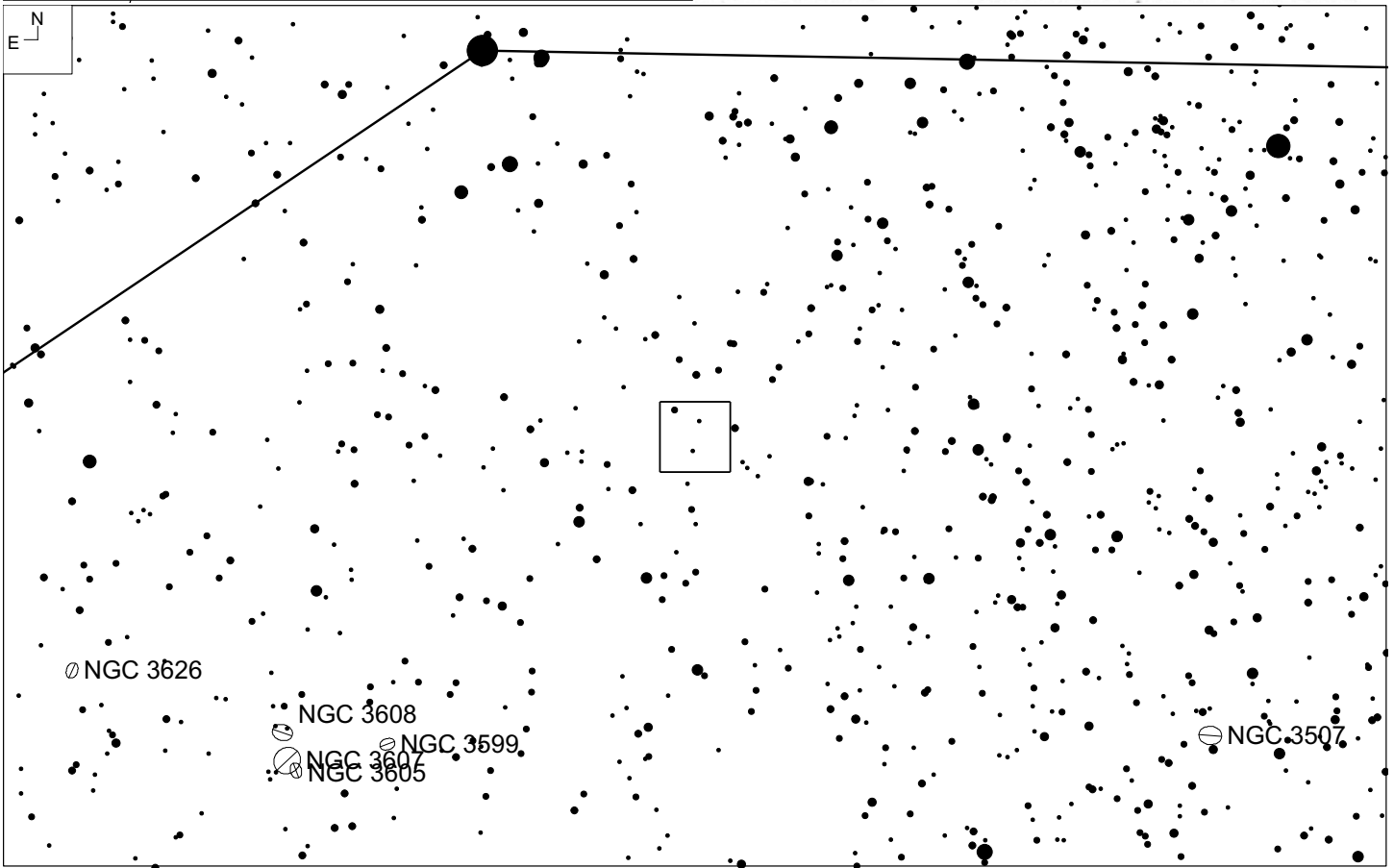
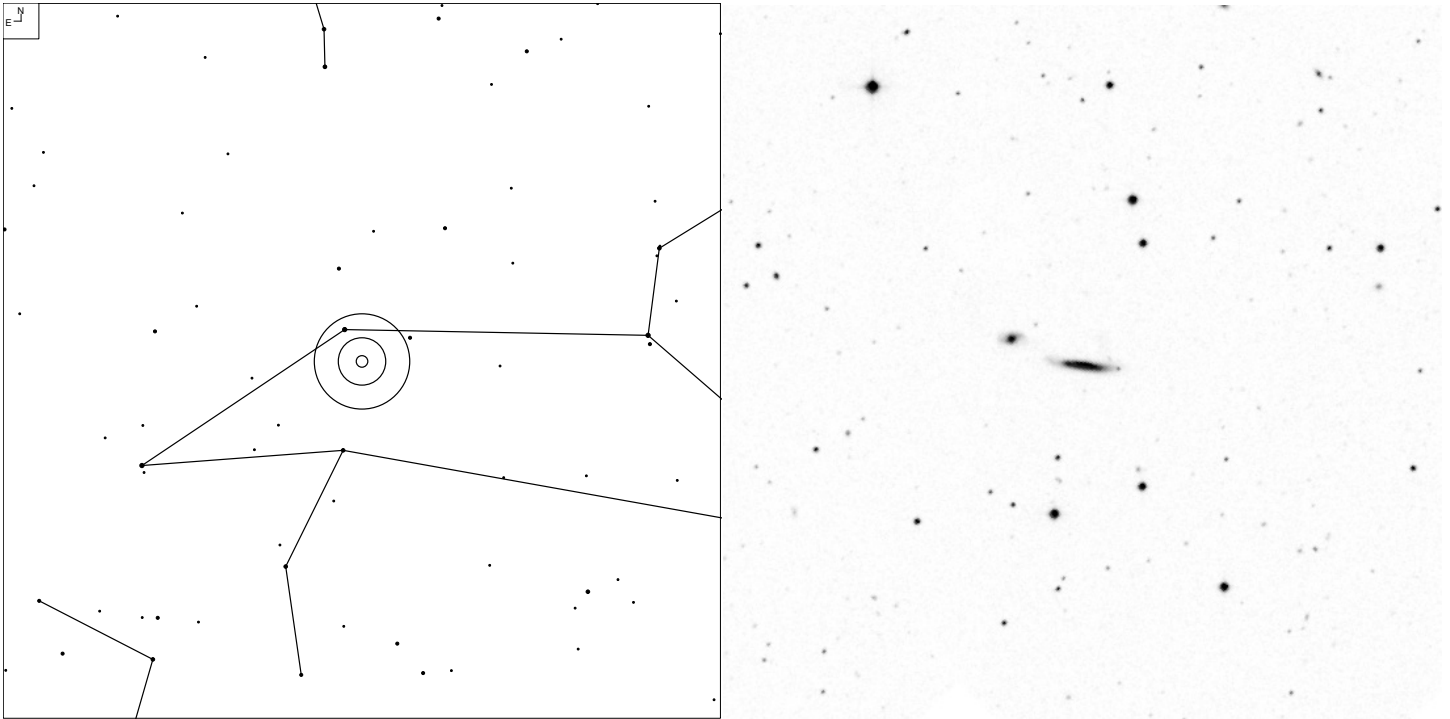
GMP 2440 (Coma Berenices)



| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-------|------------|------|---------|------|
| IC 4045 | 13 00 48.7 | +28 05 26 | 15.0b | 0.7 x 0.4' | E4 | 71R | 33 |

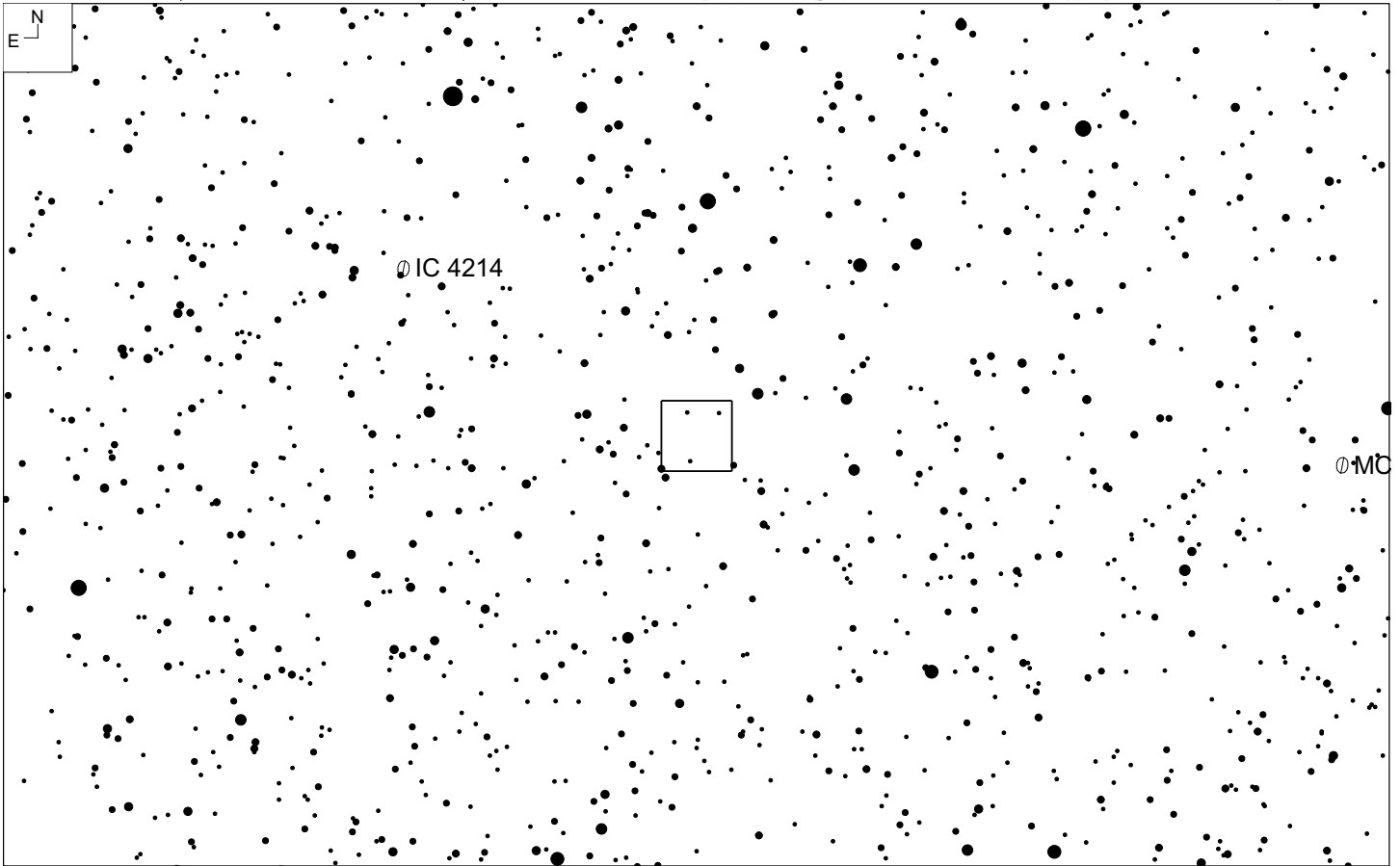
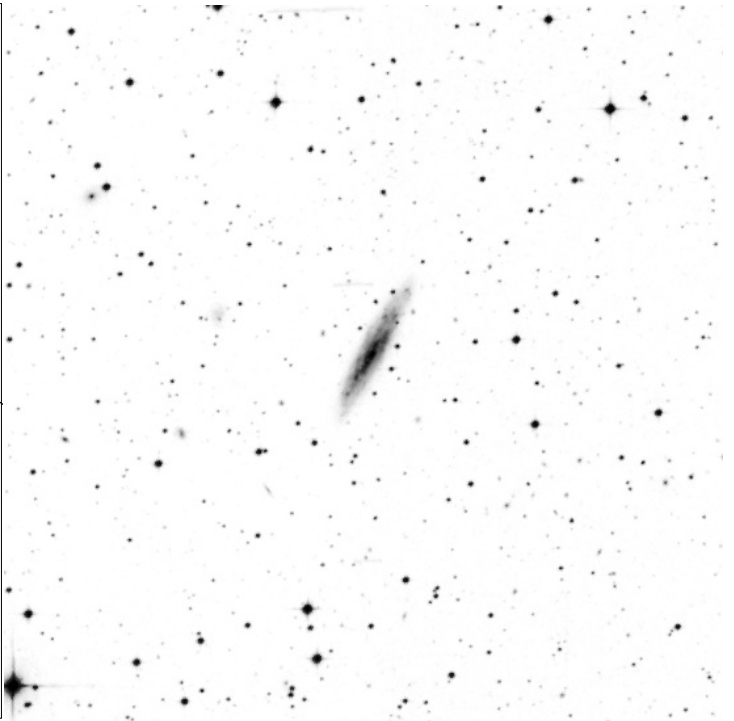
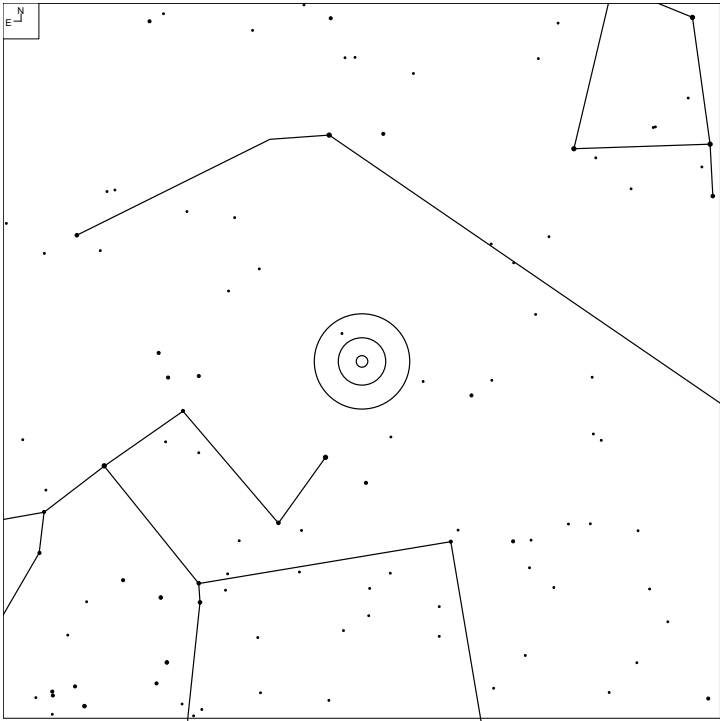
Part of the Coma cluster

Holmberg 233A (Leo)



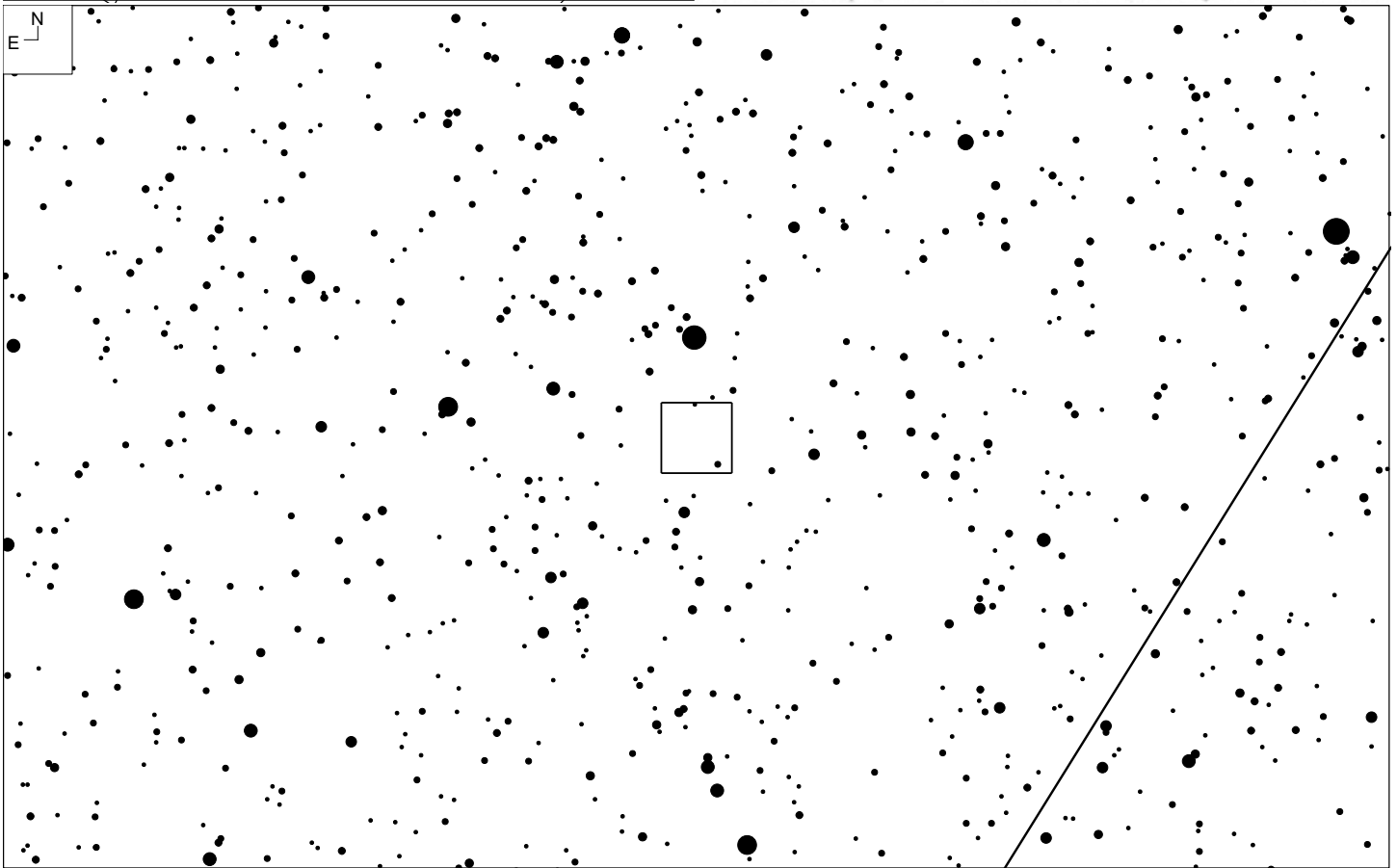
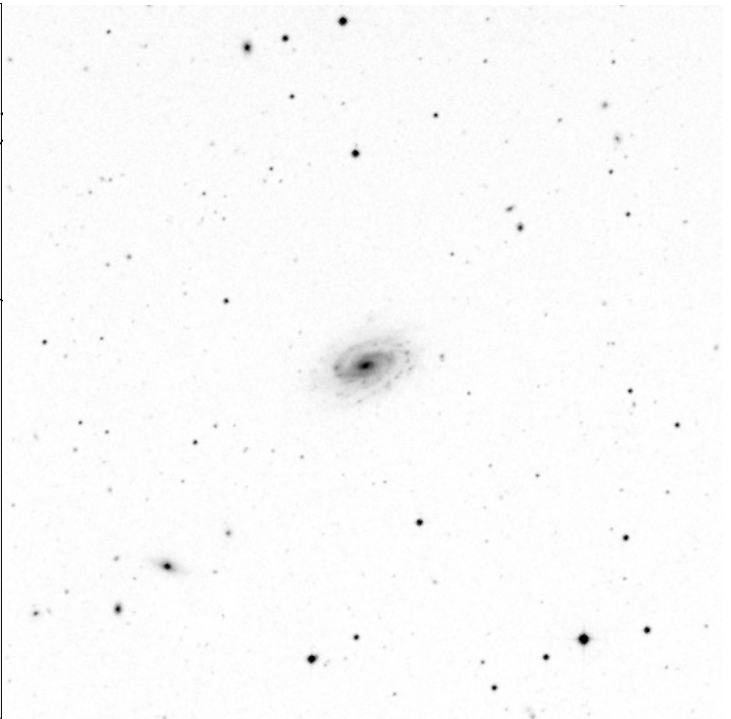
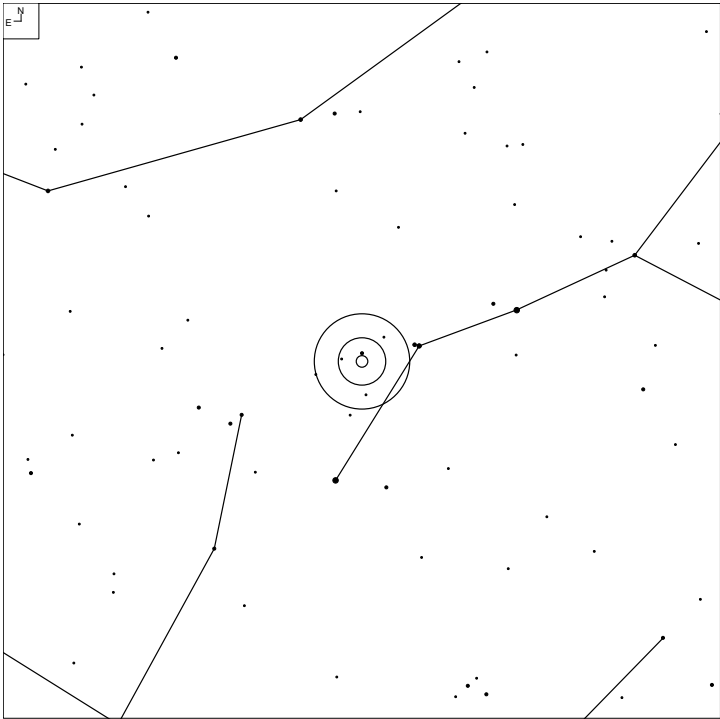
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-------|------------|------|---------|------|
| UGC 6219 | 11 10 57.2 | +19 10 56 | 14.9p | 1.5 x 0.3' | S? | 73L | 46 |

Hardcastle's Galaxy (Centaurus)



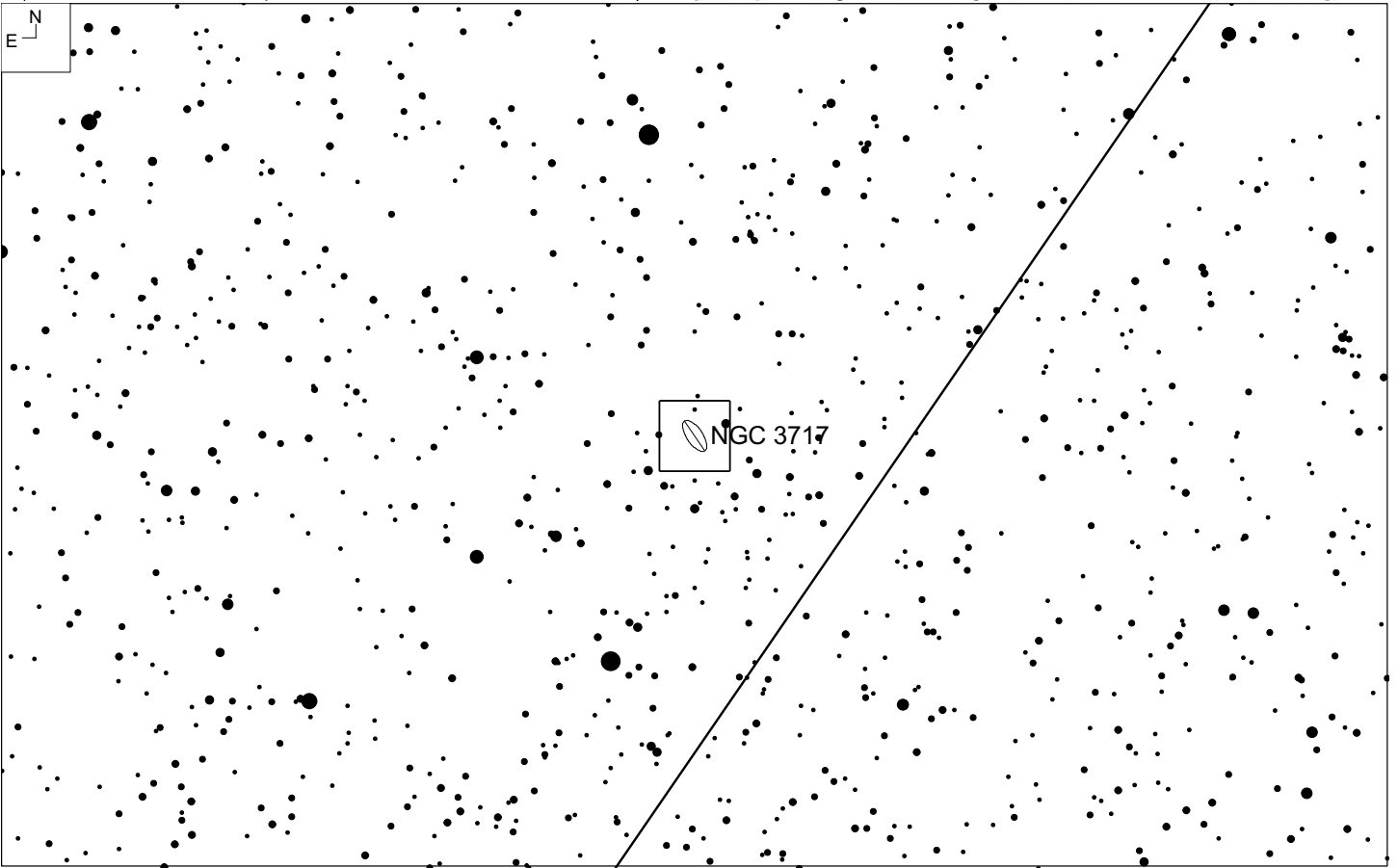
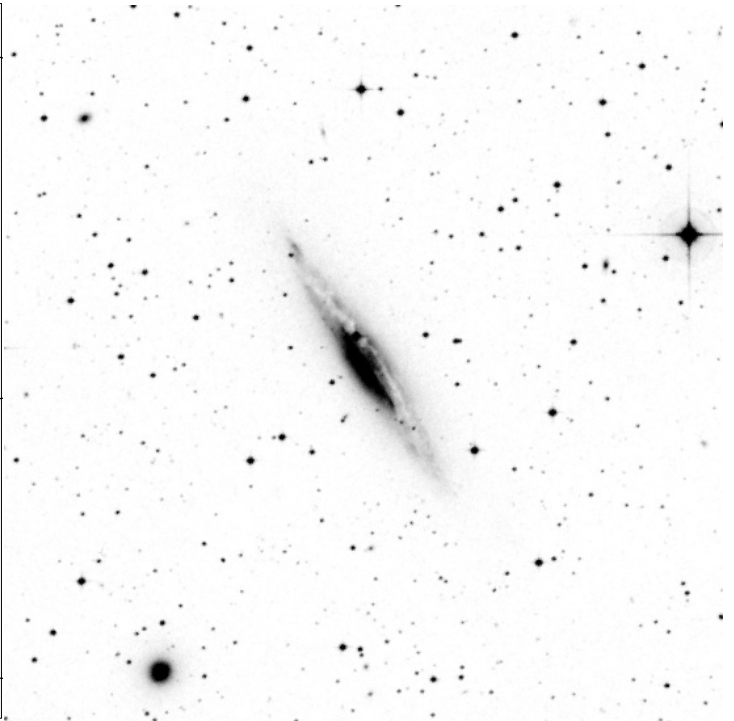
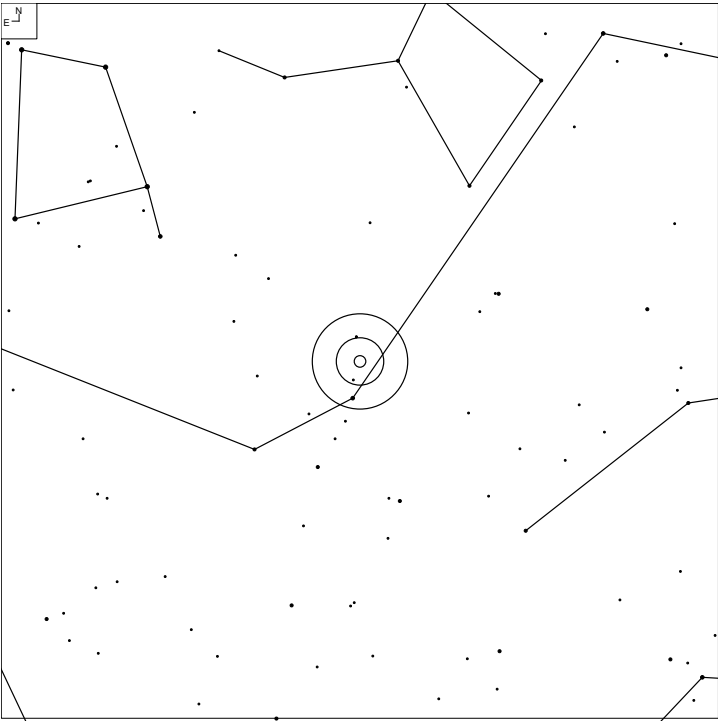
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-------|------------|-----------|---------|------|
| | 13 12 55.2 | -32 41 16 | 13.3p | 5.6 x 1.5' | SB(s)d:sp | 167R | 81 |

Holmberg V (Ursa Major)



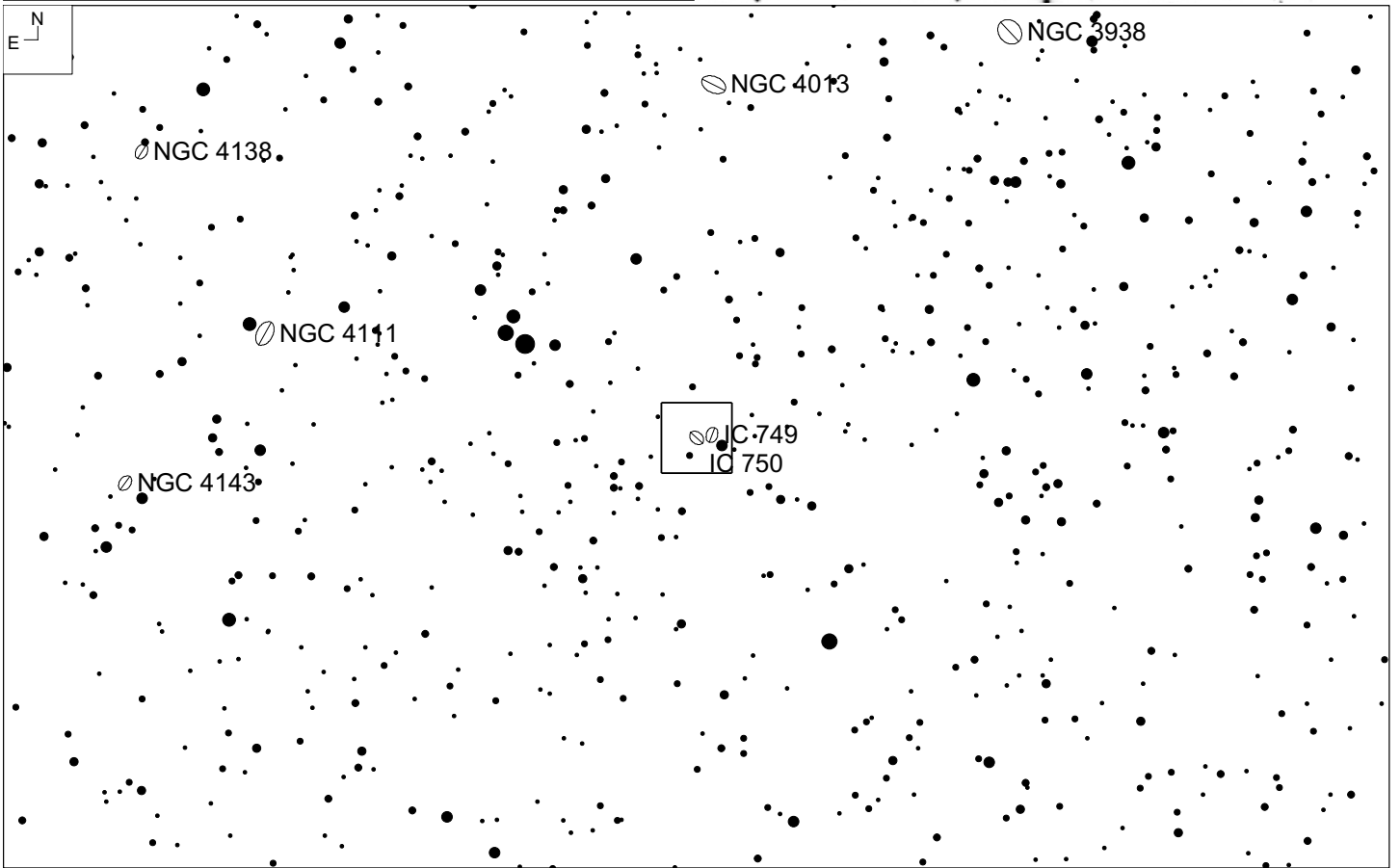
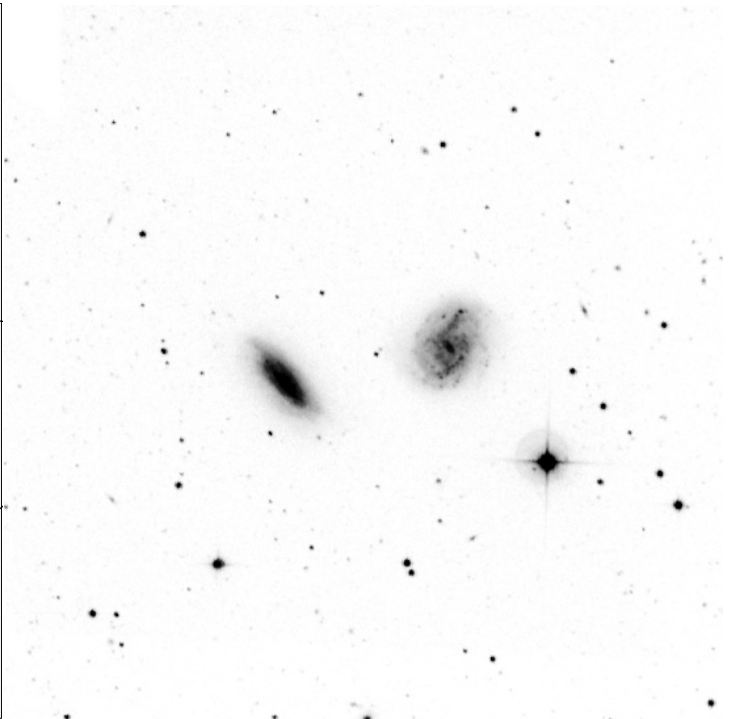
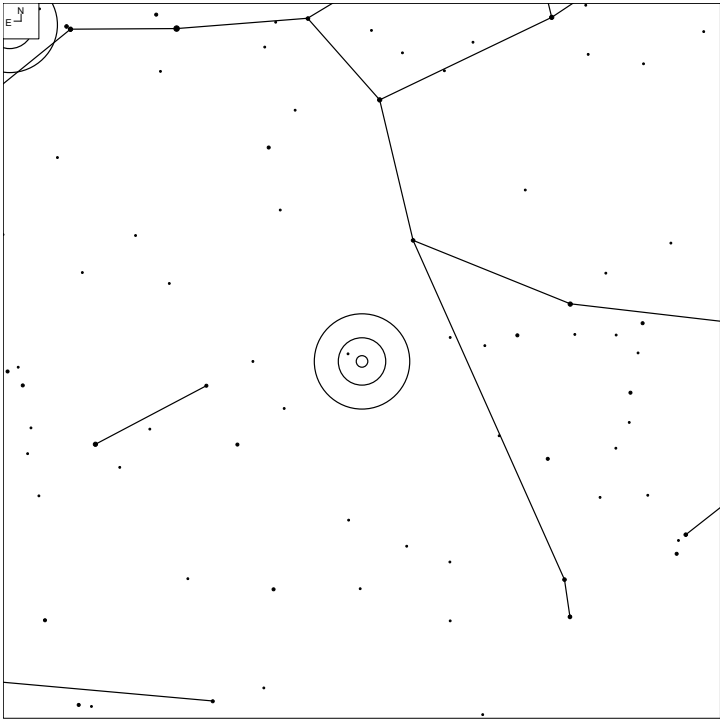
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-------|------------|----------|---------|------|
| UGC 8658 | 13 40 40.3 | +54 20 00 | 13.1b | 2.8 x 1.8' | SAB(rs)c | 23R | 11 |

IRAS 11290-3001 (Hydra)



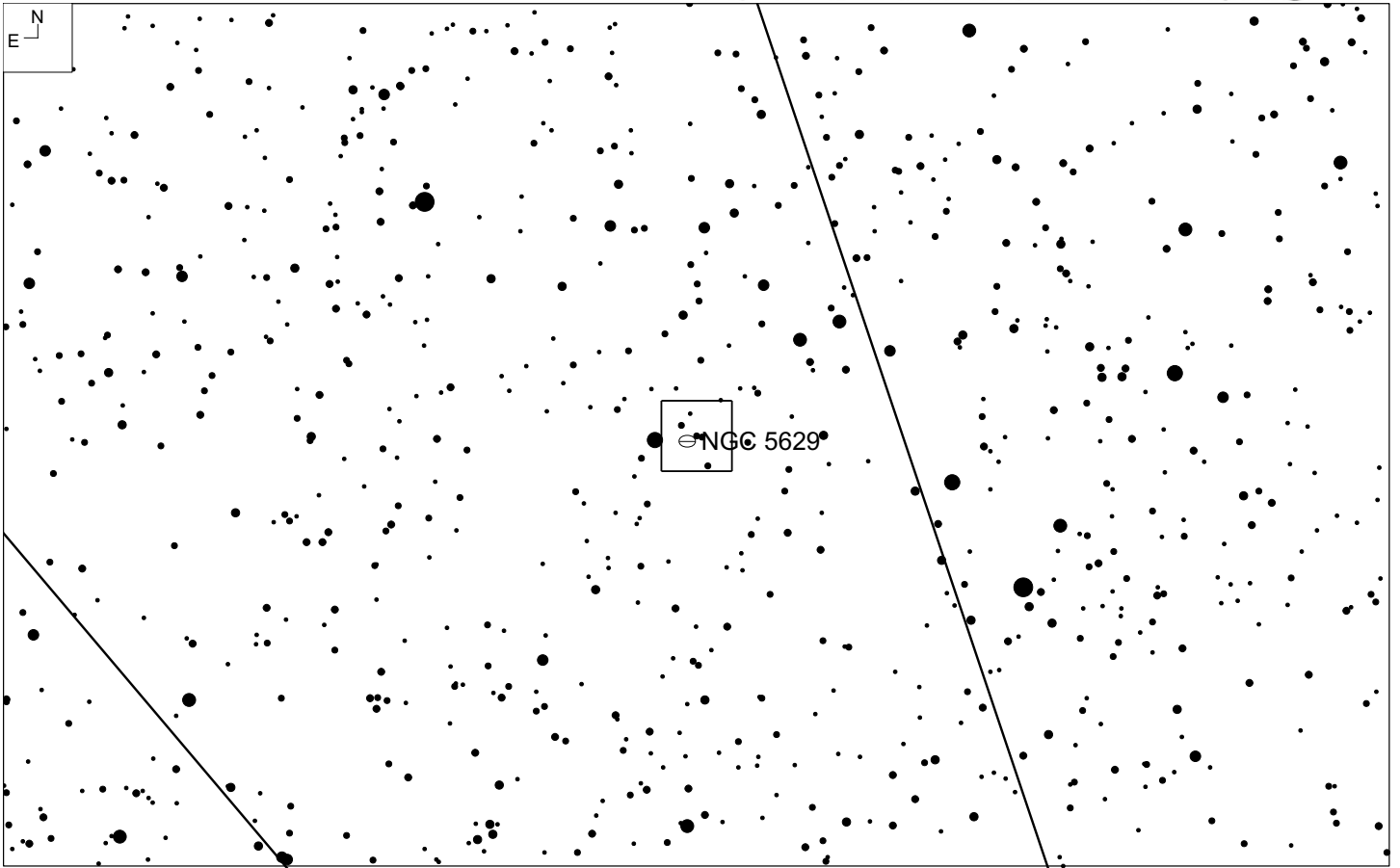
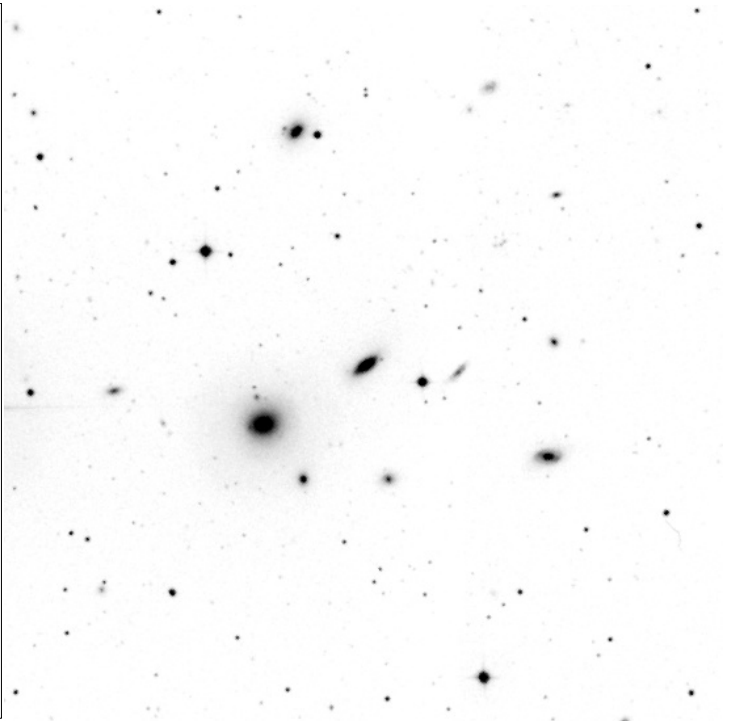
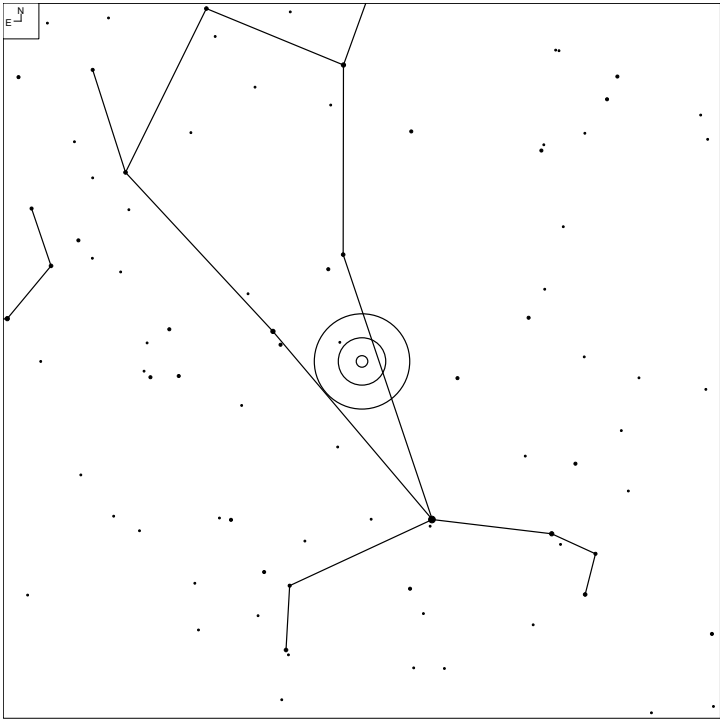
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-------|------------|----------|---------|------|
| NGC 3717 | 11 31 32.1 | -30 18 25 | 12.2b | 7.4 x 1.5' | SAB : sp | 168R | 82 |

IC 750 & 749 (Ursa Major)



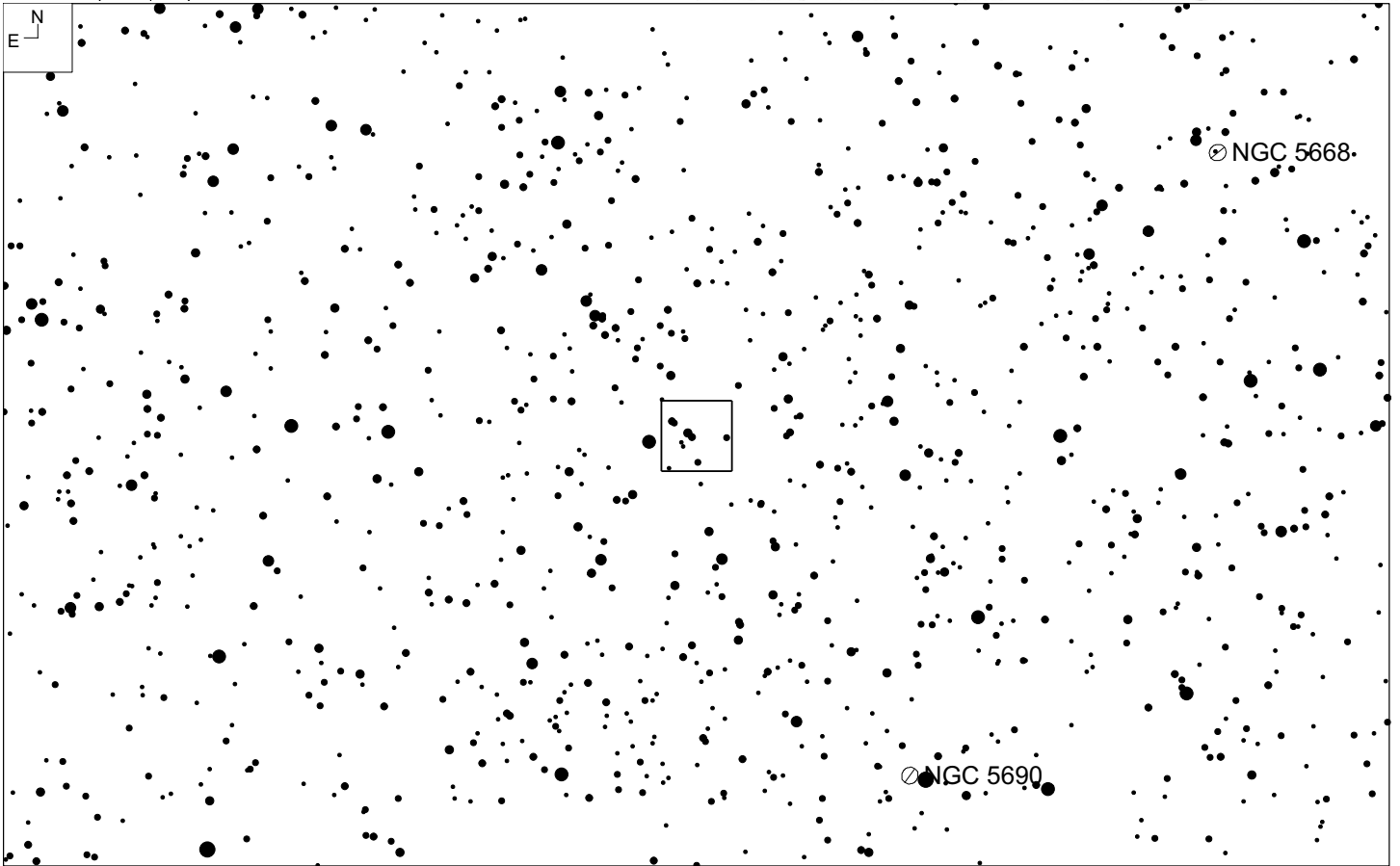
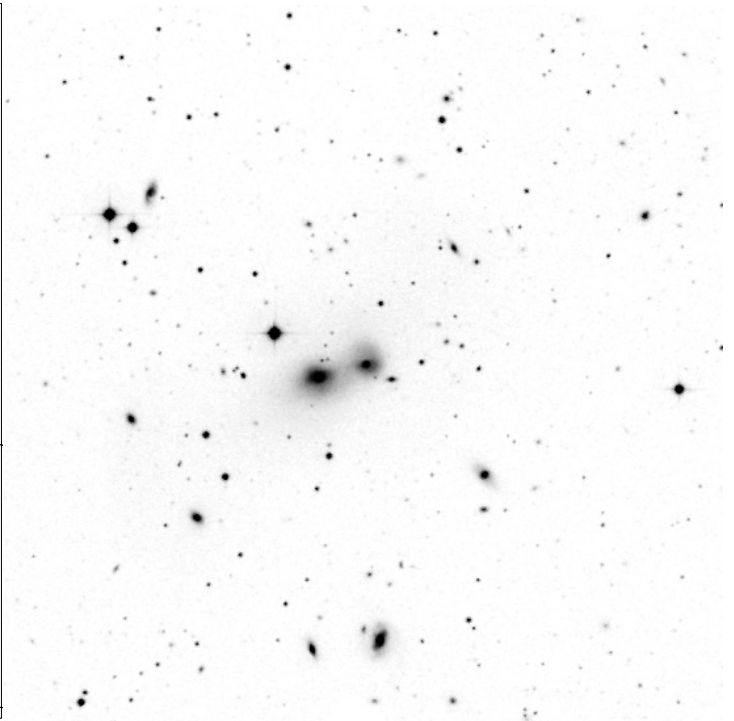
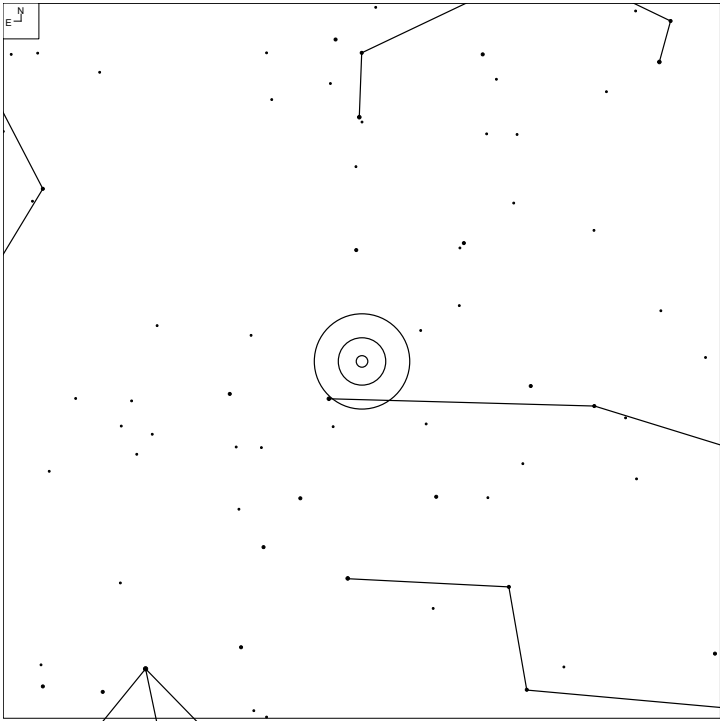
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-------|------------|--------|---------|------|
| | 11 58 51.8 | +42 43 20 | 12.9b | 2.6 x 1.1' | Sab:sp | 38L | 22 |

IC 1017 (Boötes)



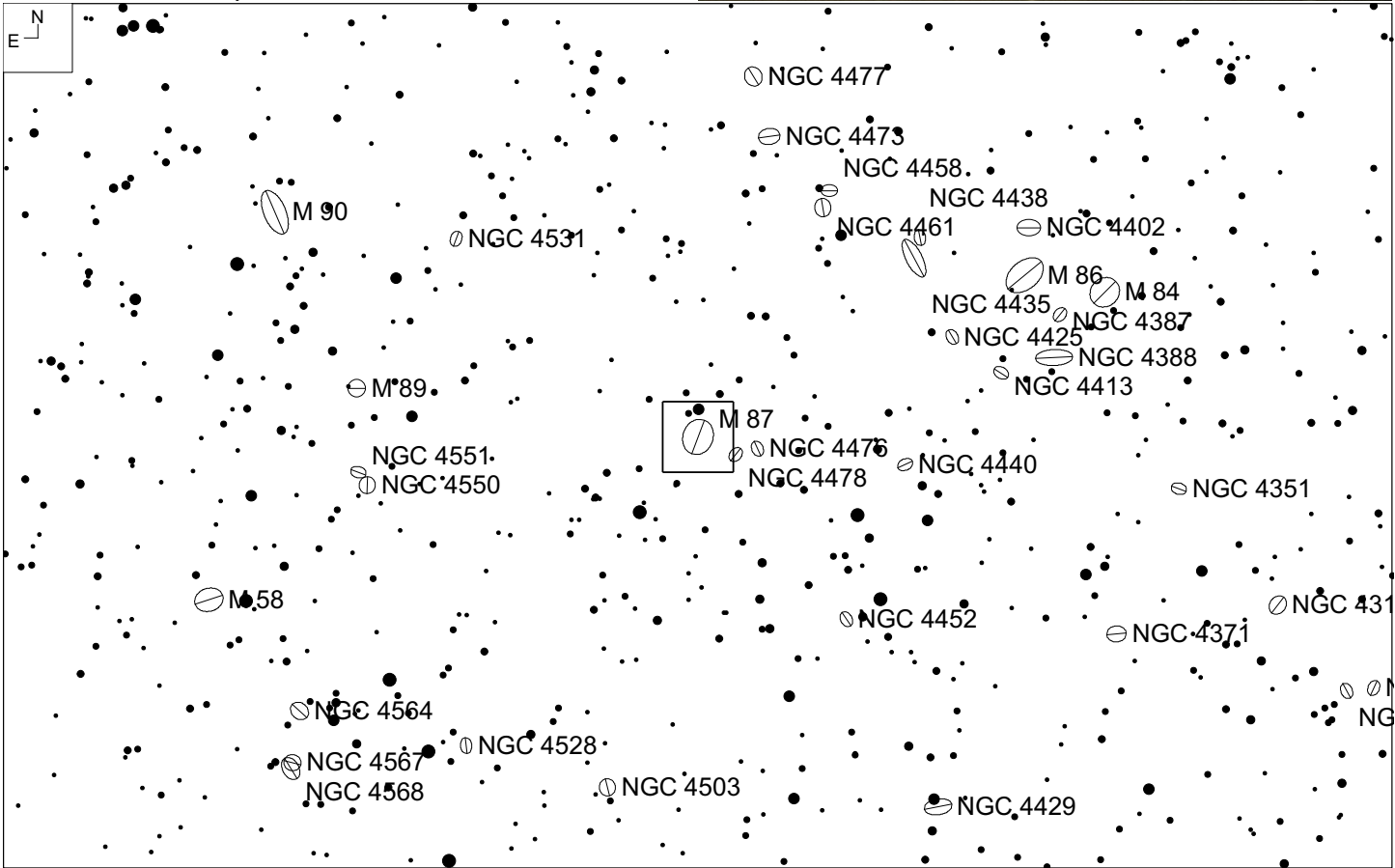
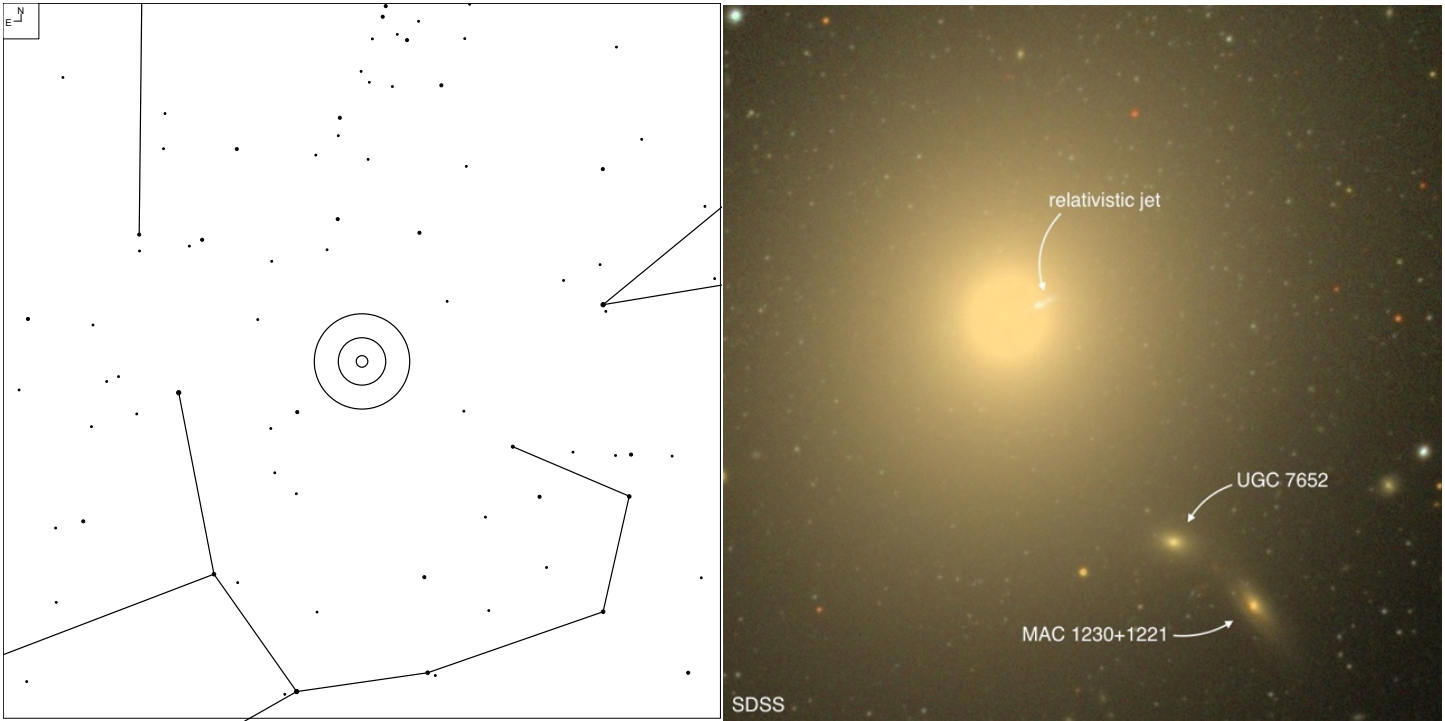
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-------|------------|------|---------|------|
| UGC 9276 | 14 28 07.3 | +25 52 08 | 14.7p | 1.0 x 0.6' | SO? | 70R | 32 |

IC 1042 (Virgo)



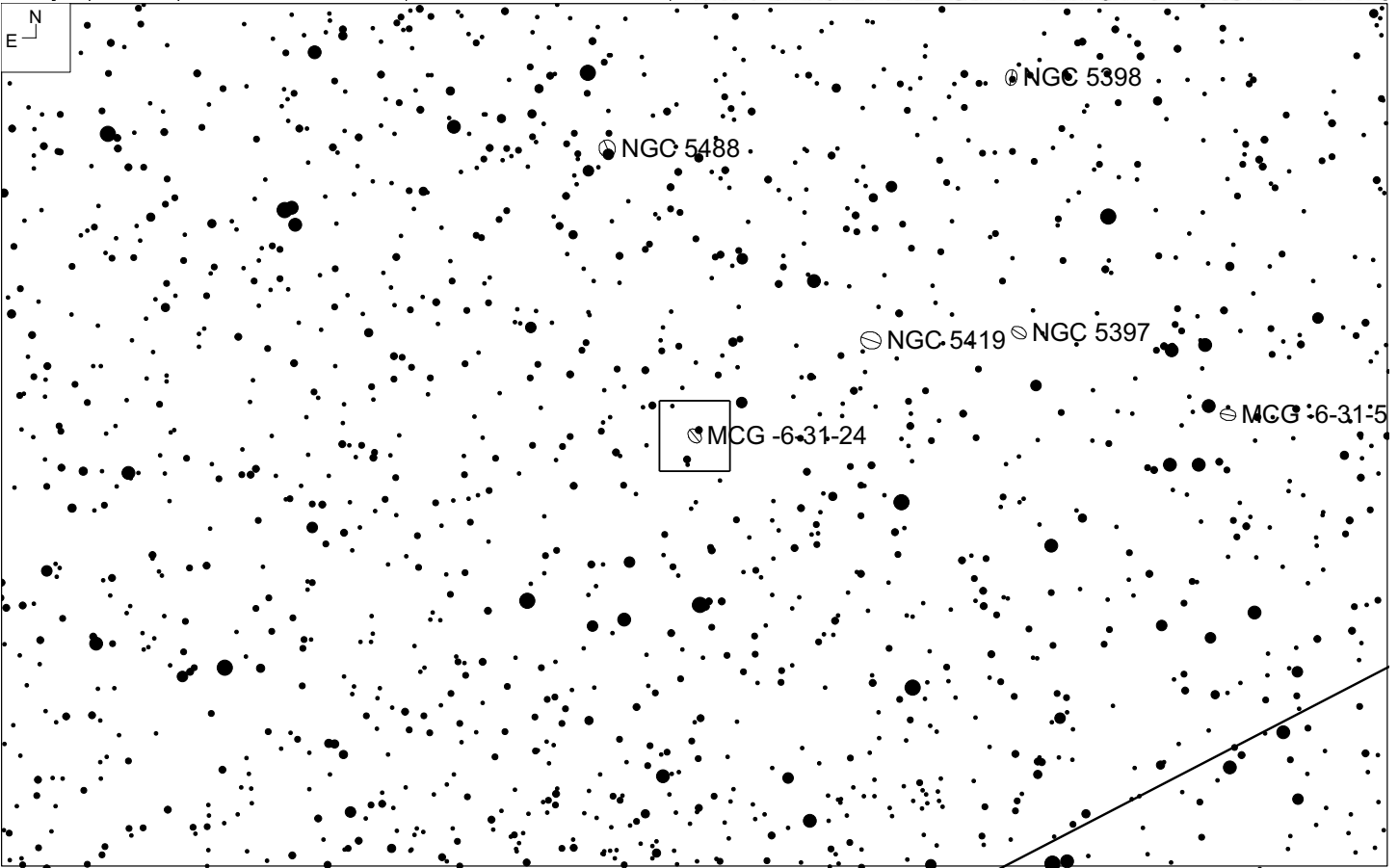
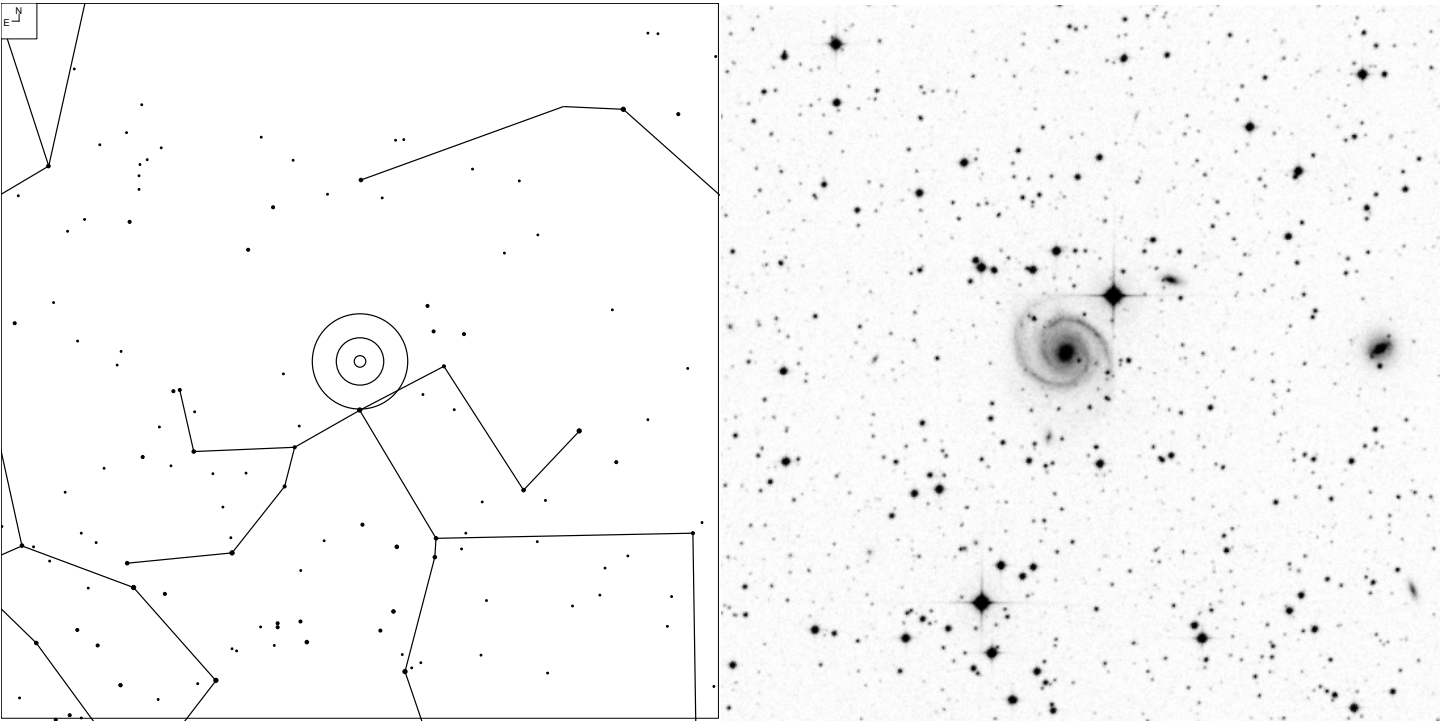
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-------|------|------|---------|------|
| UGC 9457 | 14 40 39.0 | +03 28 11 | 14.3p | 1.0' | SO? | 109L | 56 |

"Jet"- M87 (Virgo)



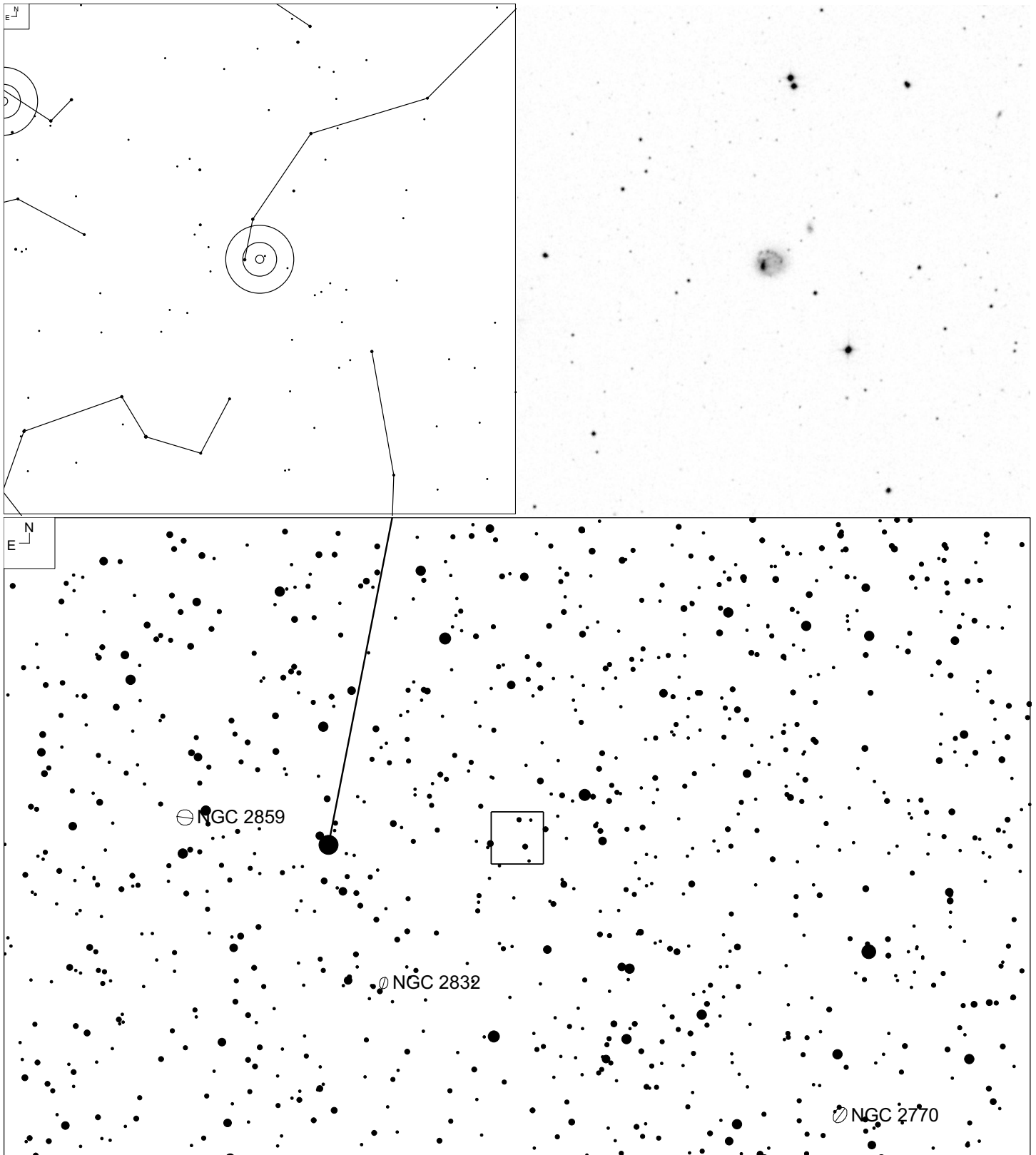
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-----|------|------|---------|------|
| NGC4486 | 12 30 49.7 | +12 23 24 | - | - | Jet | 91L | 45 |

J1406-34 (HIPASS) (Centaurus)



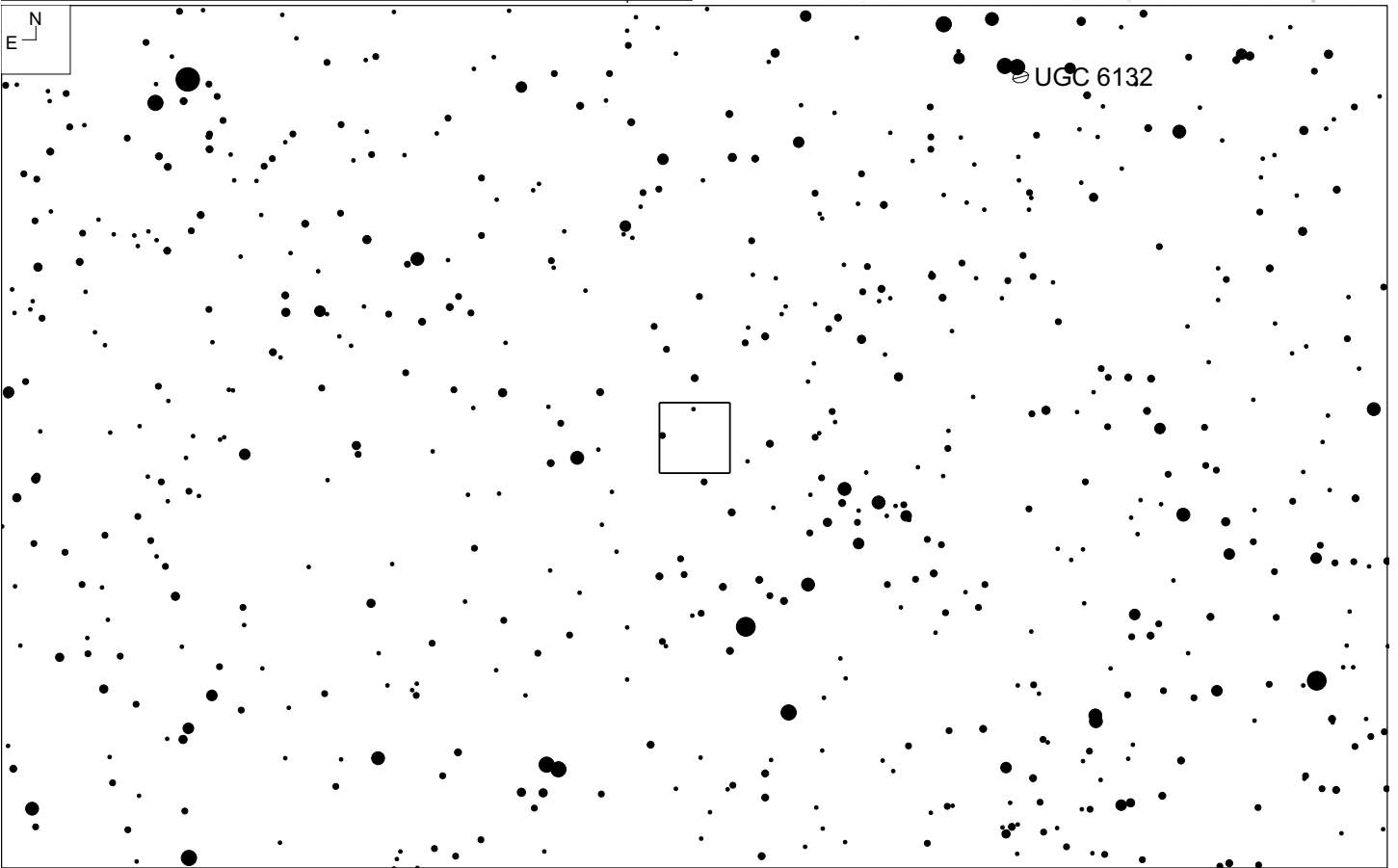
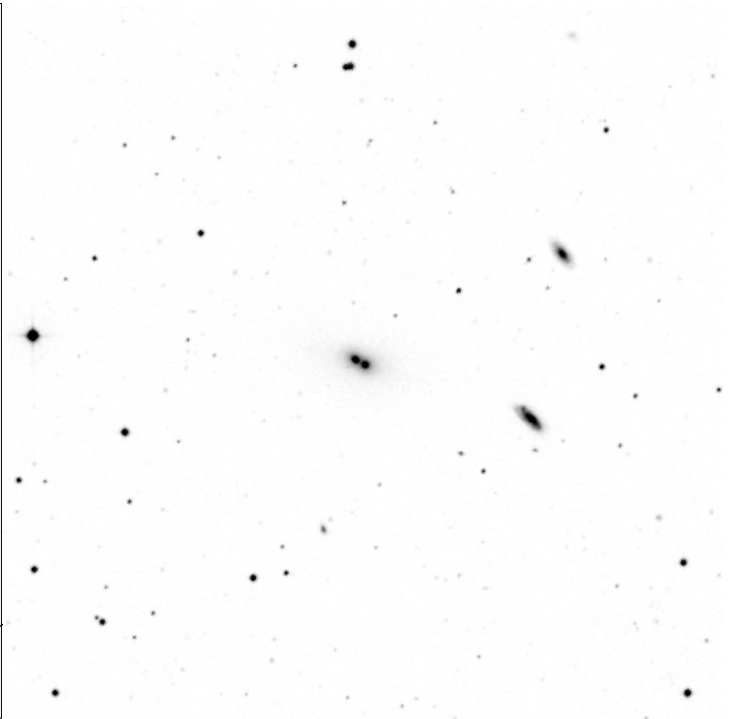
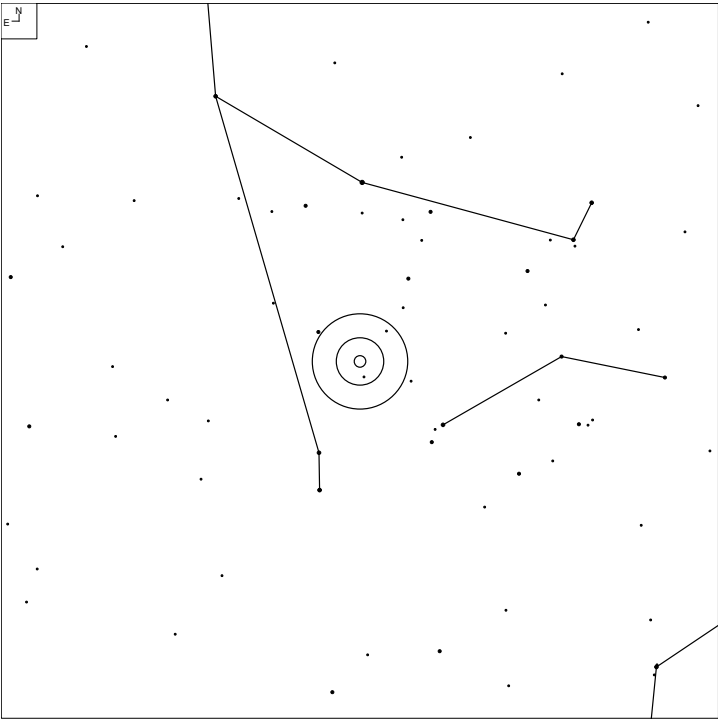
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|------------|------------|-----------|-------|------------|-----------|---------|------|
| ESO 384-53 | 14 06 35.5 | -34 18 46 | 12.9p | 2.2 x 1.8' | SAB(rs)bc | 166R | 80 |

Kug 0913+346B (Lynx)



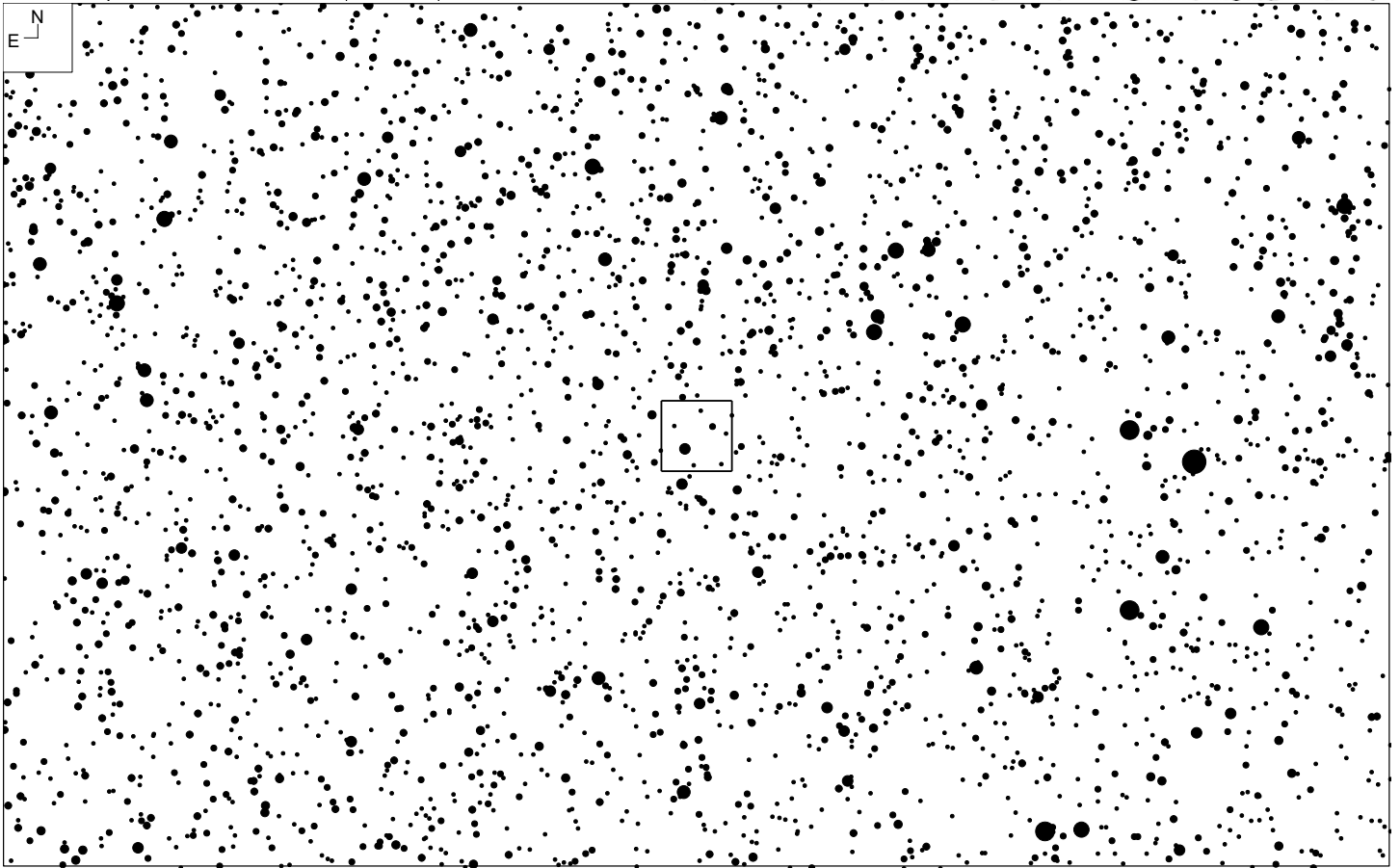
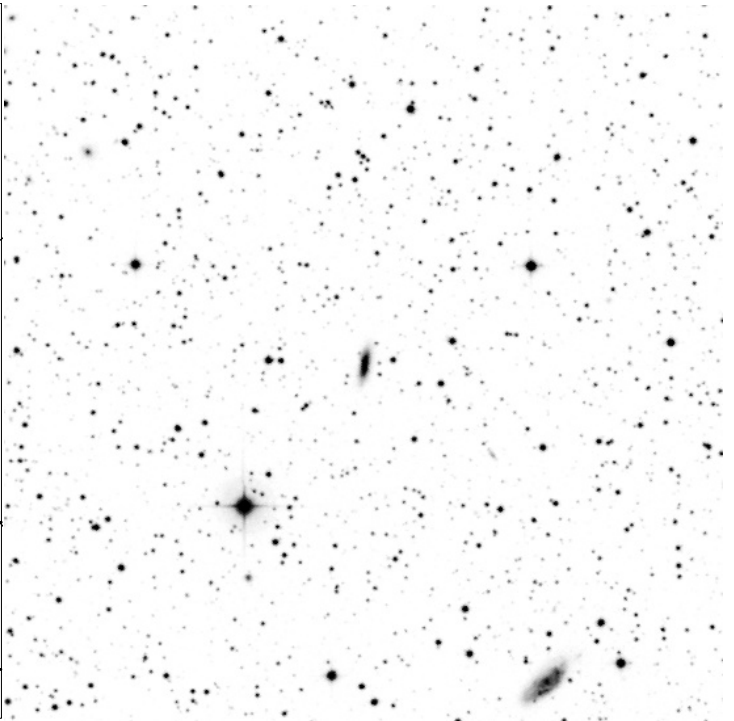
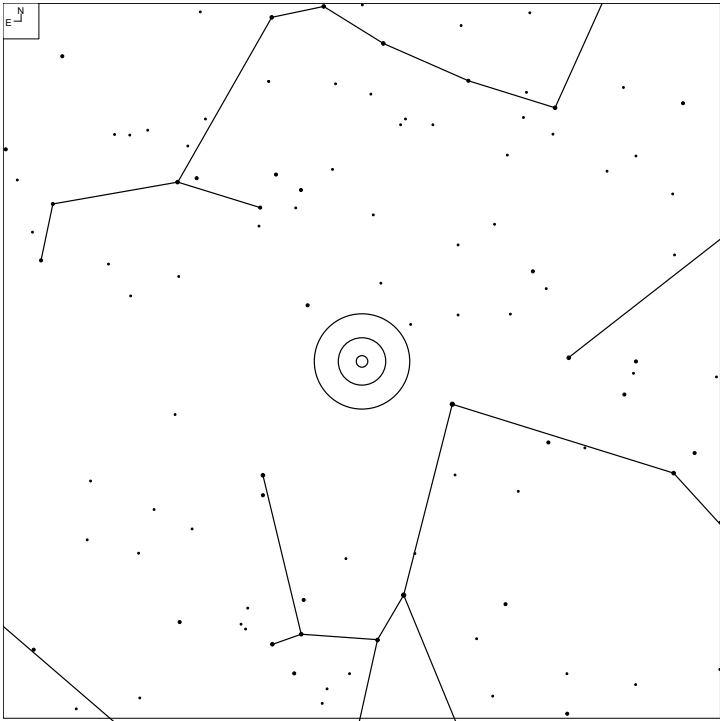
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|------|------------|------|---------|------|
| NGC 2793 | 09 16 47.1 | +34 26 22 | 16.5 | 0.4 x 0.3' | - | 56R | 35 |

Kara 72 (Ursa Major)



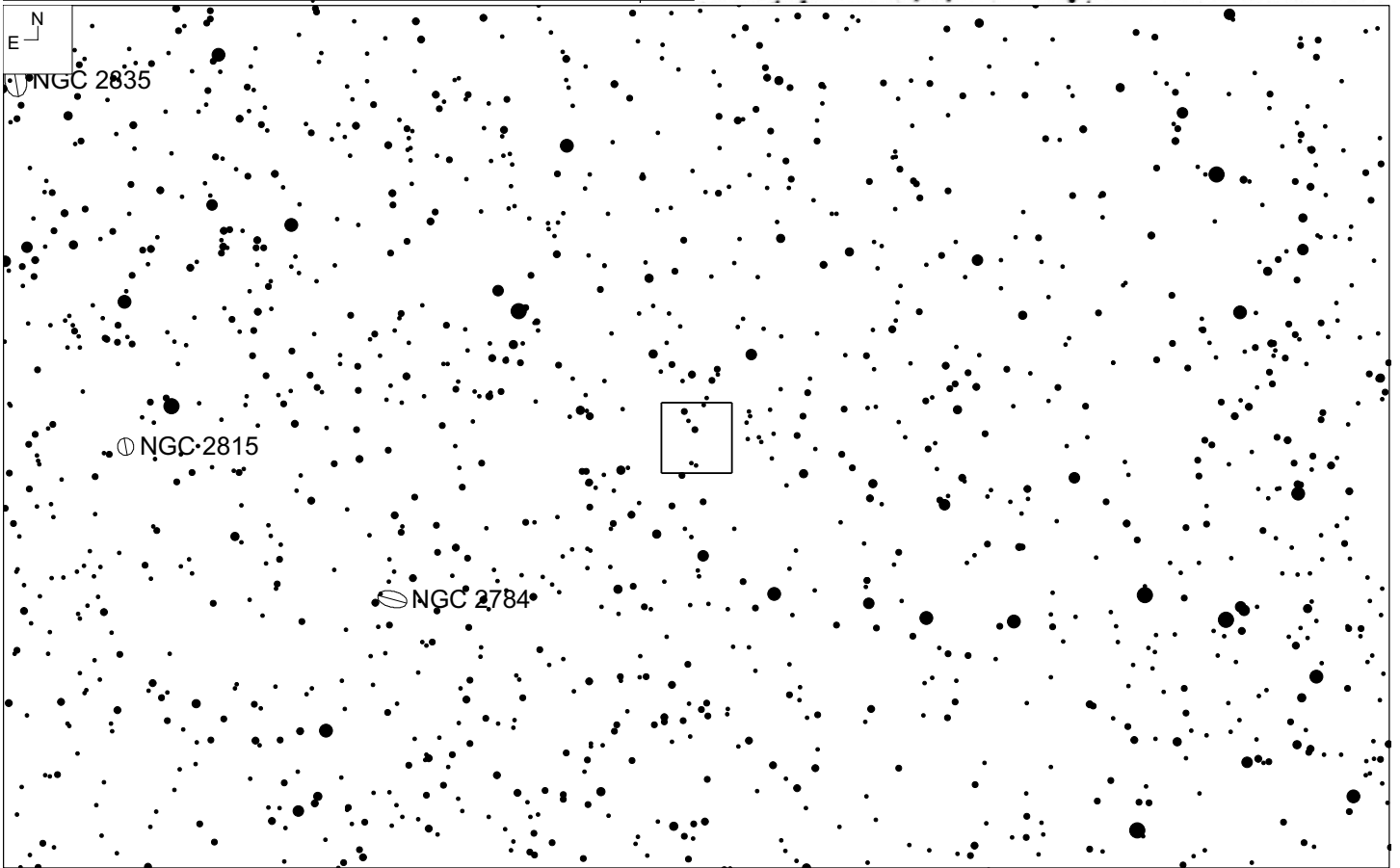
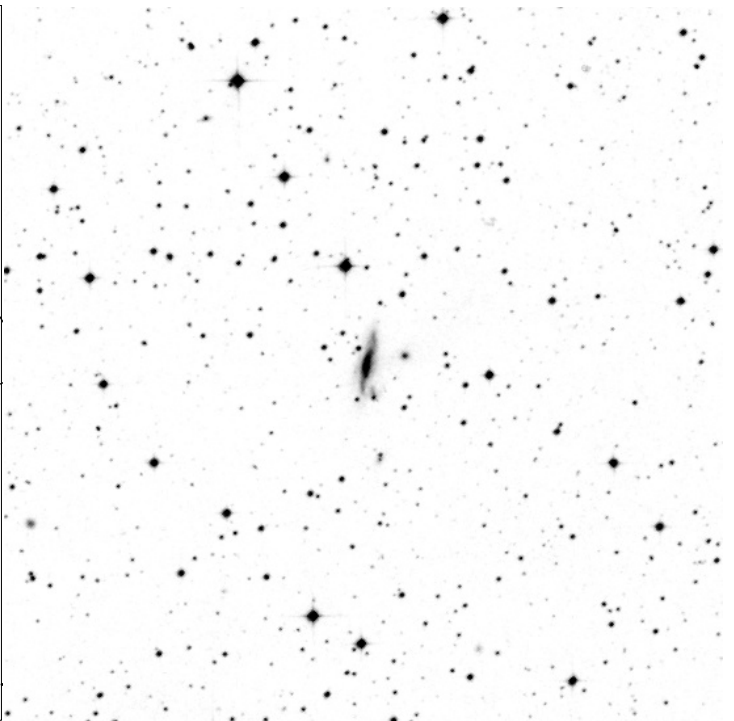
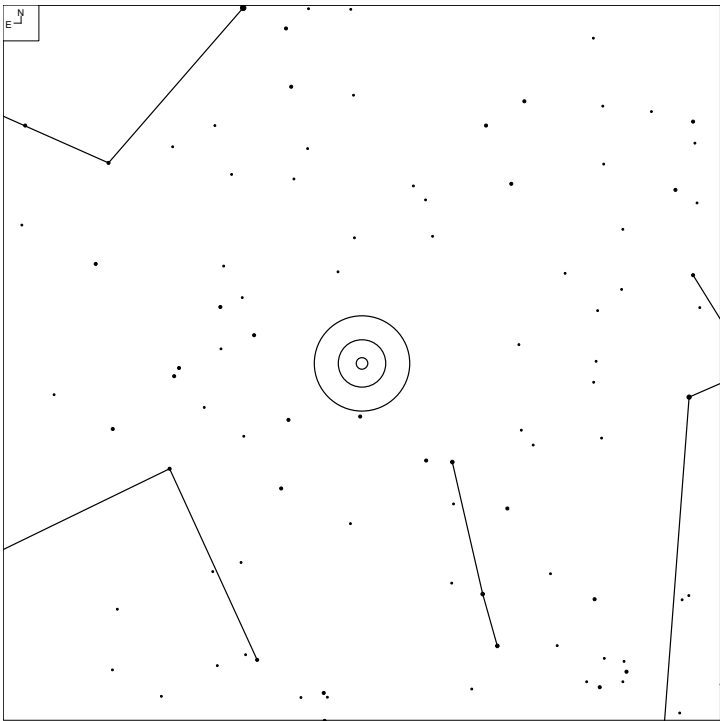
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|-------------|------------|-----------|------|----------|------|---------|------|
| NGC 3545A/B | 11 10 12.3 | +36 57 52 | 14.8 | 53 x 40" | Dbl | 55L | 34 |

Kug 1748+14 (Hercules)



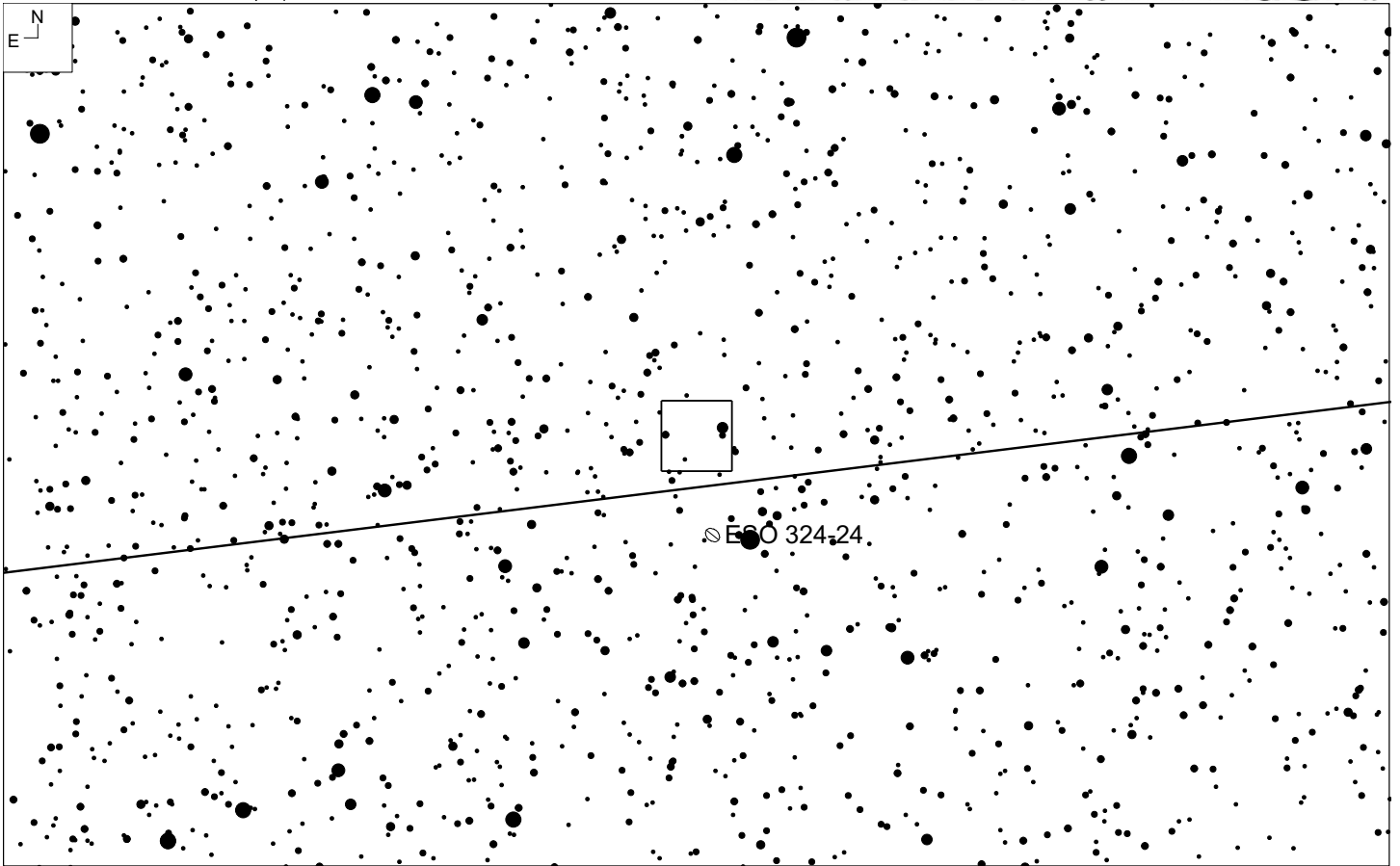
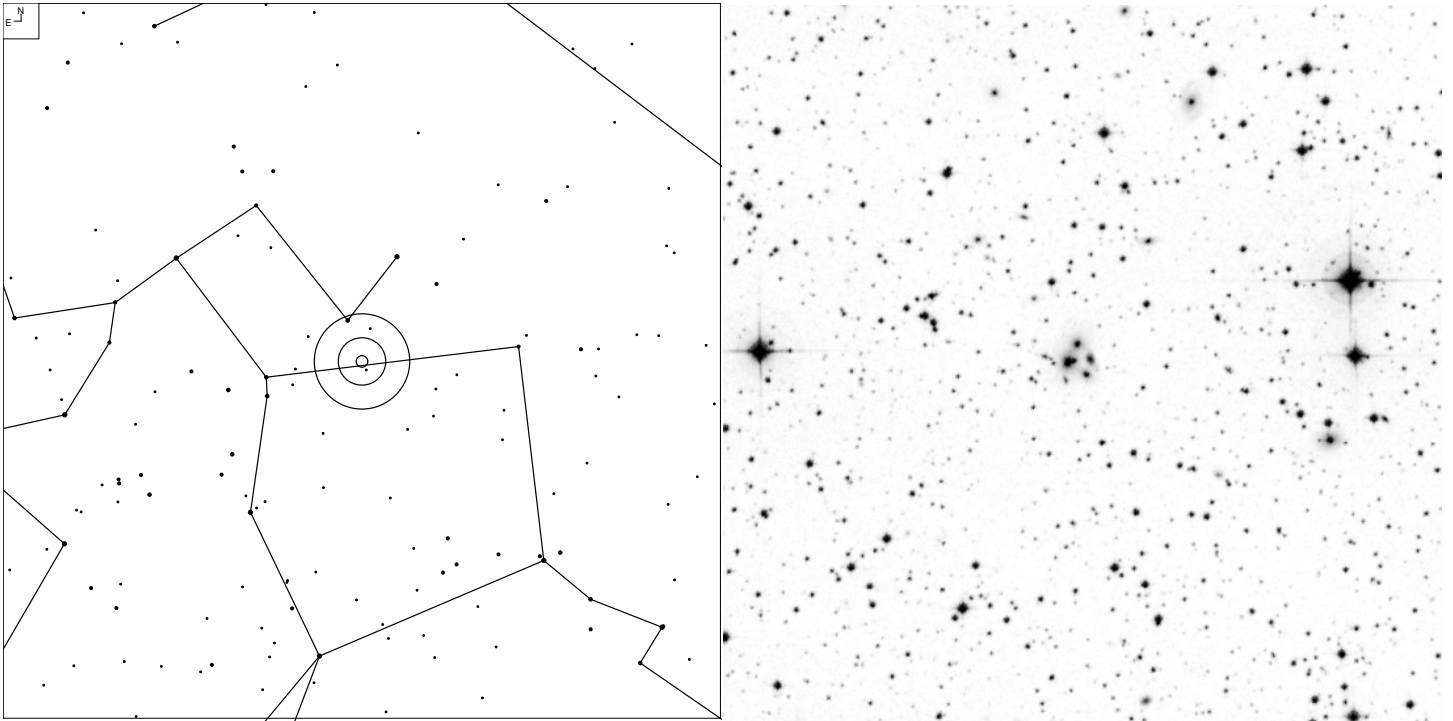
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|------------|------------|-----------|------|------------|------|---------|------|
| CGCG 83-28 | 17 50 28.8 | +14 23 35 | 15.0 | 0.7 x 0.2' | Sb | 86R | 43 |

LEDA 25654 (Pyxis)



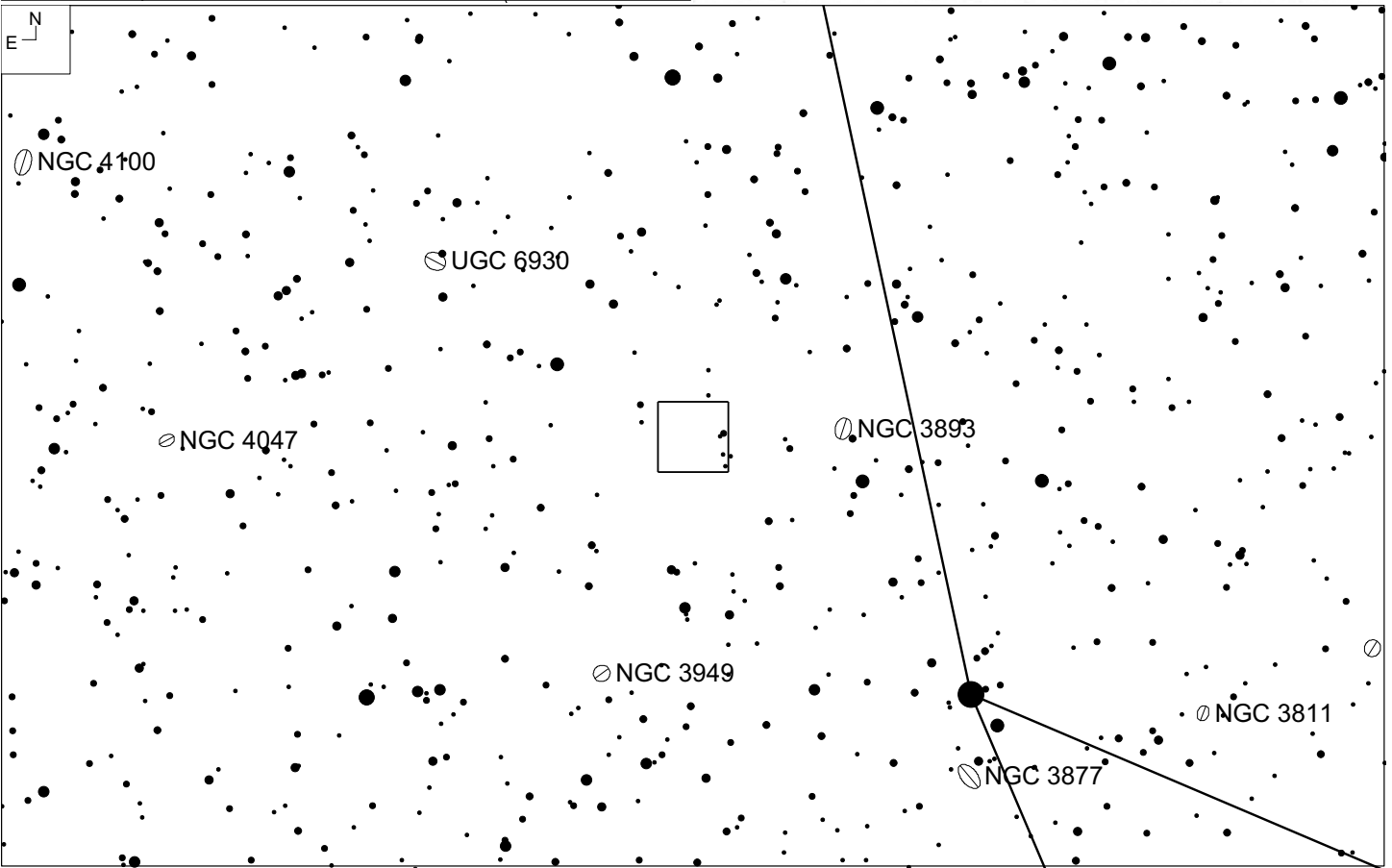
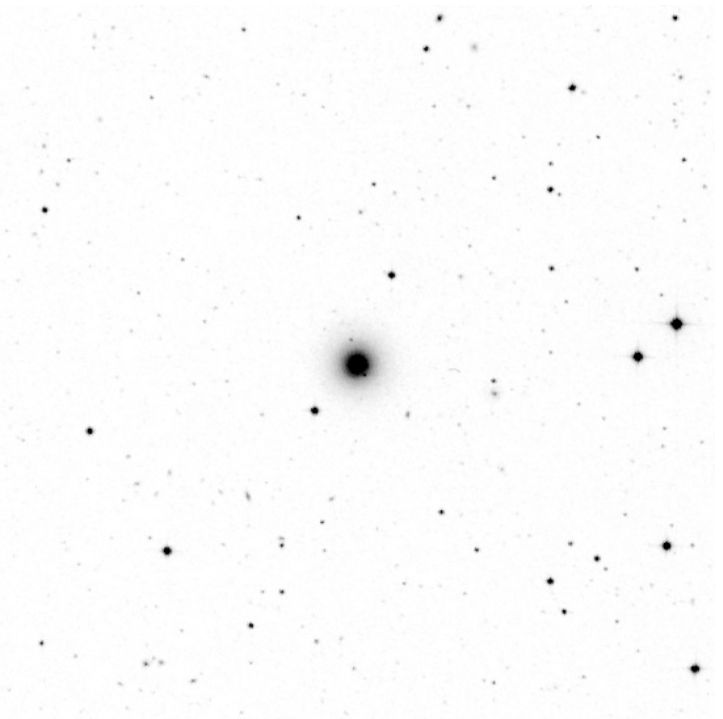
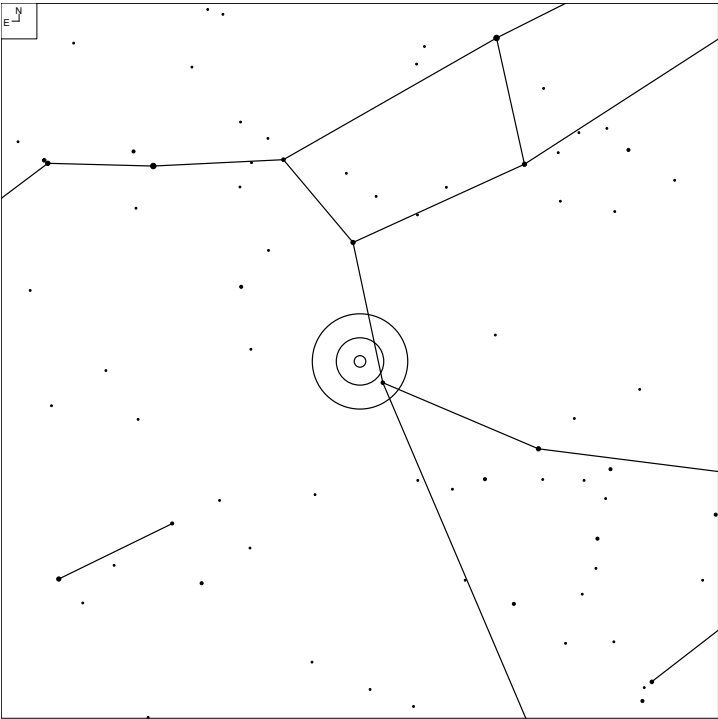
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-------|------------|------------|---------|------|
| NGC 2772 | 09 07 41.7 | -23 37 03 | 14.2p | 1.5 x 0.8' | Sb: pec sp | 152R | 83 |

Longmore's Group (Centaurus)



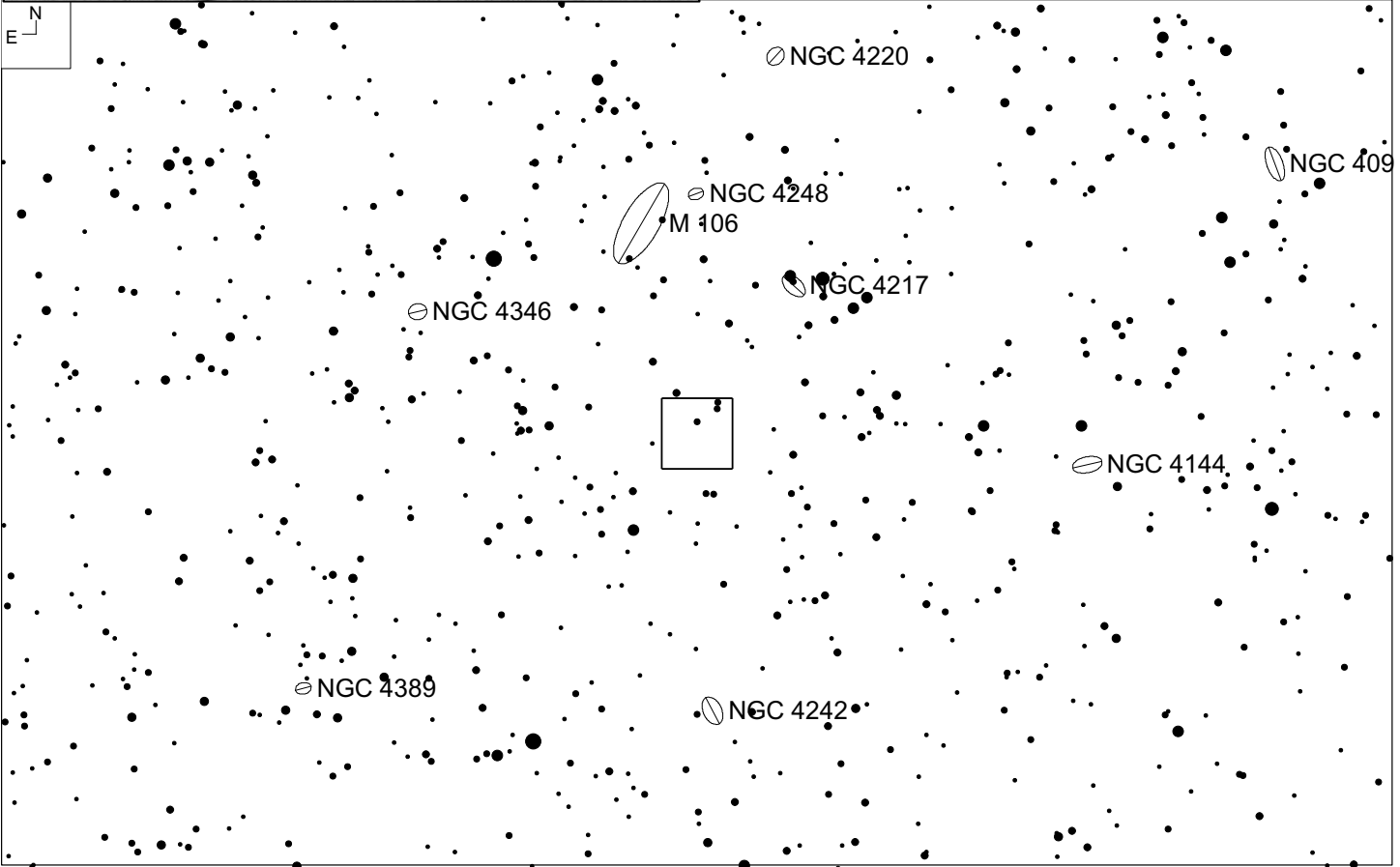
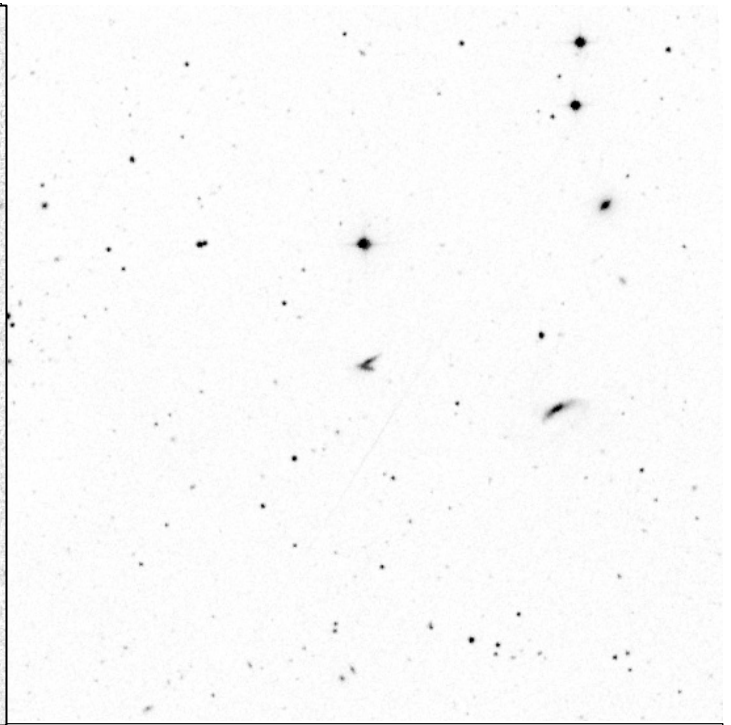
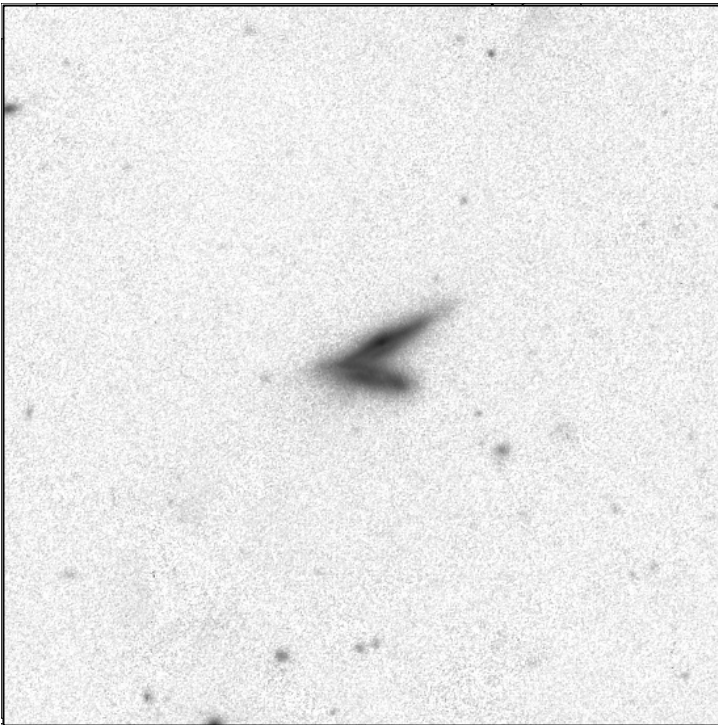
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|------|----------|----------|---------|------|
| | 13 27 56.0 | -41 08 13 | 15.8 | 55 x 47" | Cluter-4 | 194L | 93 |

Miniature Spiral (Ursa Major)



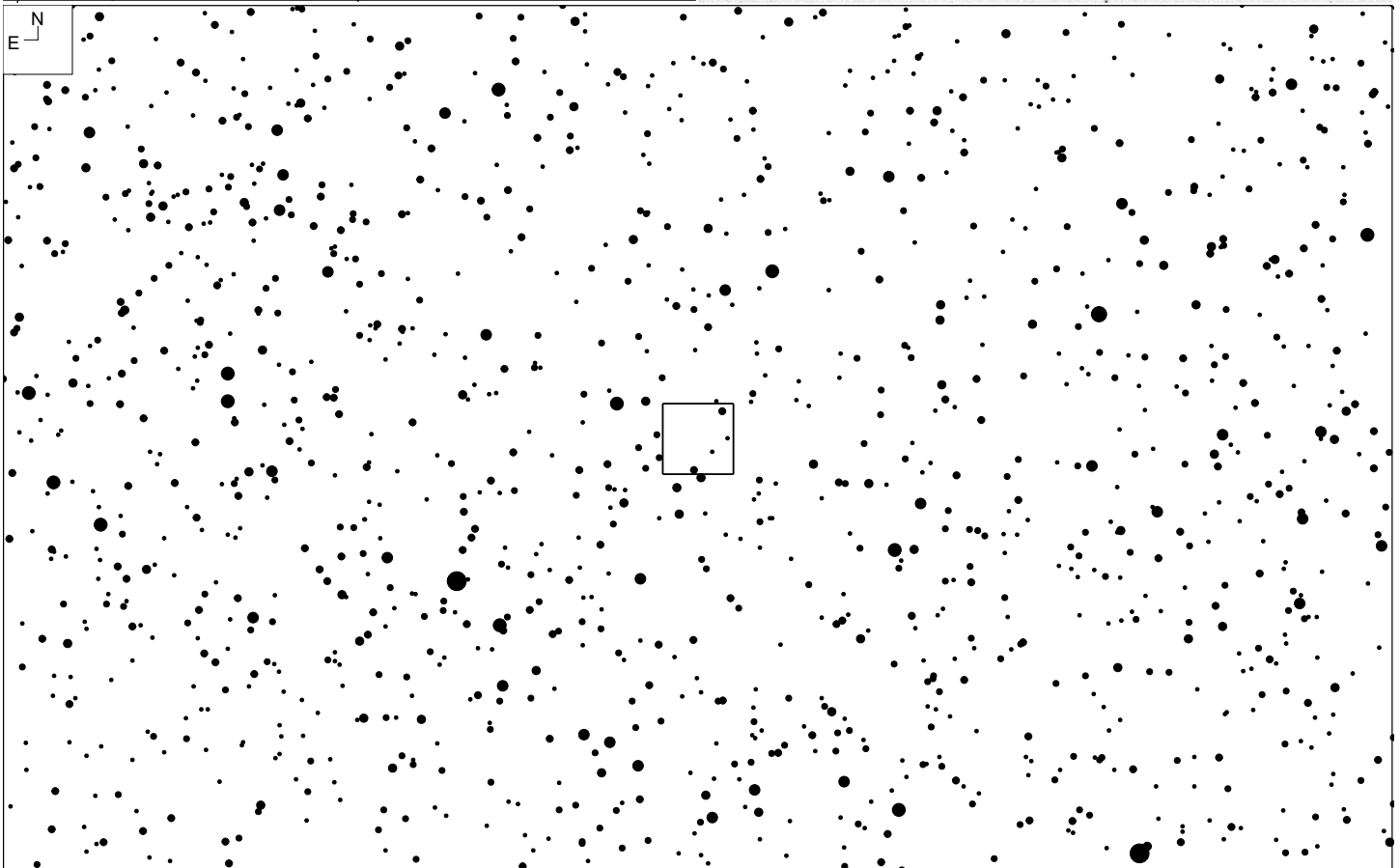
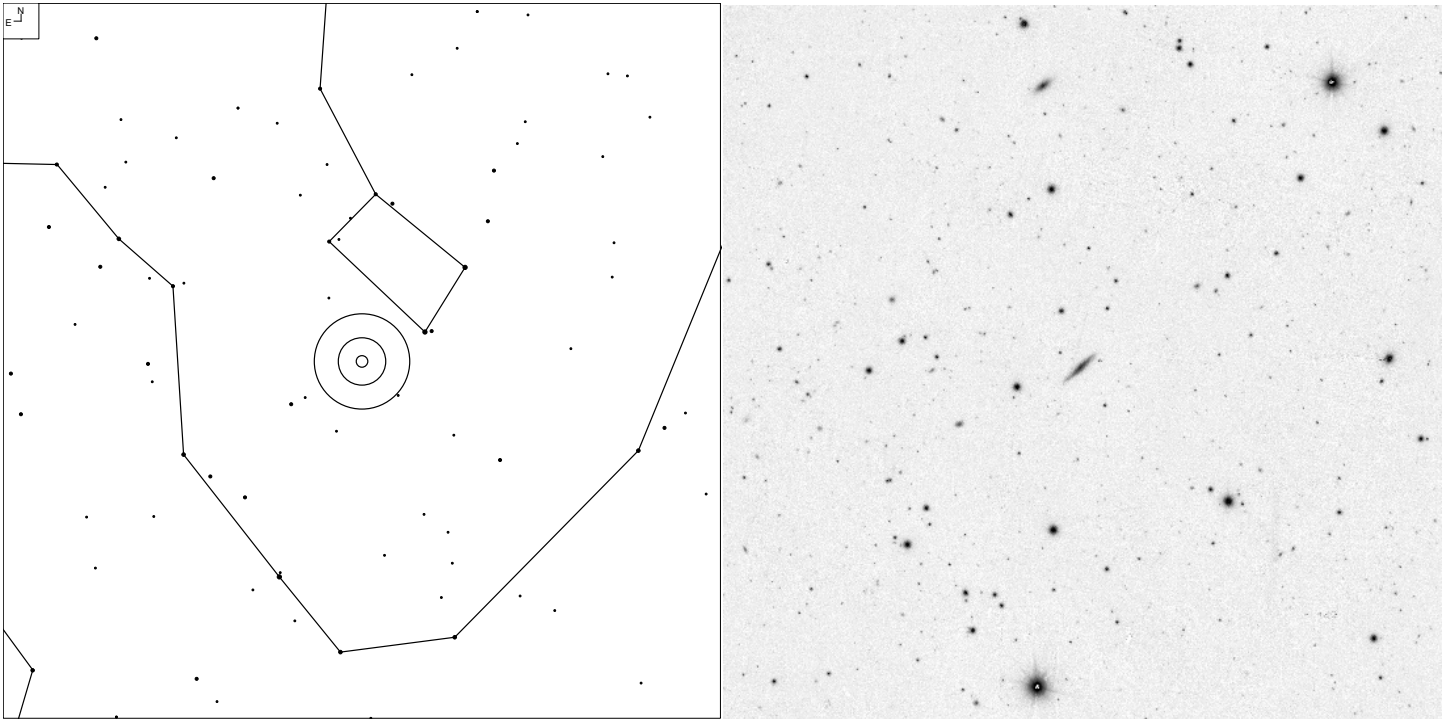
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-------|------------|--------|---------|------|
| NGC 3928 | 11 51 47.6 | +48 40 59 | 13.2b | 1.5 x 1.5' | DA(s)b | 38L | 22 |

Mitchell's Object (Canes Venatici)



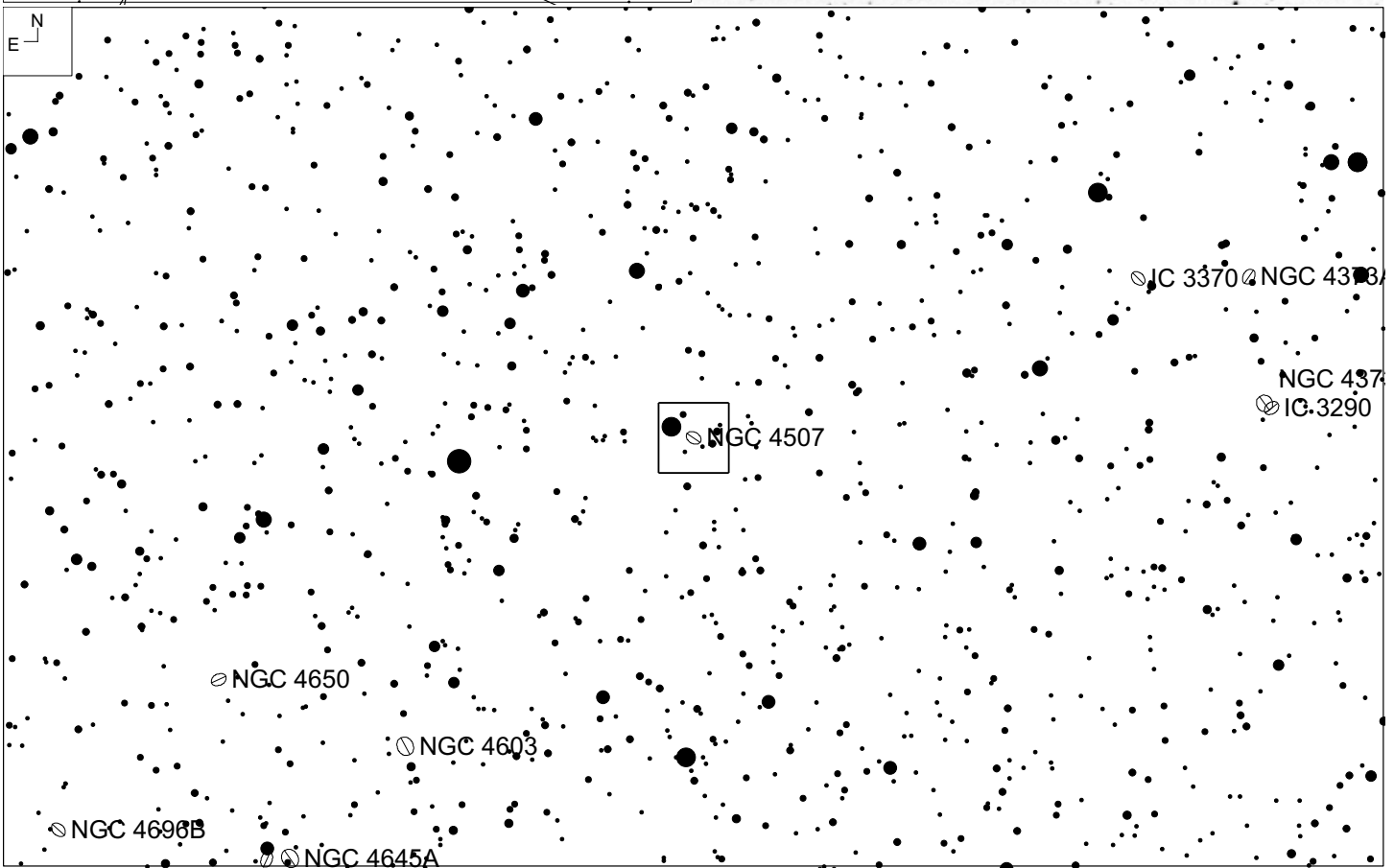
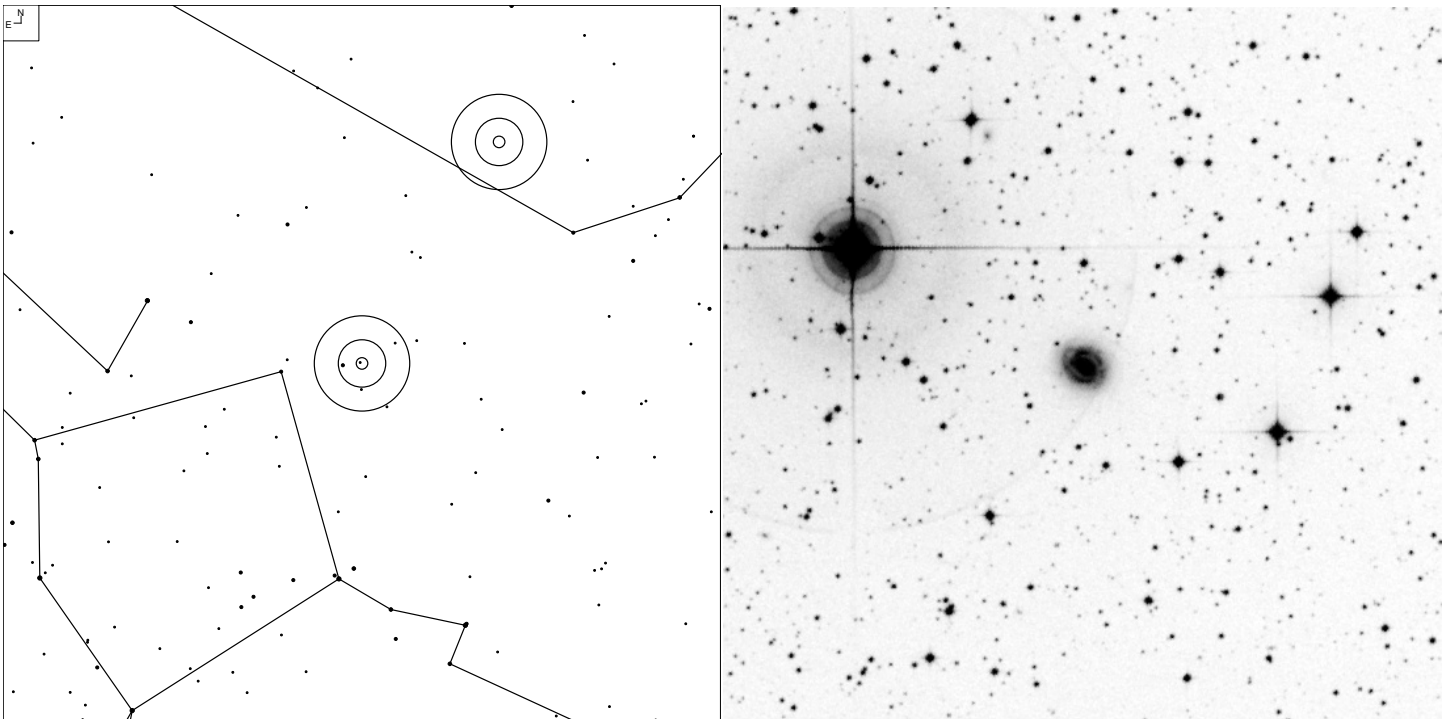
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|---------------|------------|-----------|------|----------|------|---------|------|
| MAC 1217+4635 | 12 17 48.5 | +46 34 54 | 15.0 | 31 x 25" | Pair | 37R | 21 |

MAC 1554+7046 (Ursa Minor)



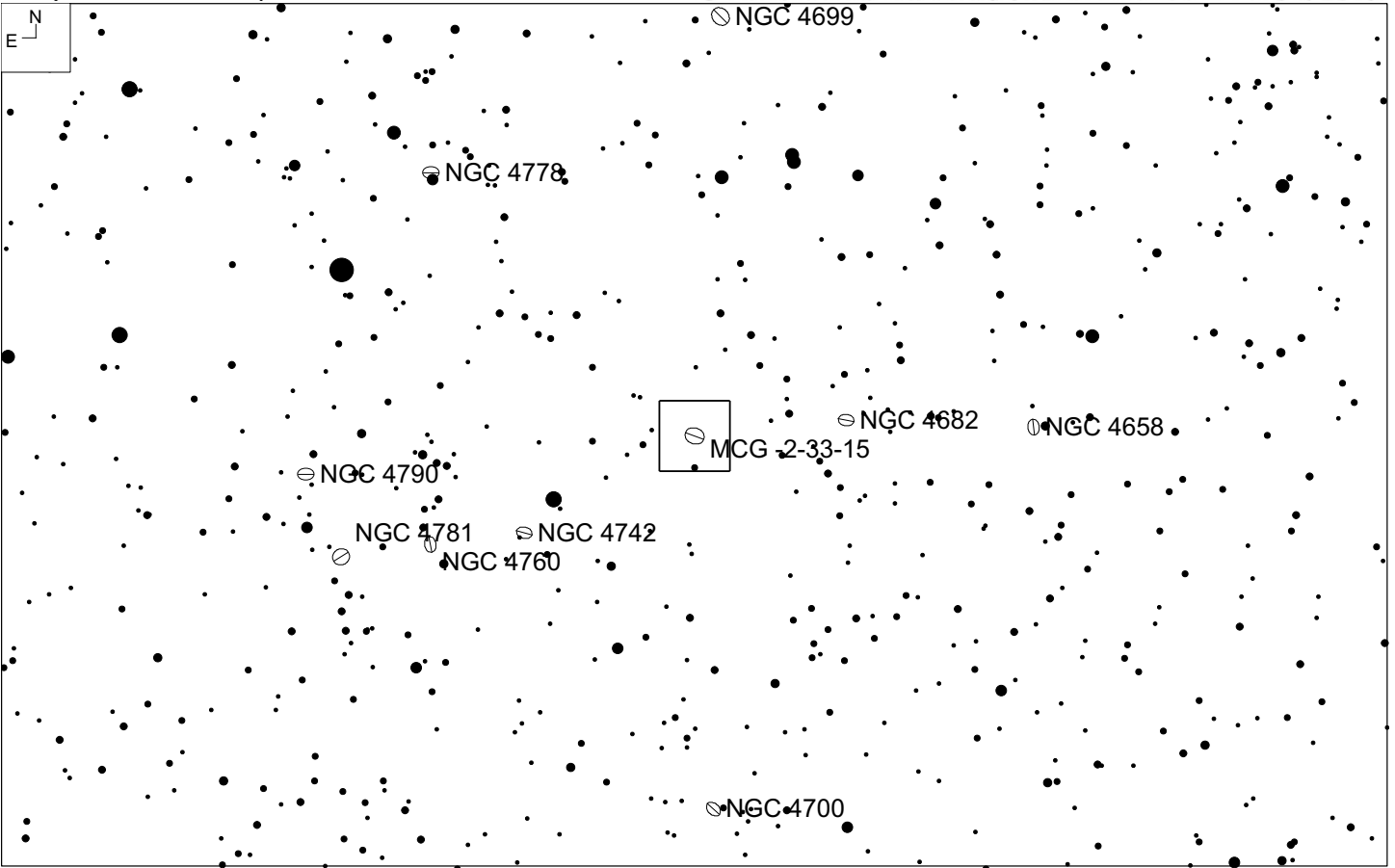
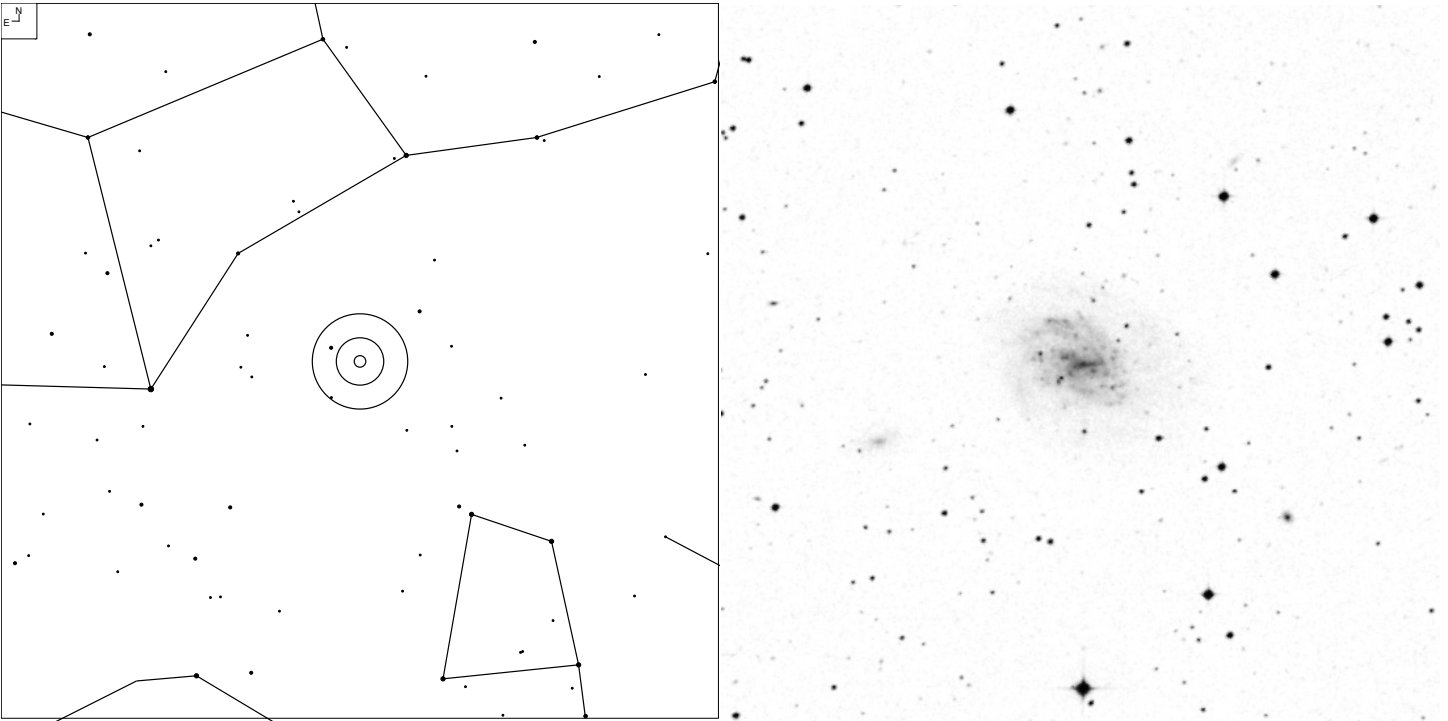
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|------|----------|------|---------|------|
| | 15 54 55.3 | +70 46 17 | 15.0 | 0.8x0.2' | | 11R | 4 |

New 2 (Centaurus)



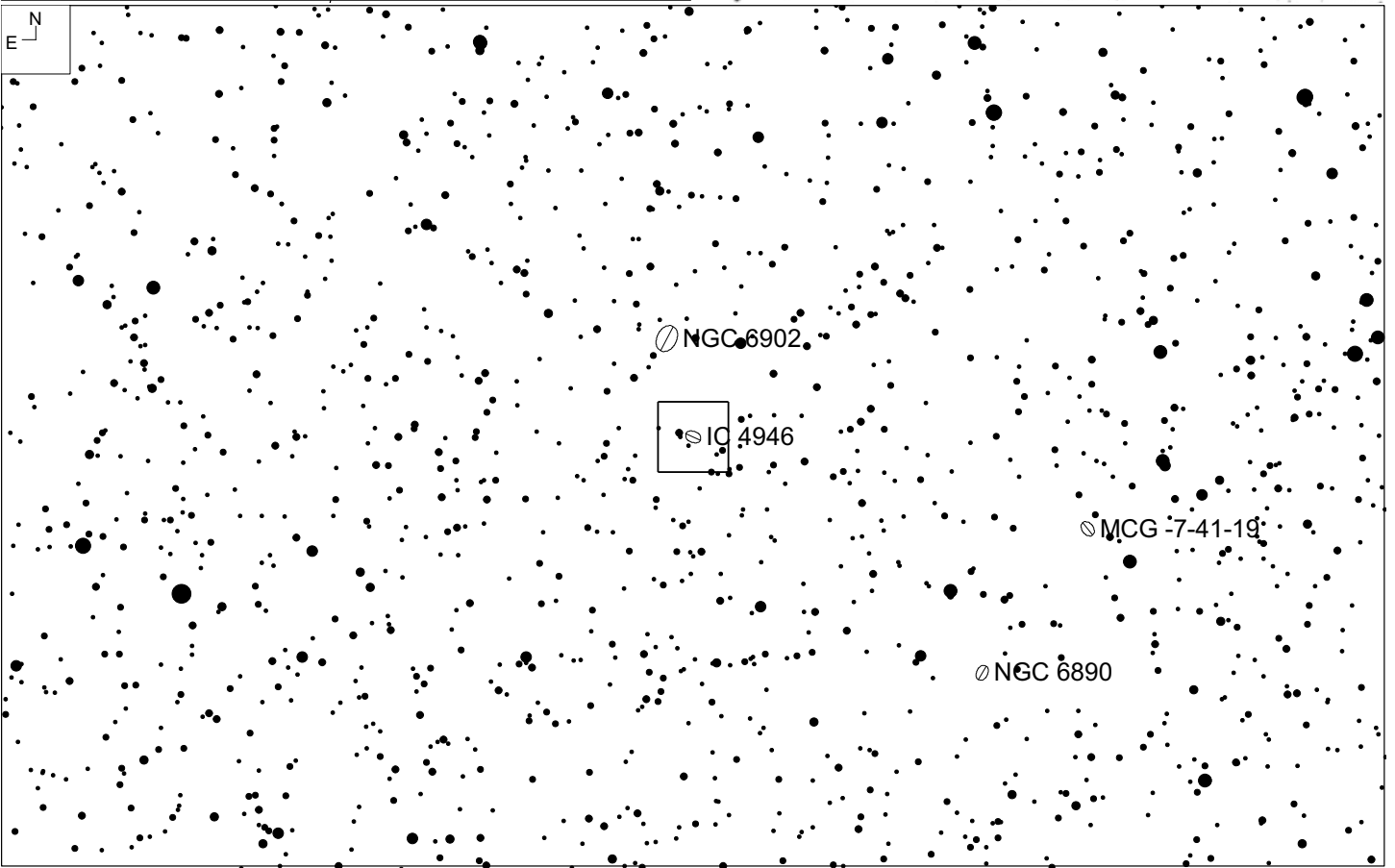
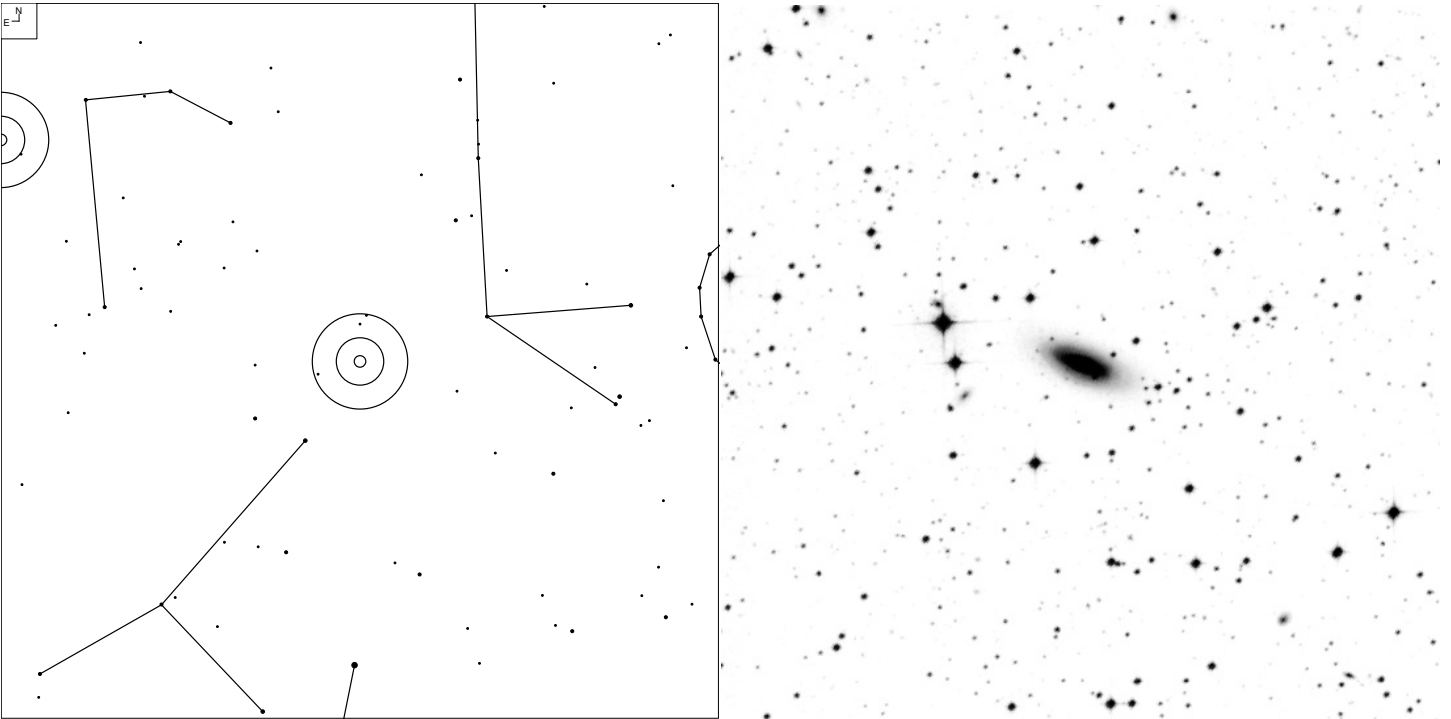
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|------------------|------------|-----------|-------|------------|--------------|---------|------|
| Tol 97, NGC 4507 | 12 35 36.7 | -39 54 33 | 12.9b | 1.6 x 1.2' | (R')SAB(rs)b | 168L | 93 |

New 3 (Virgo)



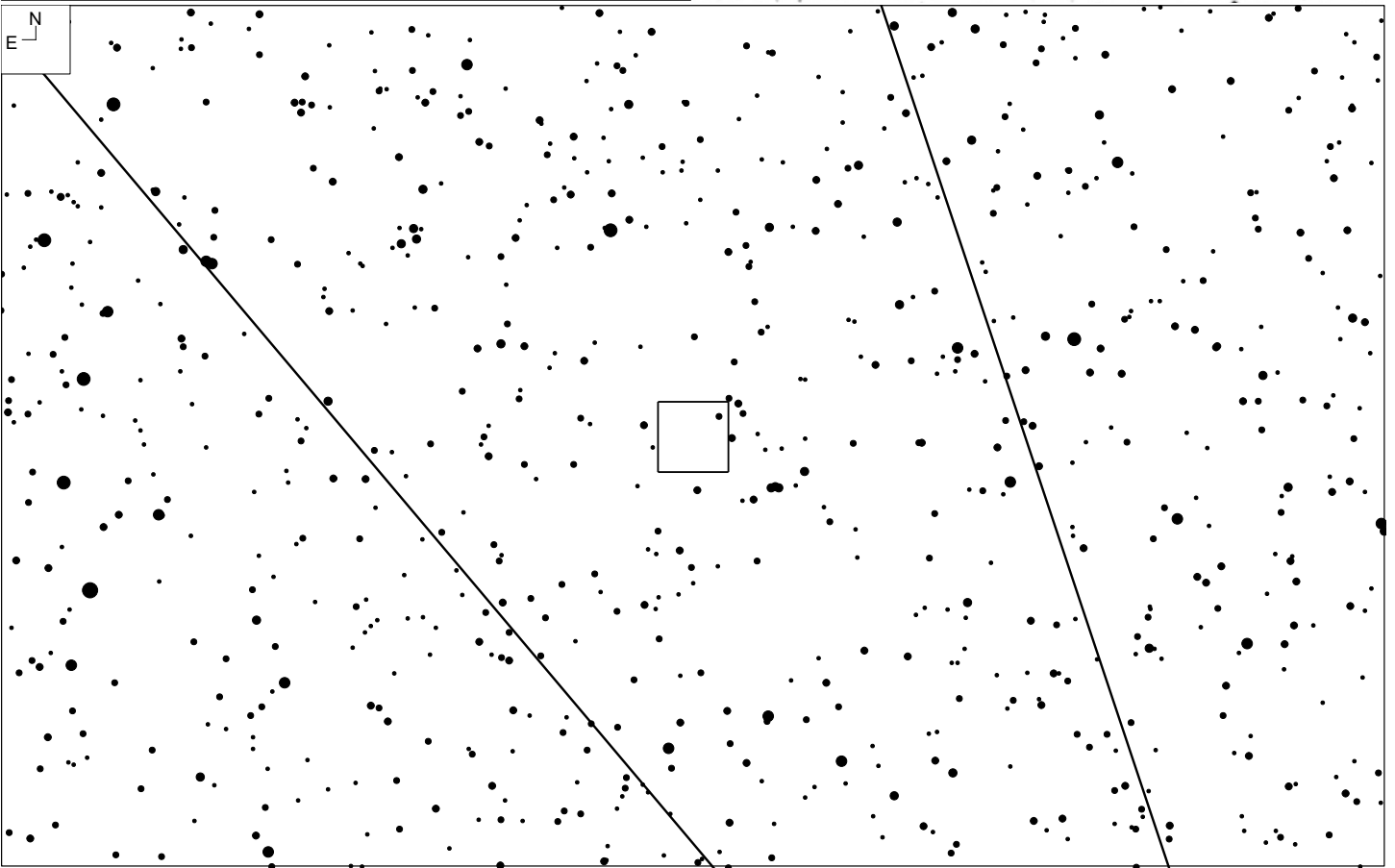
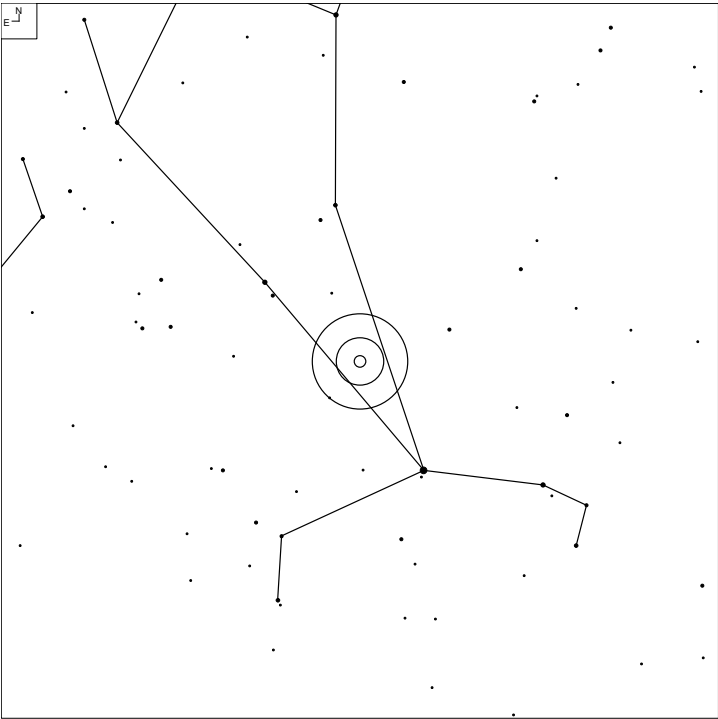
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|-------------|------------|-----------|-------|------------|--------|---------|------|
| MCG-2-33-15 | 12 49 23.6 | -10 07 03 | 12.1p | 4.0 x 3.1' | SB(s)m | 131R | 69 |

New 5 (Sagittarius)



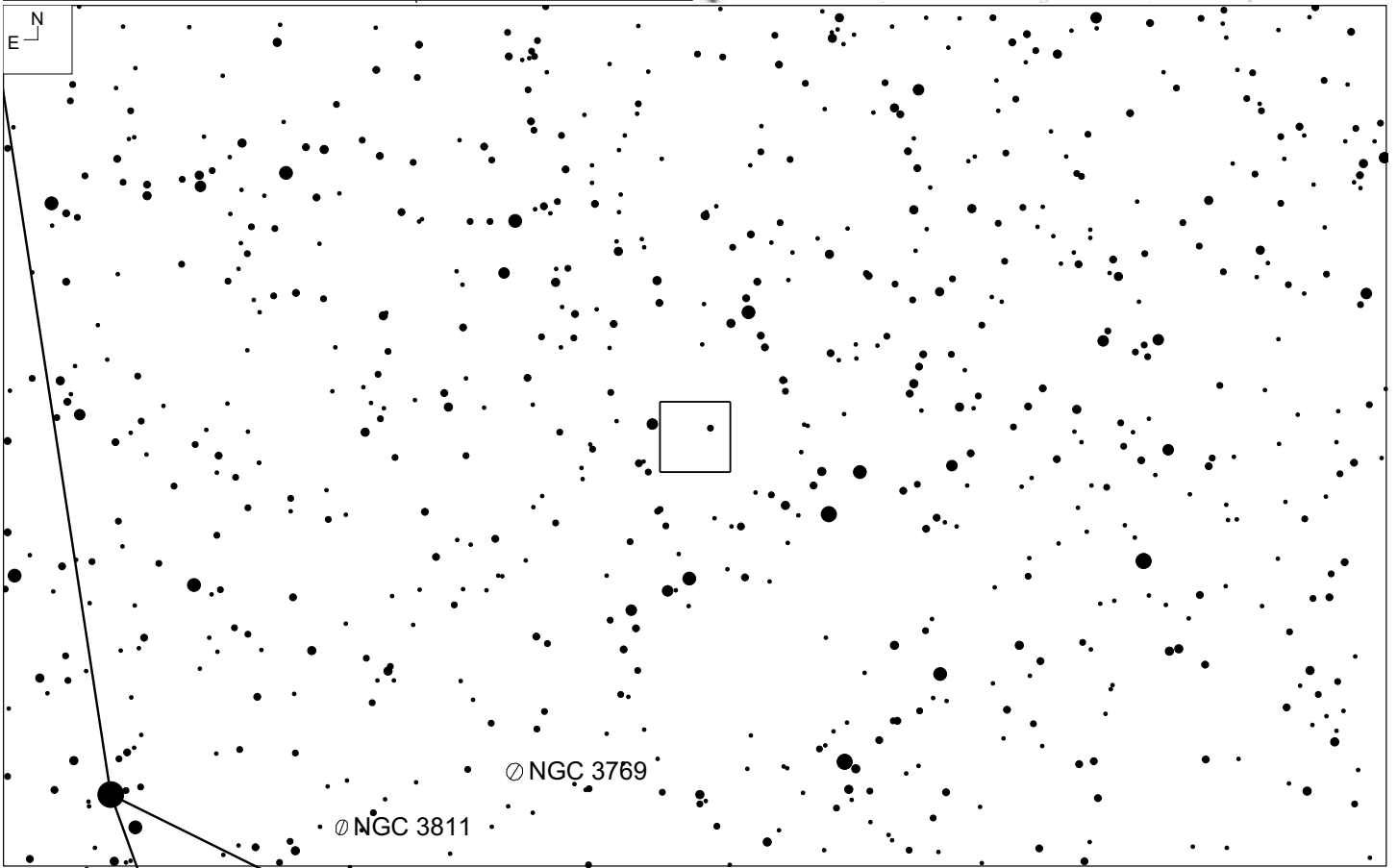
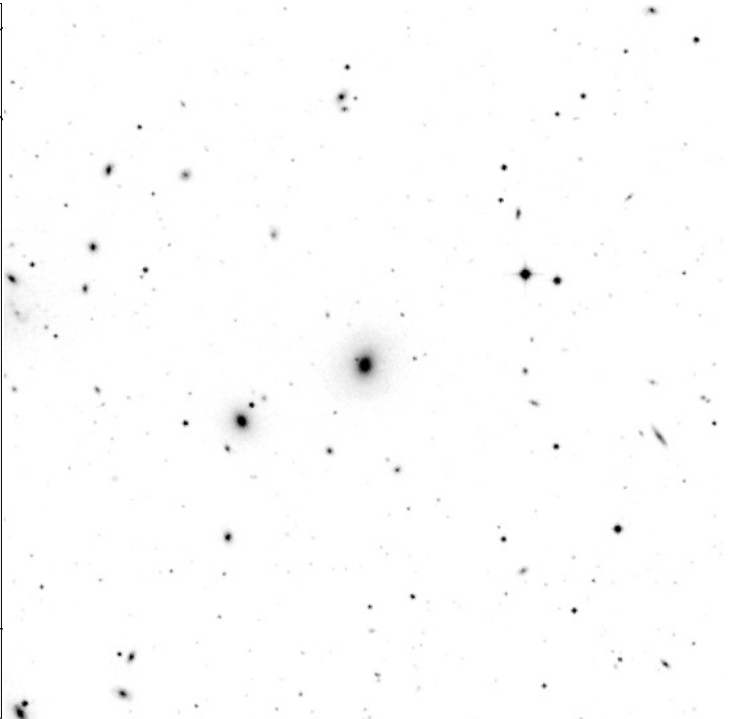
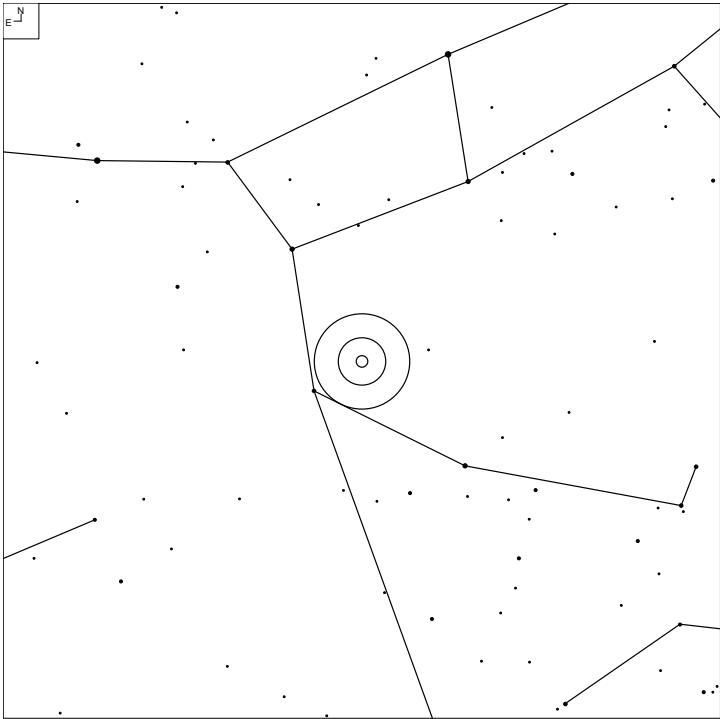
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-------|------------|-------------|---------|------|
| IC 4946 | 20 23 58.0 | -43 59 44 | 12.6b | 2.4 x 1.0' | SAB(rs) o/a | 179R | 89 |

OQ 240 (Boötes)



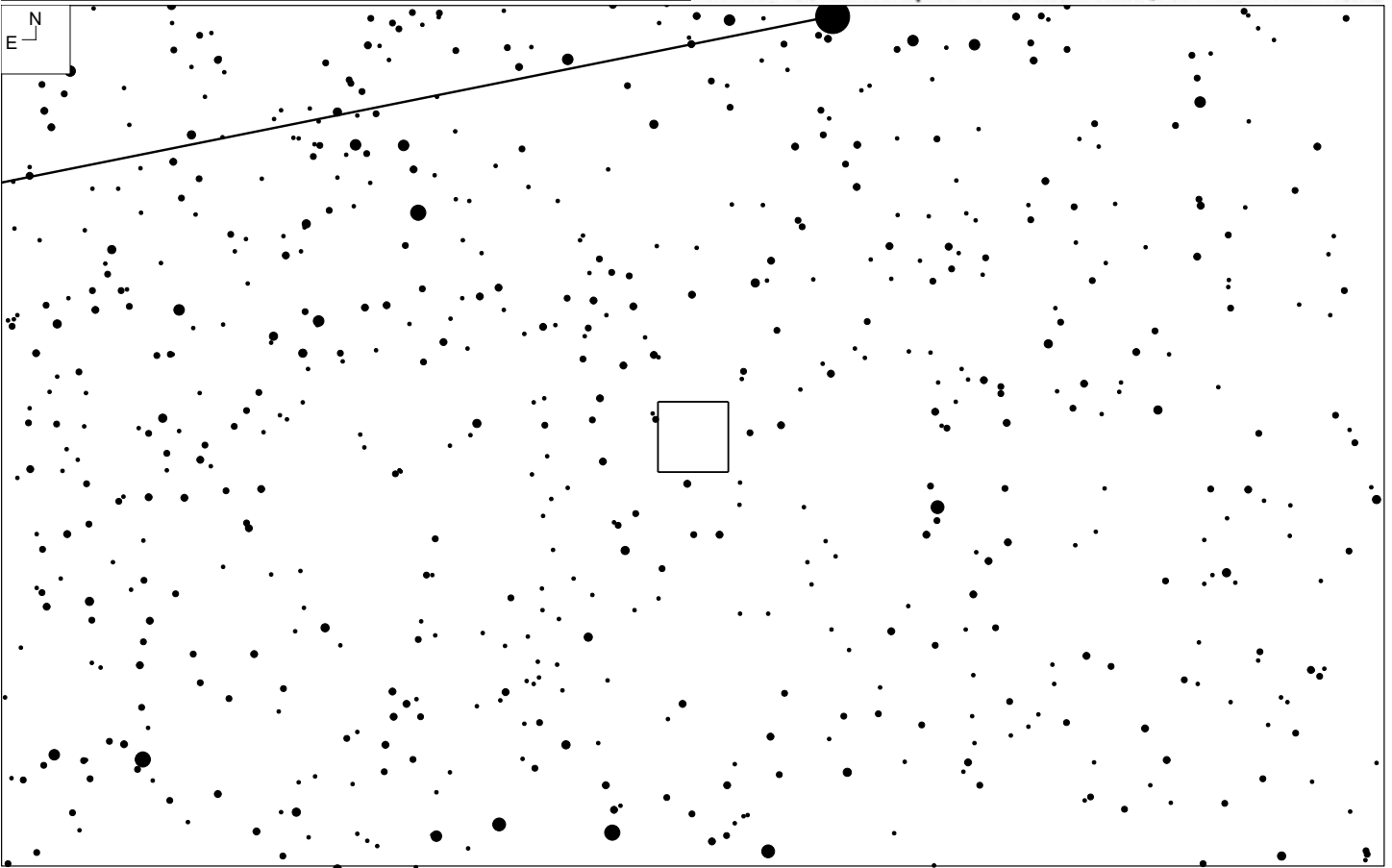
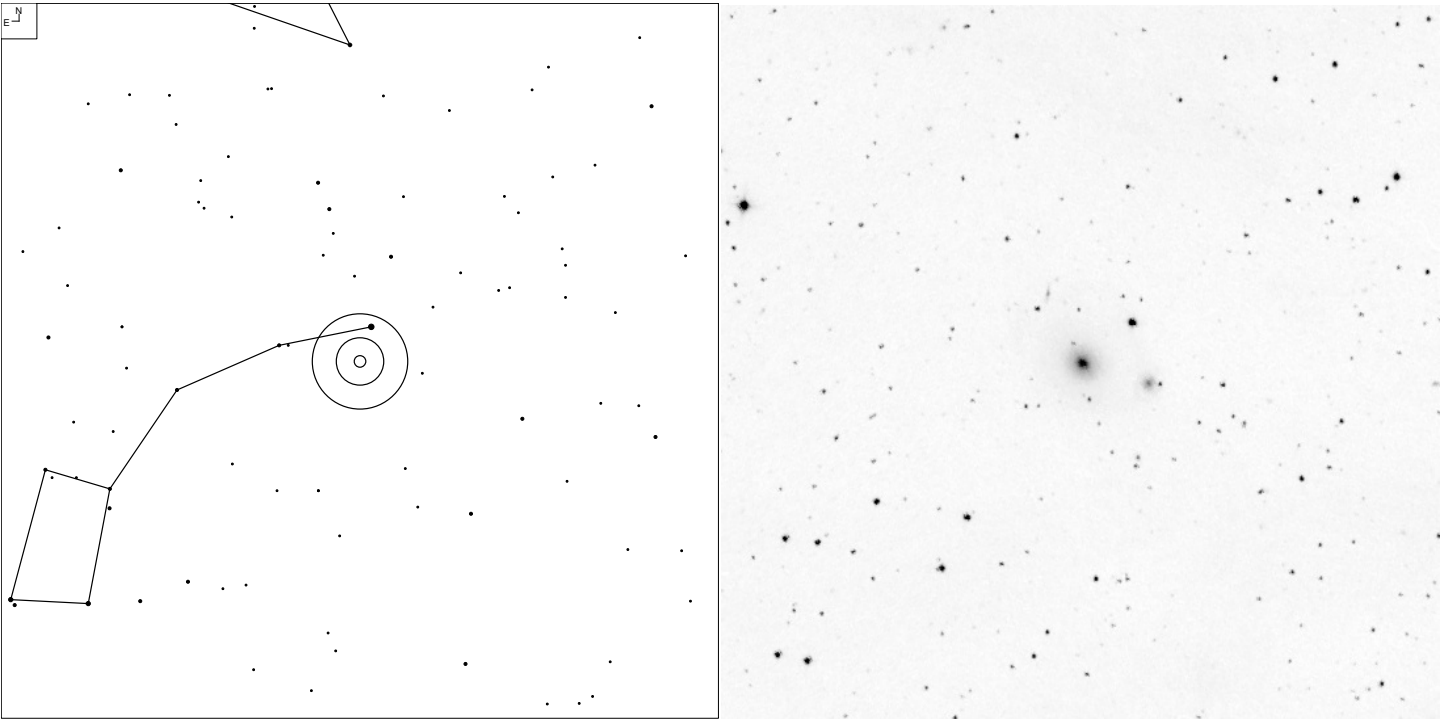
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|----------|------|--------|---------|------|
| 1424+240 | 14 27 00.4 | +23 47 59 | 15.0 var | - | Blazar | 70R | 32 |

Papillon (Ursa Major)



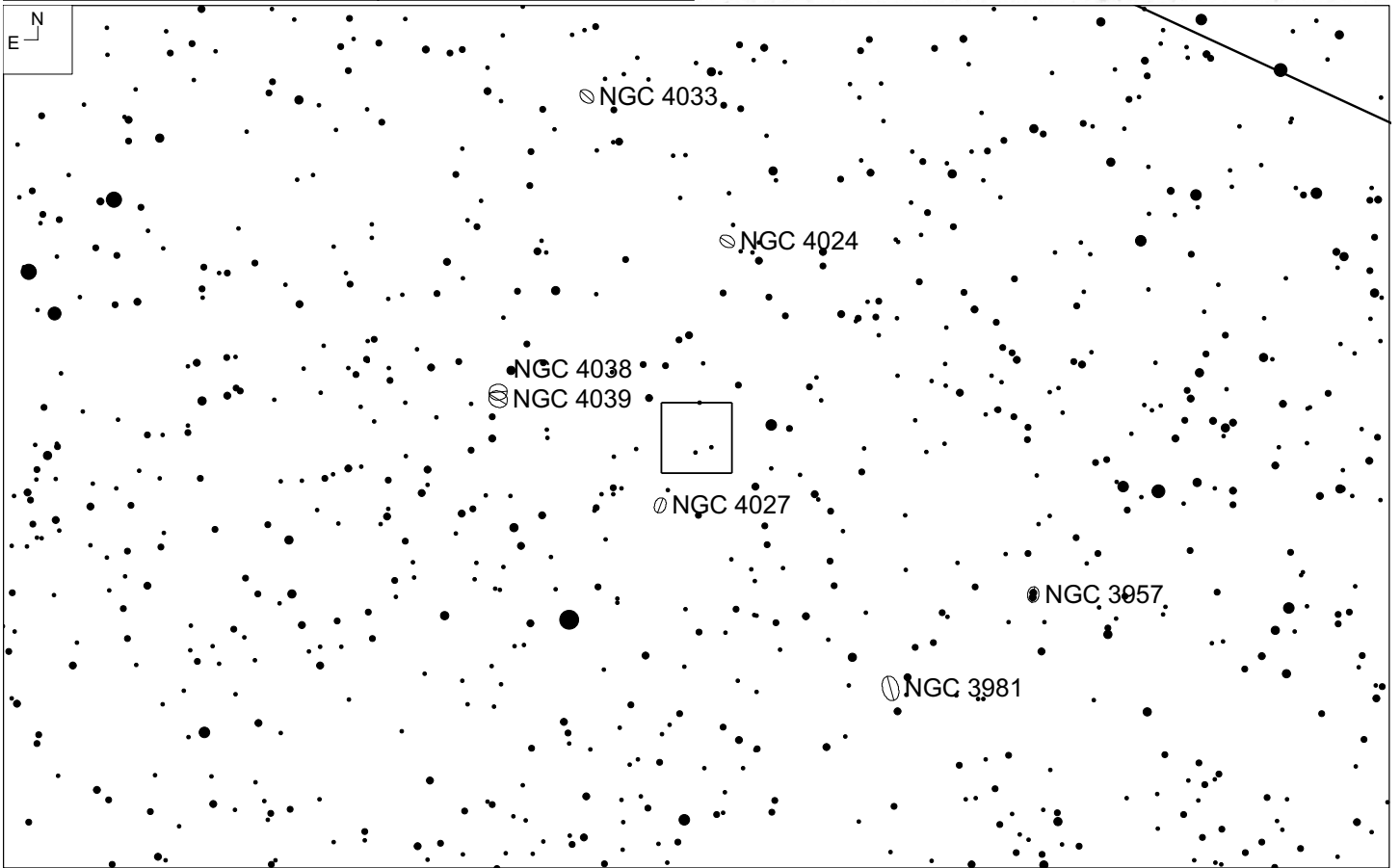
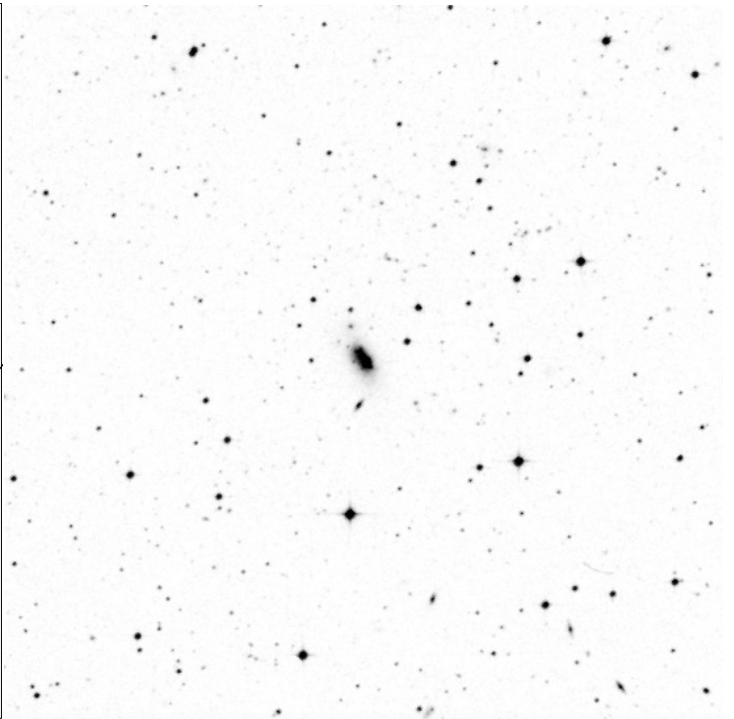
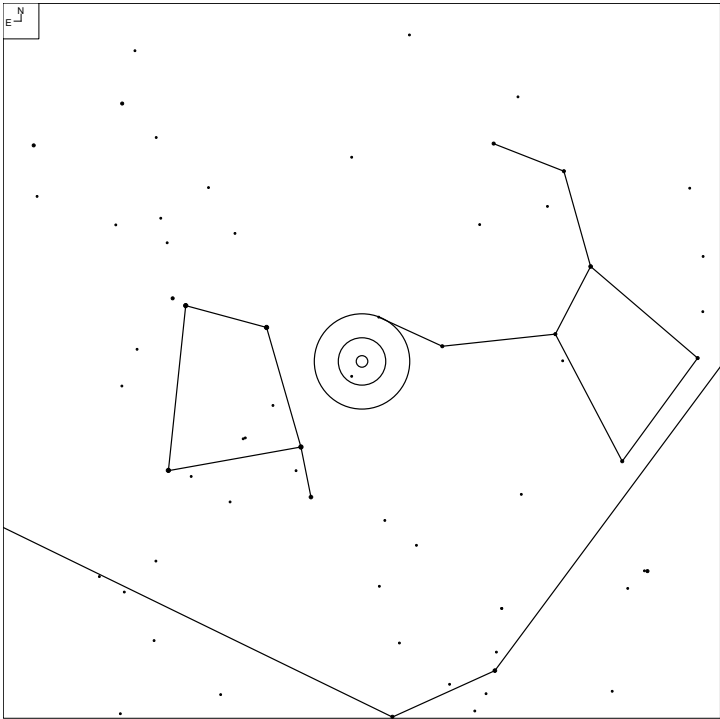
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-------|------------|------|---------|------|
| IC 708 | 11 33 59.2 | +49 03 43 | 14.0p | 1.1 x 1.1' | E | 38L | 22 |

Polarissima Borealis (Ursa Minor)



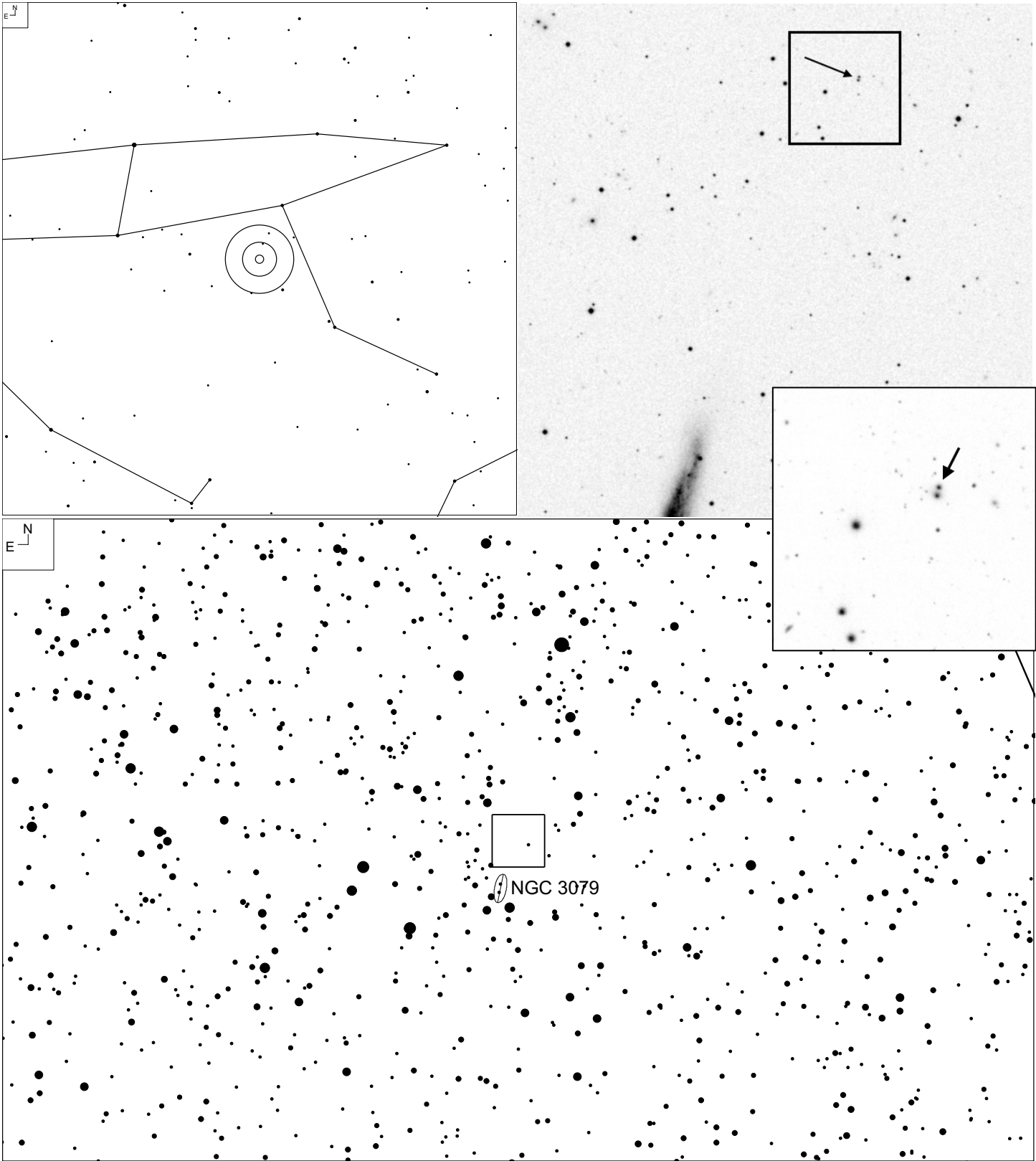
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|------|------------|------|---------|------|
| NGC 3172 | 11 47 14.4 | +89 05 34 | 14.8 | 1.2 x 1.1' | Sb | 1R | 1 |

POX 36 (Corvus)



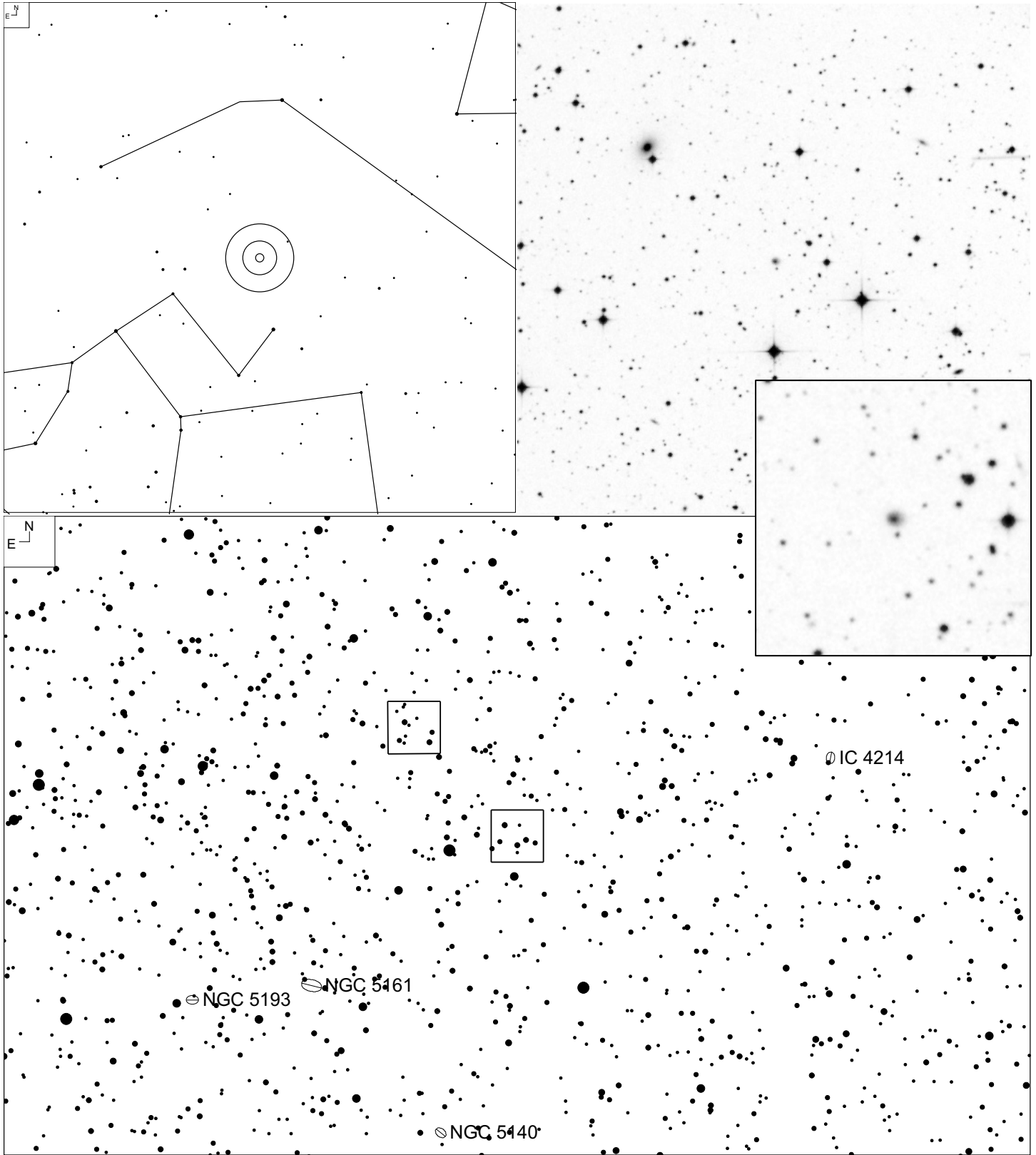
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|------------|------------|-----------|-------|------------|------|---------|------|
| ESO 572-34 | 11 58 58.4 | -19 01 41 | 14.2p | 1.1 x 0.8' | IBm | 150R | 70 |

Q0957+561 (Ursa Major)



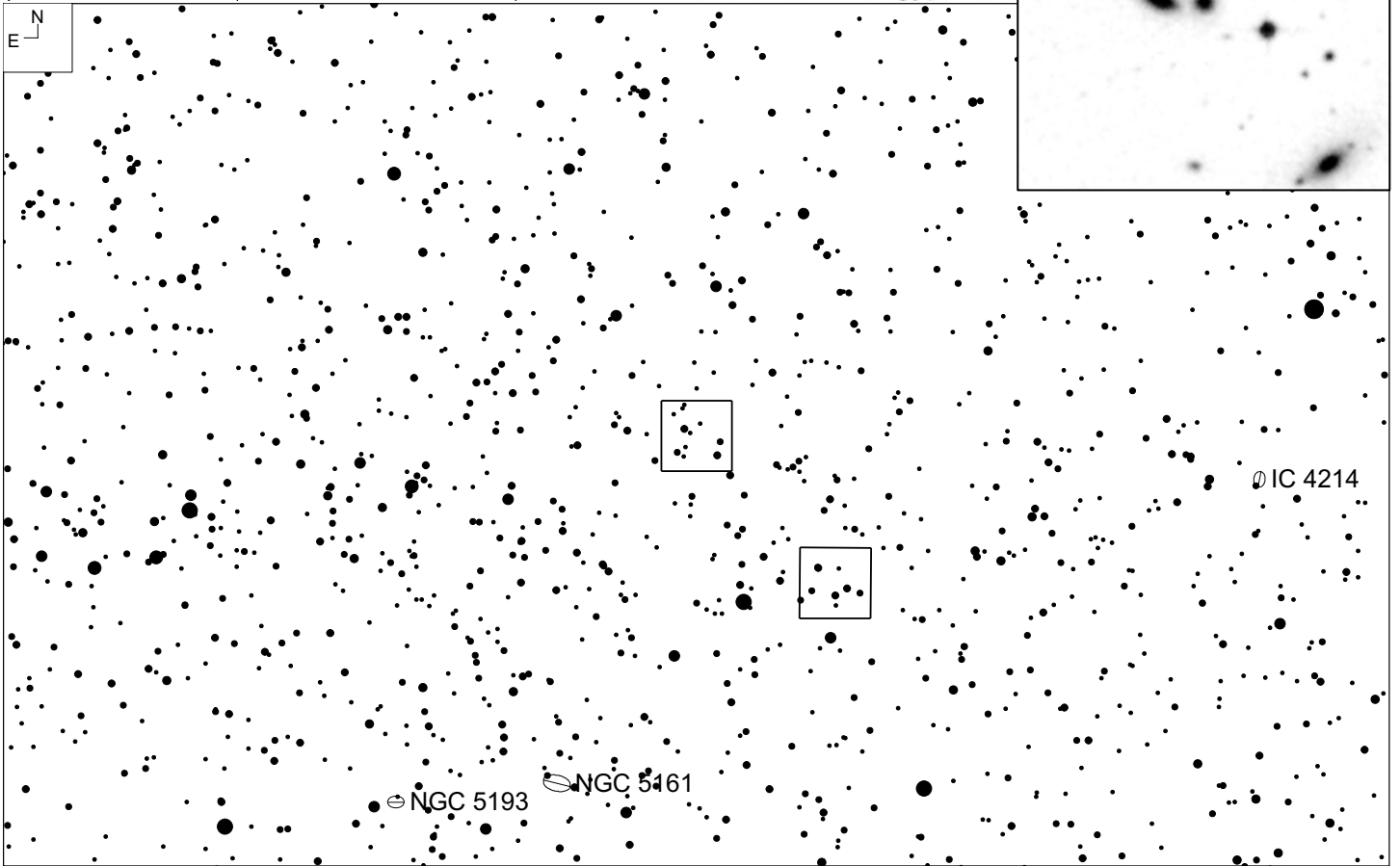
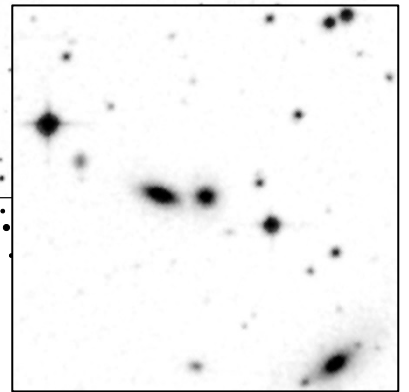
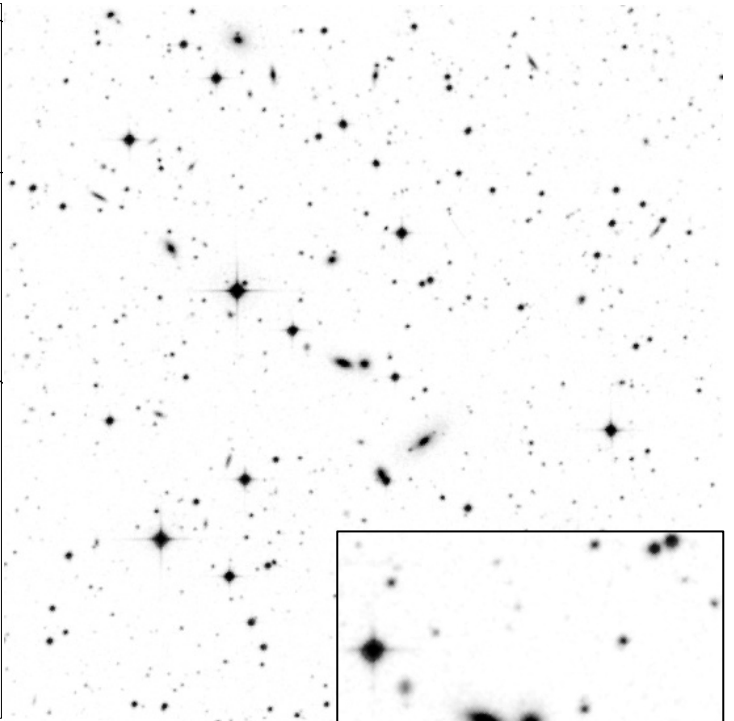
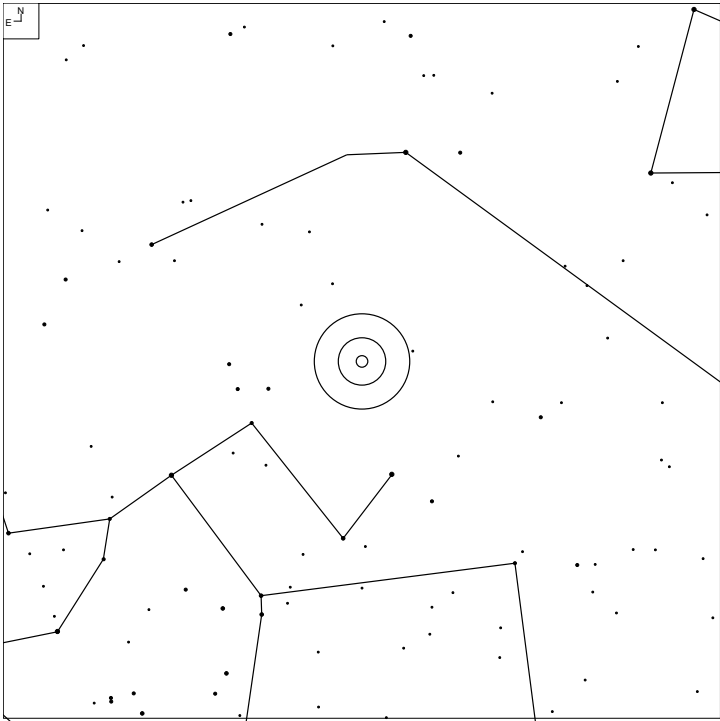
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|---------------|------------|-----------|------|---------|------------|---------|------|
| Double quasar | 10 01 20.7 | +55 53 56 | 17.3 | Stellar | Dbl quasar | 25L | 12 |

QRM 95 1320-32 (Centaurus)



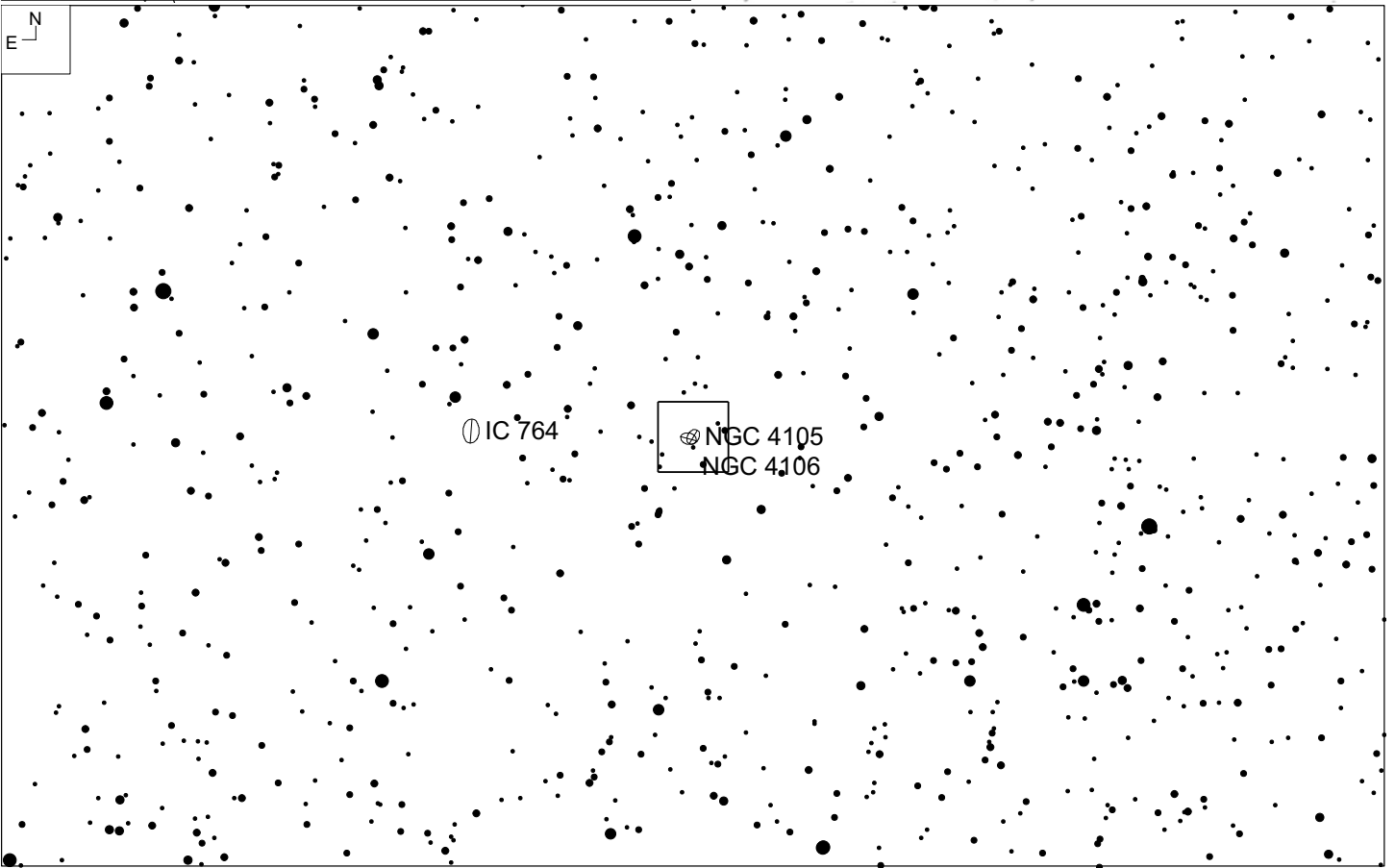
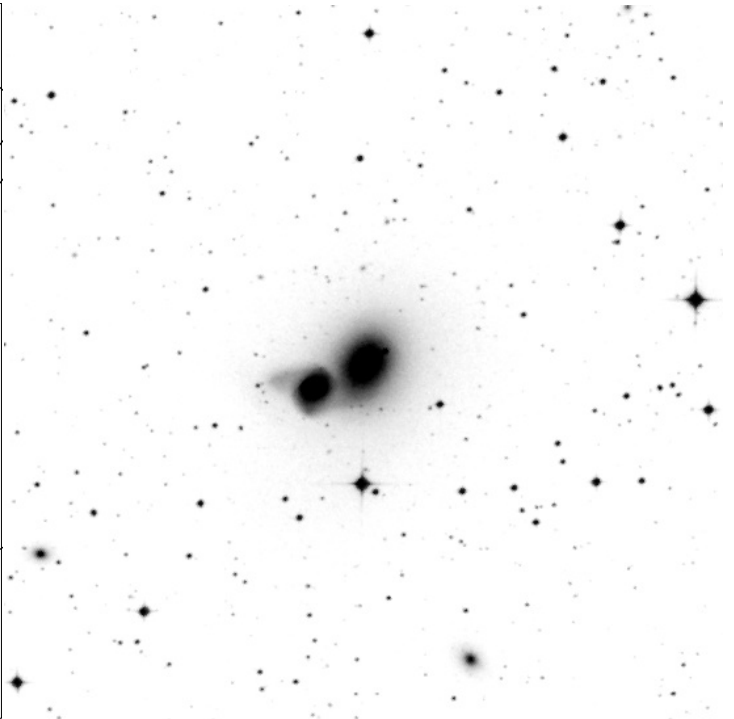
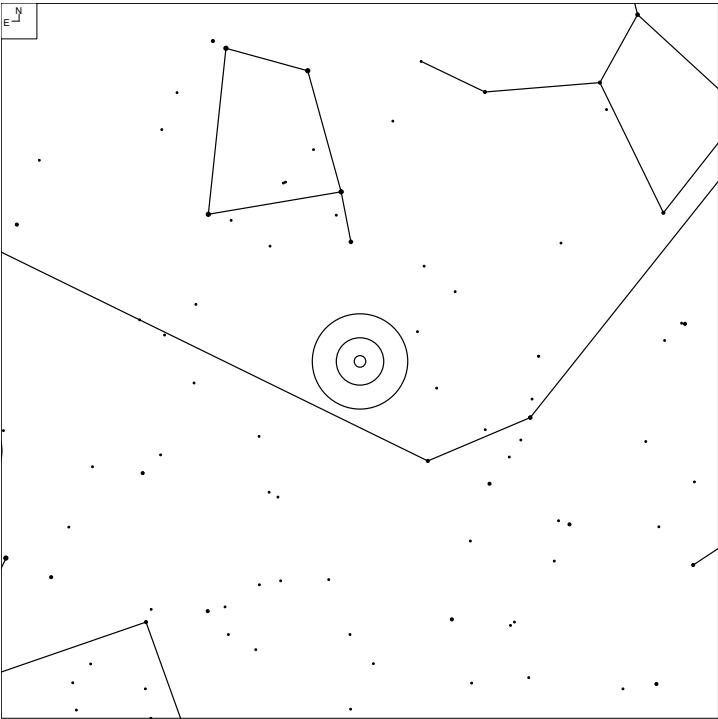
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-----|---------|--------|---------|------|
| | 13 24 37.7 | -32 28 48 | 13? | Stellar | Quasar | 167L | 81 |

QRM 95 1320-31 (Centaurus)



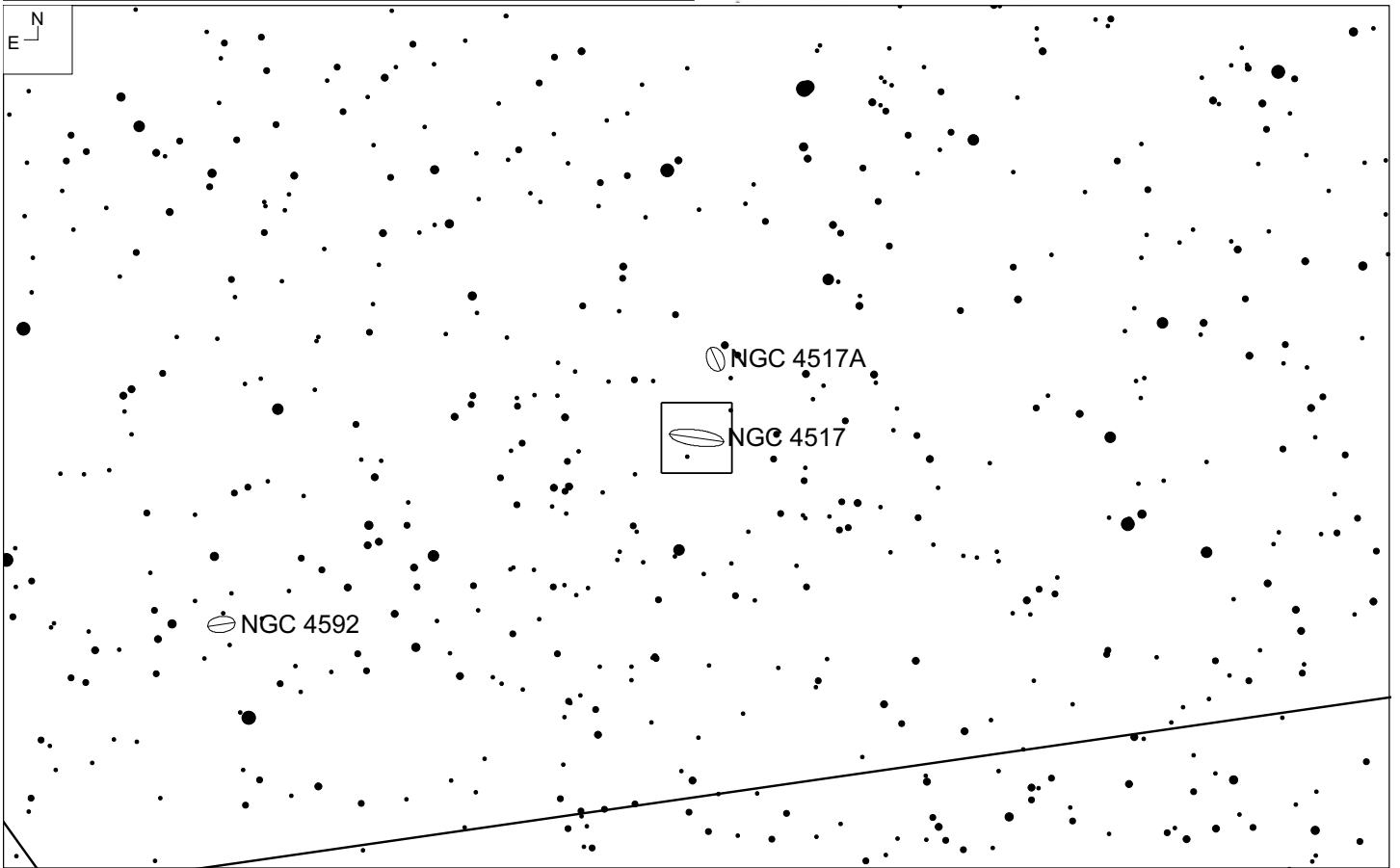
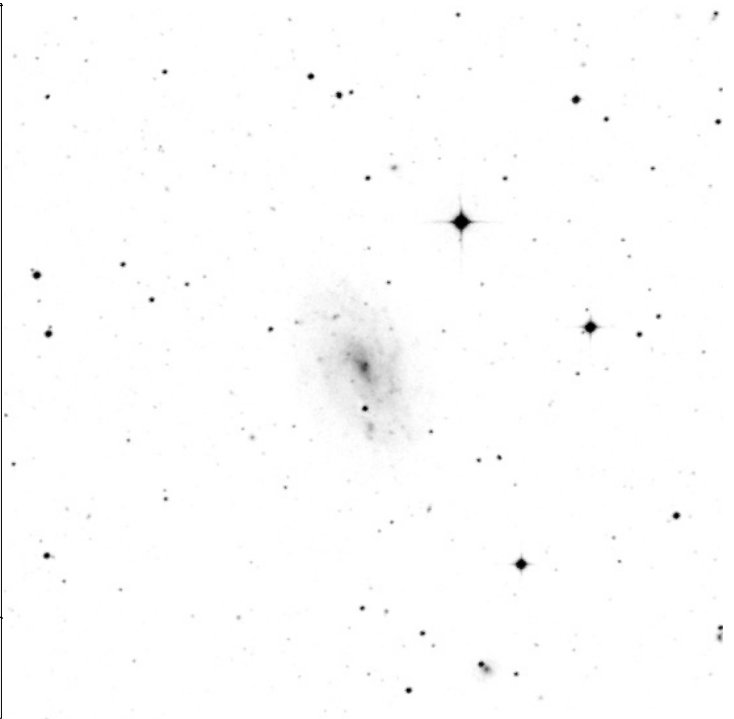
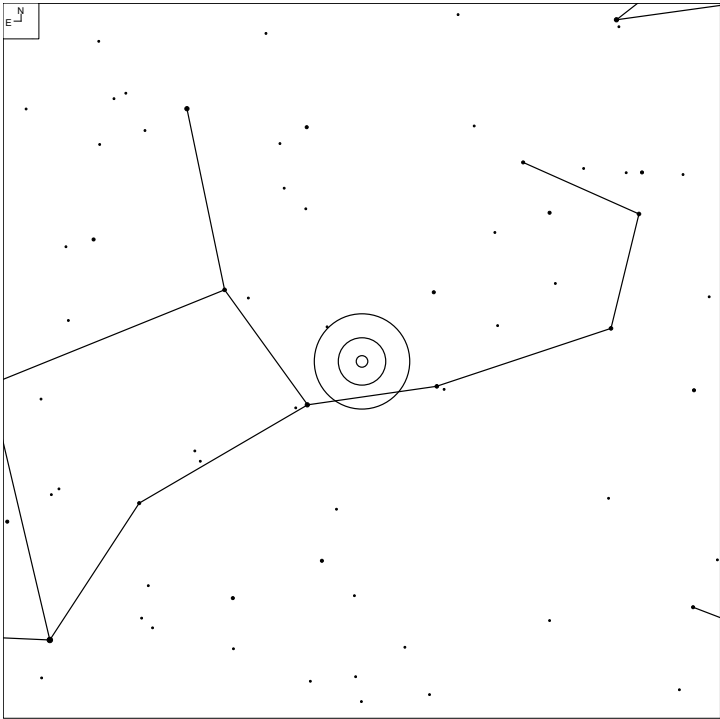
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-----|---------|--------|---------|------|
| | 13 26 54.4 | -31 58 14 | - | Stellar | Quasar | 167L | 81 |

RR 210a (Hydra)



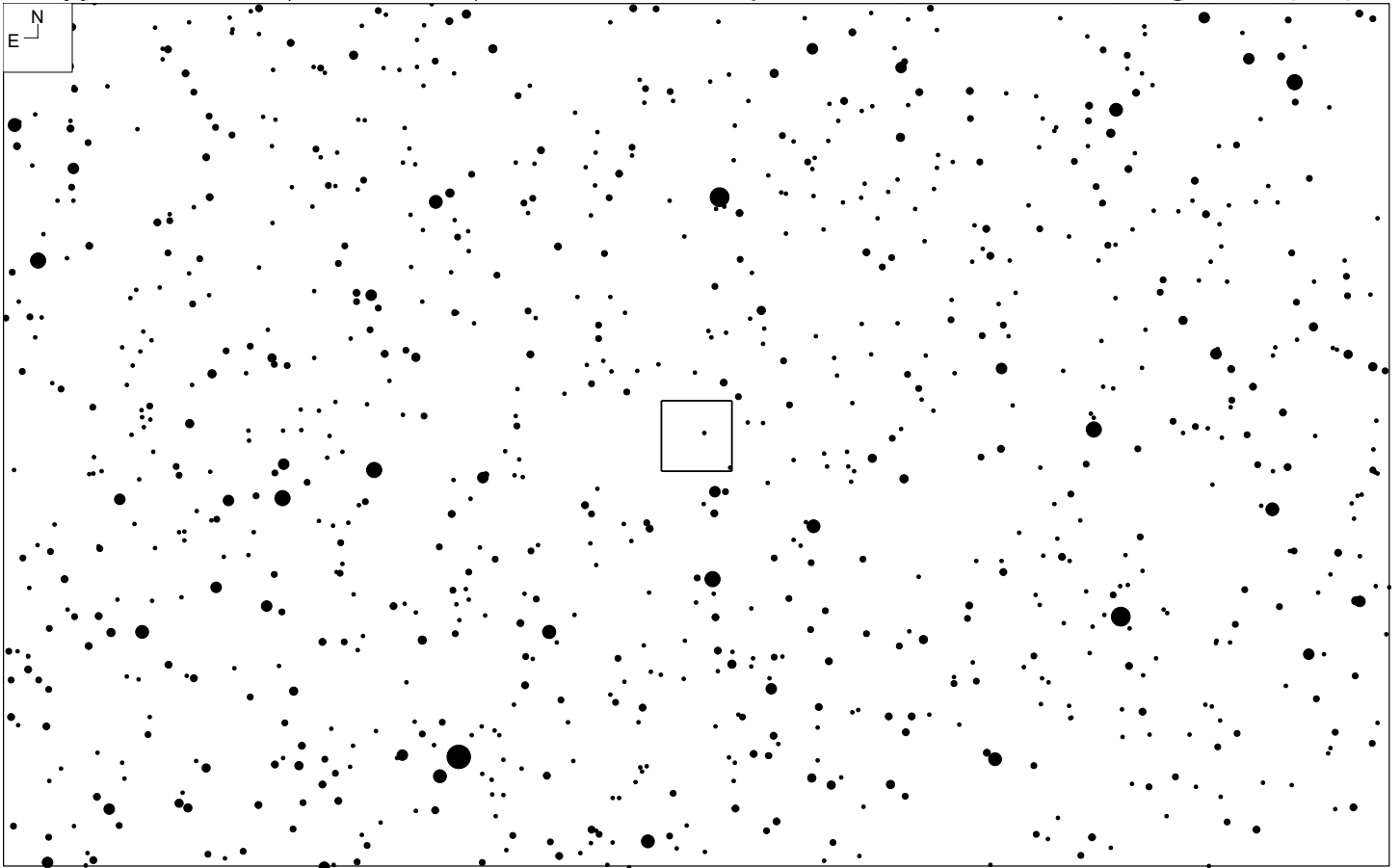
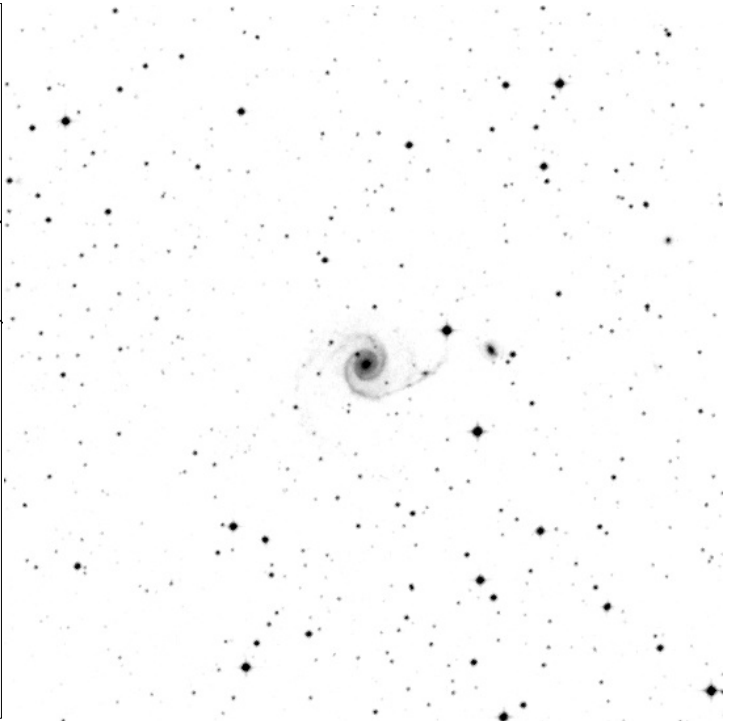
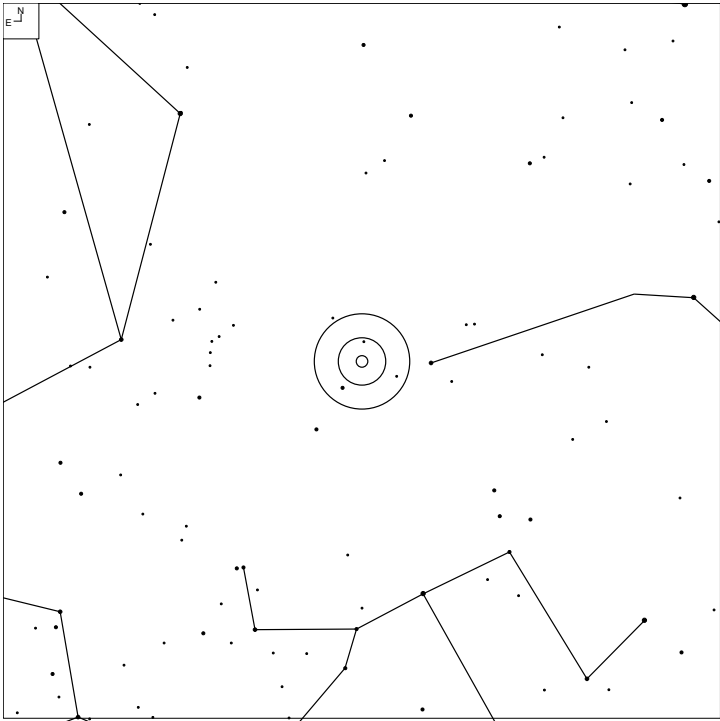
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|---------------|------------|-----------|-------|------------|------|---------|------|
| NGC 4105 / 06 | 12 06 40.9 | -29 45 42 | 11.6b | 3.2 x 2.6' | Dbl | 168L | 81 |

Reinmuth 80 (Virgo)



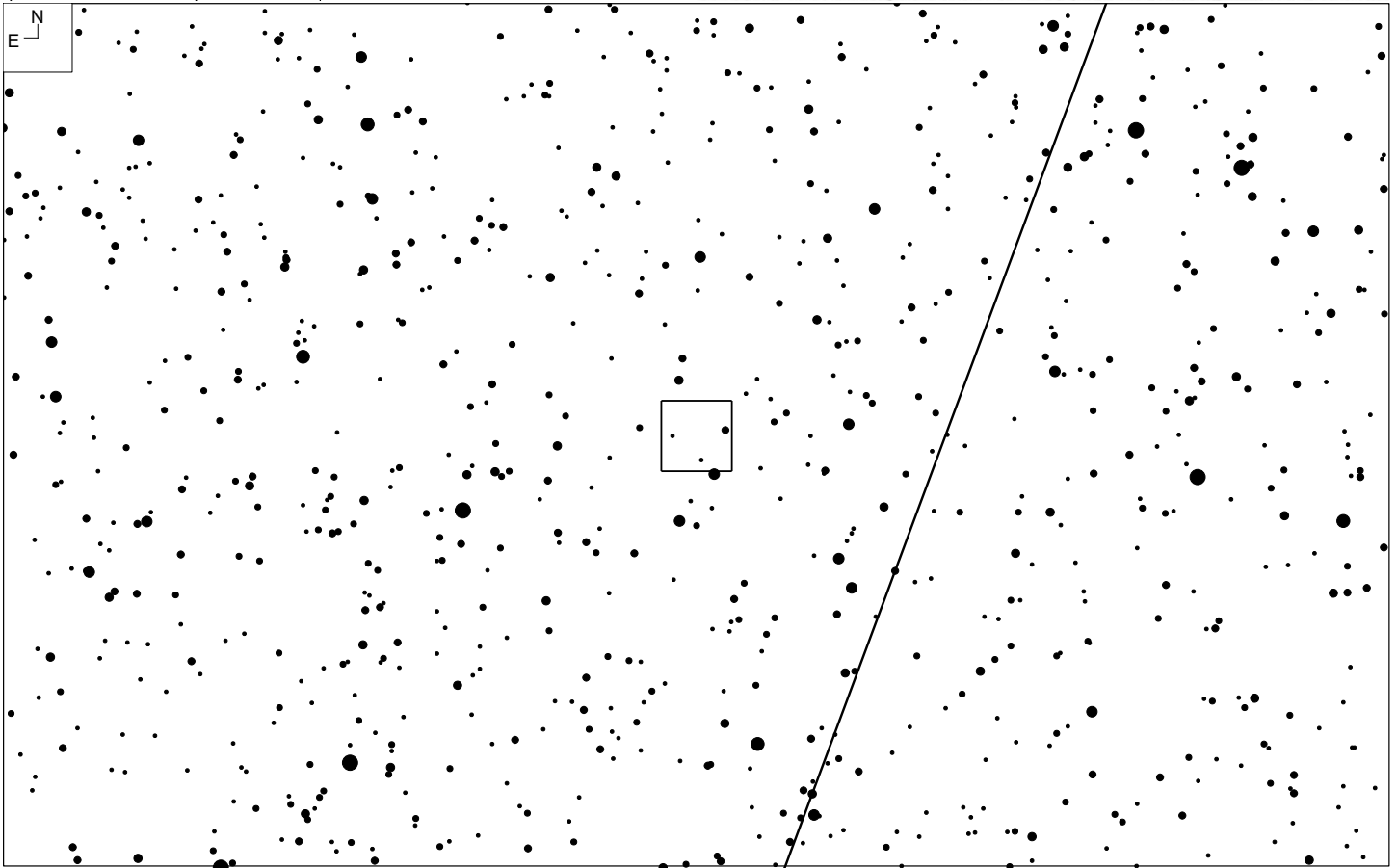
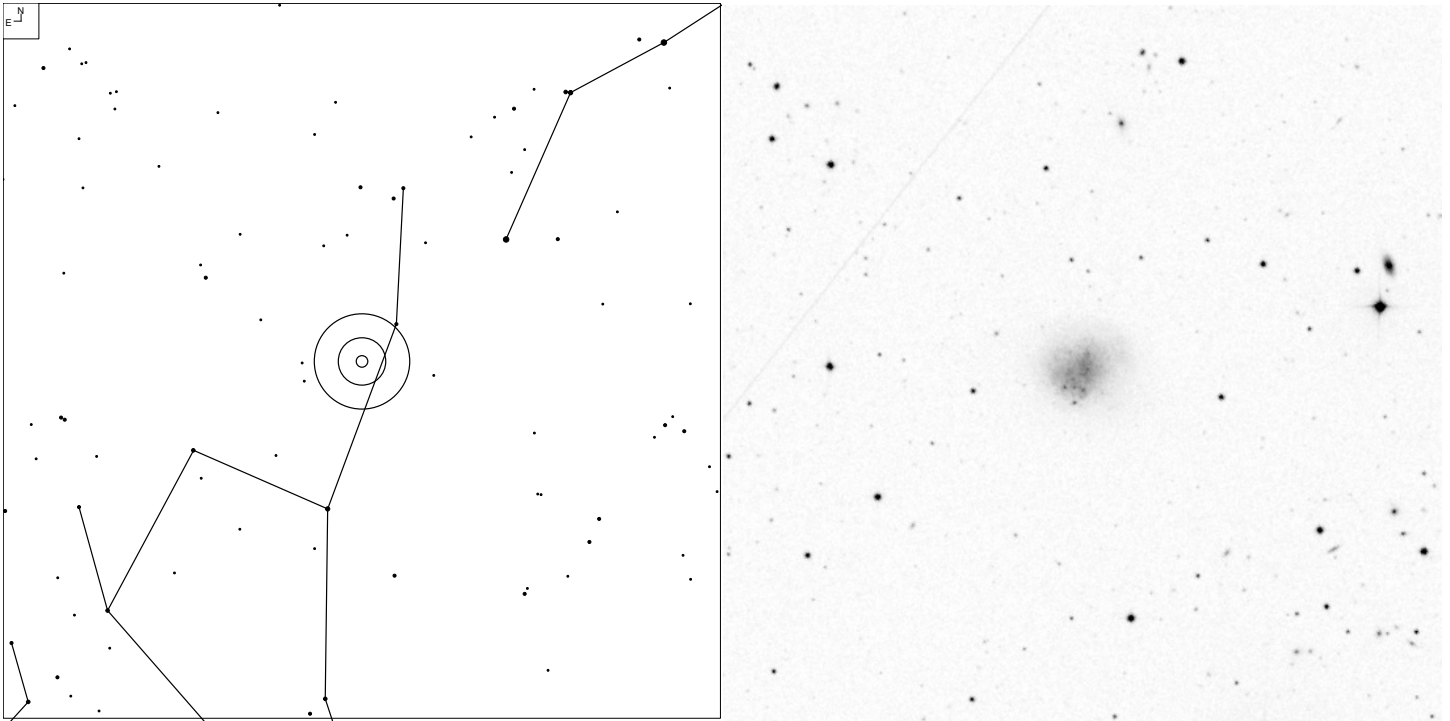
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|-----------|------------|-----------|-------|------------|----------|---------|------|
| NGC 4517a | 12 32 28.1 | +00 23 22 | 12.5v | 5.1 x 3.4' | SB(rs)dm | 111L | 57 |

RBS 1372 (Hydra)



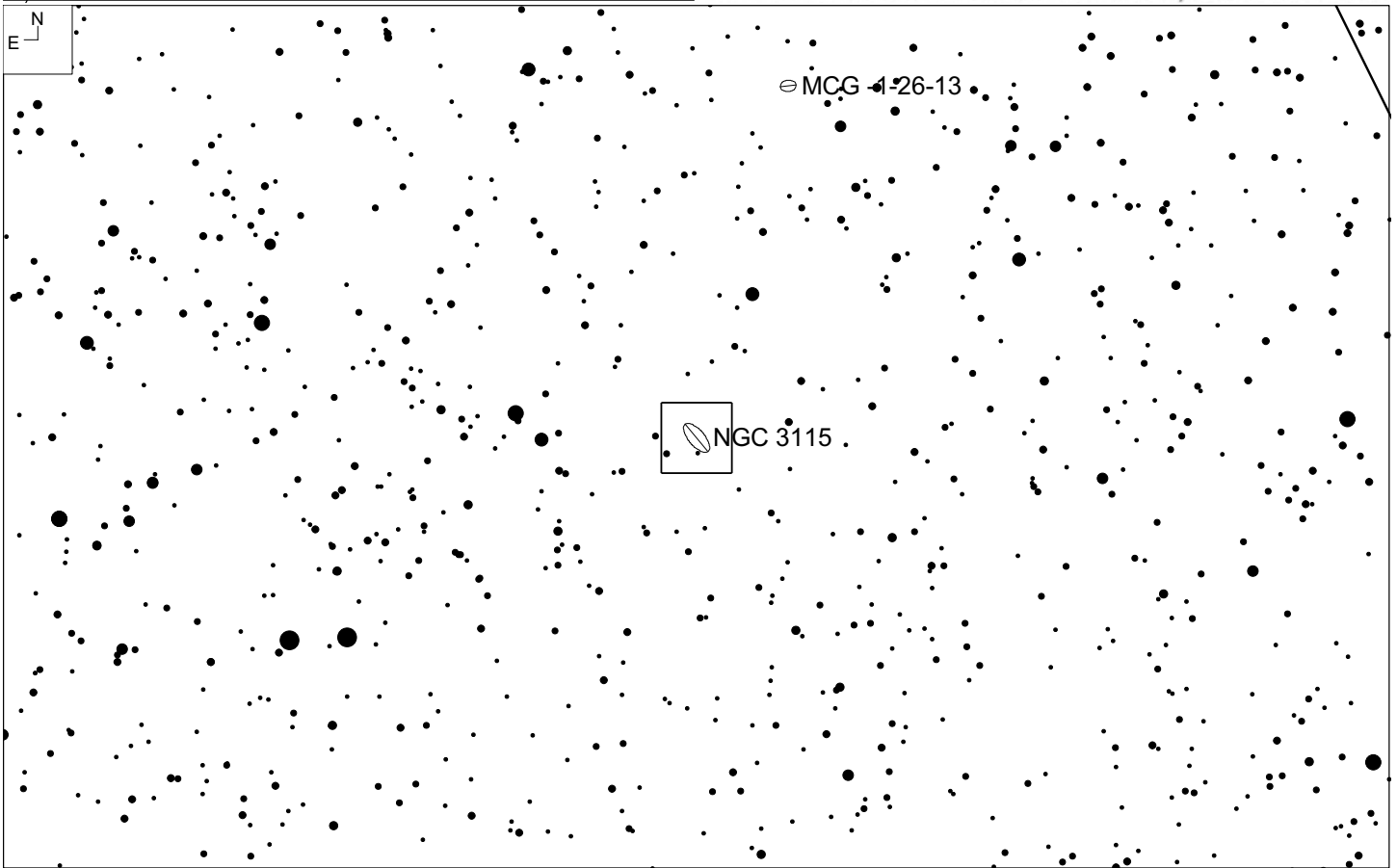
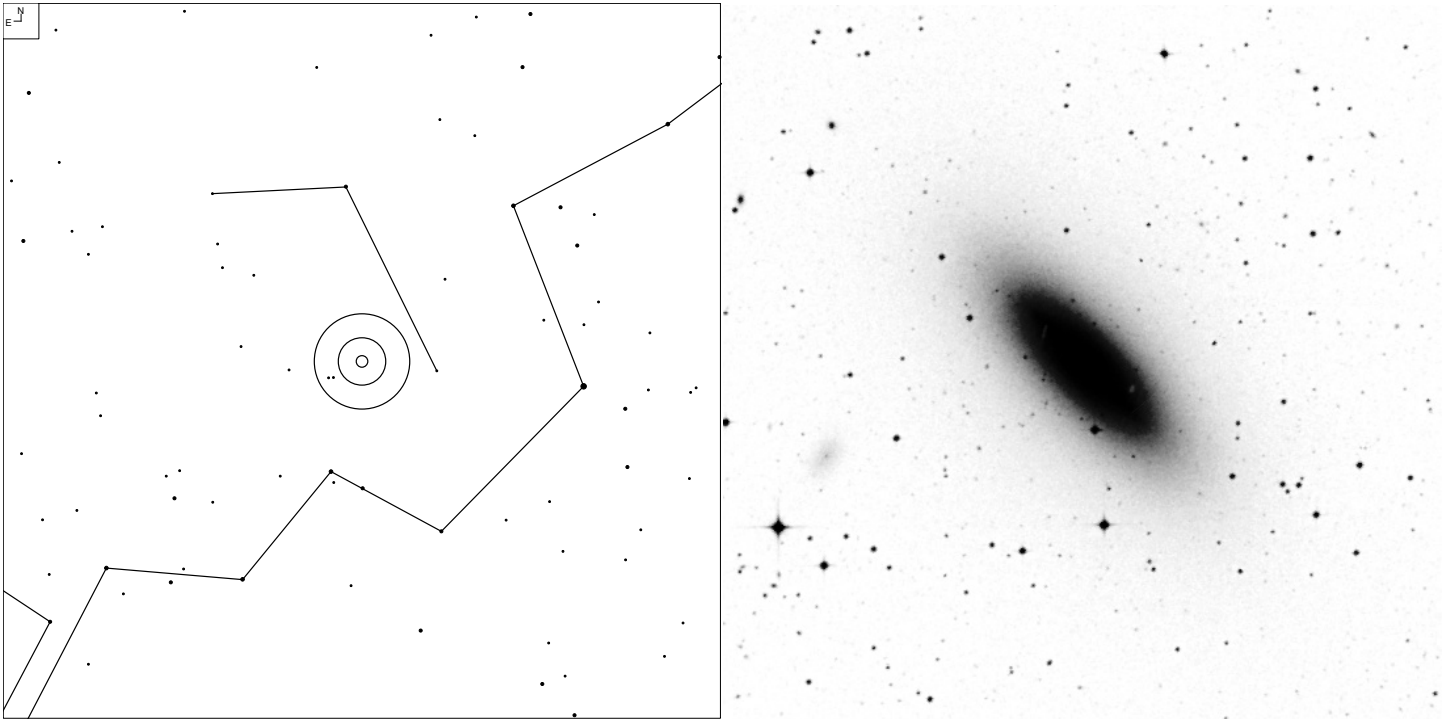
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|------------|------------|-----------|-------|------------|-------------|---------|------|
| ESO 511-30 | 14 19 22.3 | -26 38 40 | 13.3p | 3.3 x 2.5' | SA(rs)c pec | 148R | 80 |

Reitz 4115 (Boötes)



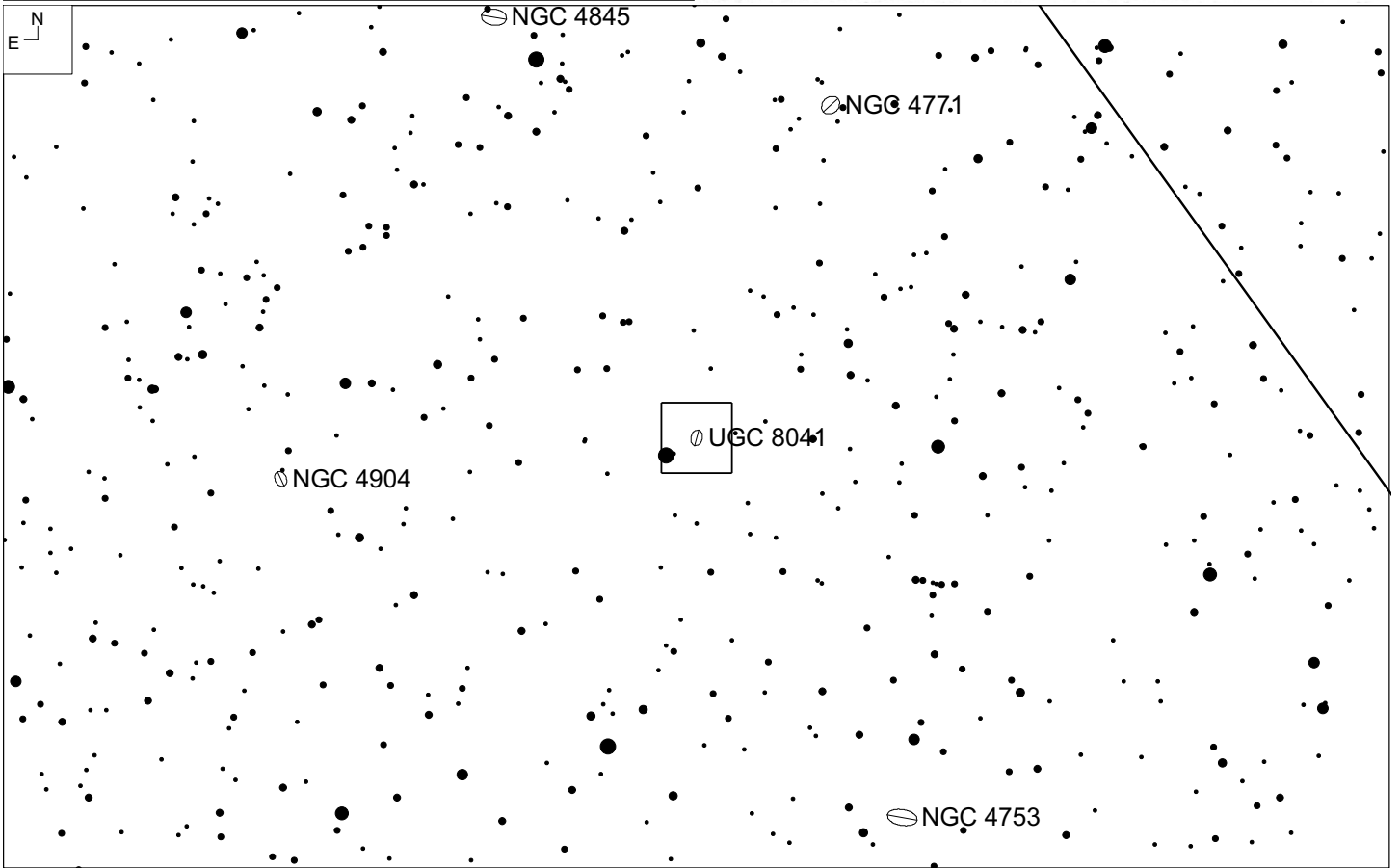
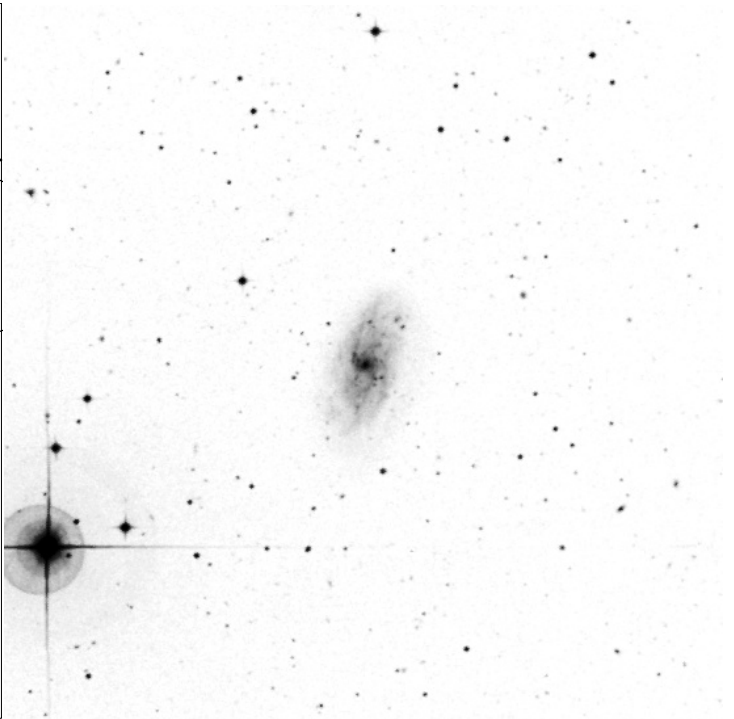
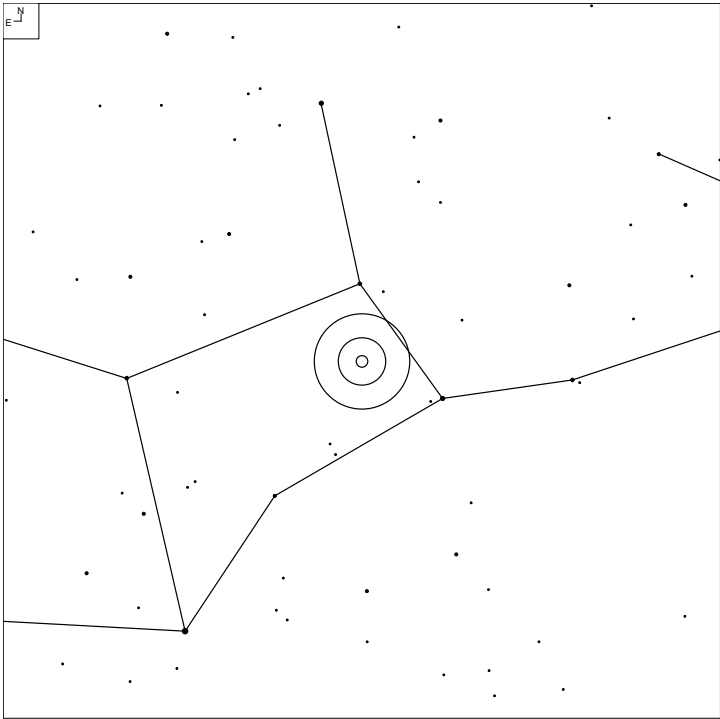
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-------|------------|------|---------|------|
| DDO 190 | 14 24 43.9 | +44 31 35 | 13.3b | 2.2 x 2.2' | IAM | 36R | 20 |

Spindle Galaxy (Sextans)



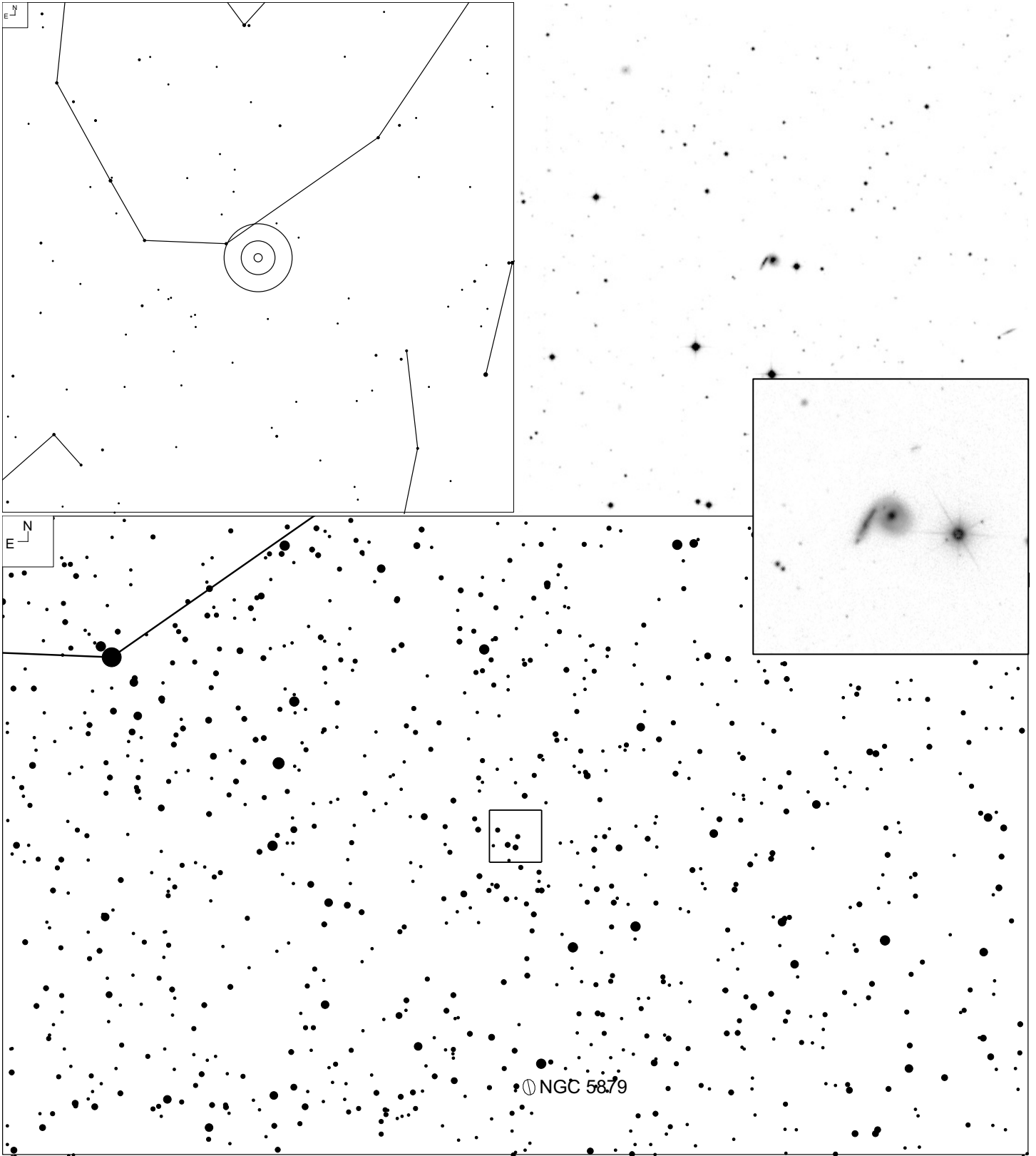
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|------|------------|------|---------|------|
| NGC 3115 | 10 05 13.8 | -07 43 05 | 9.9b | 7.2 x 2.4' | Sosp | 133R | 58 |

Shapley – Ames 4 (Virgo)



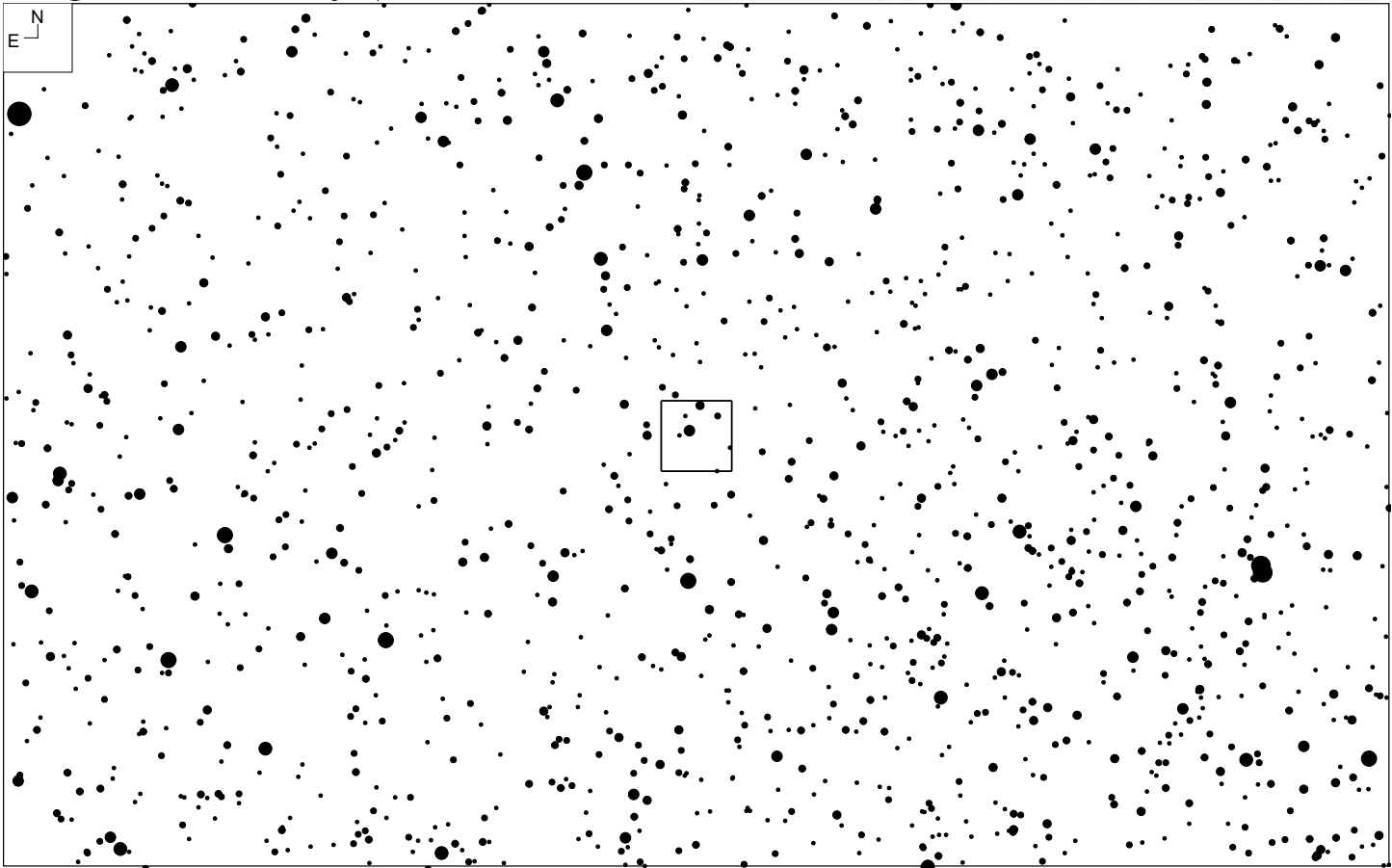
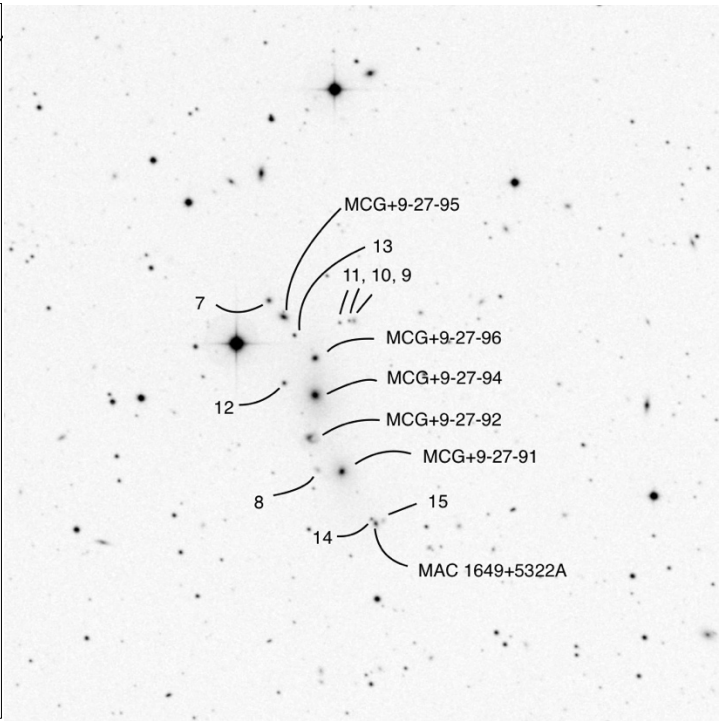
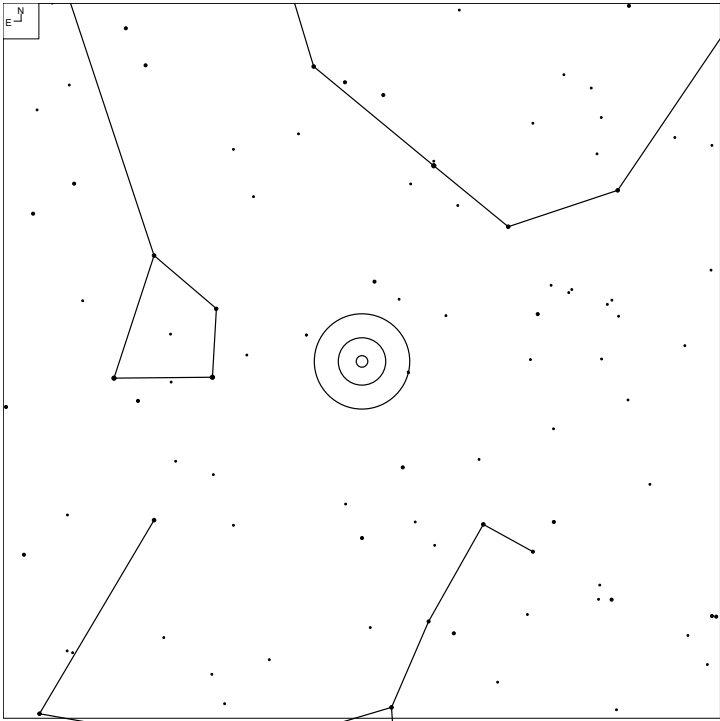
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-------|------------|--------|---------|------|
| UGC 8041 | 12 55 12.8 | +00 06 59 | 12.6p | 3.0 x 1.8' | SB(s)d | 110R | 57 |

Sancho's Object (Draco)



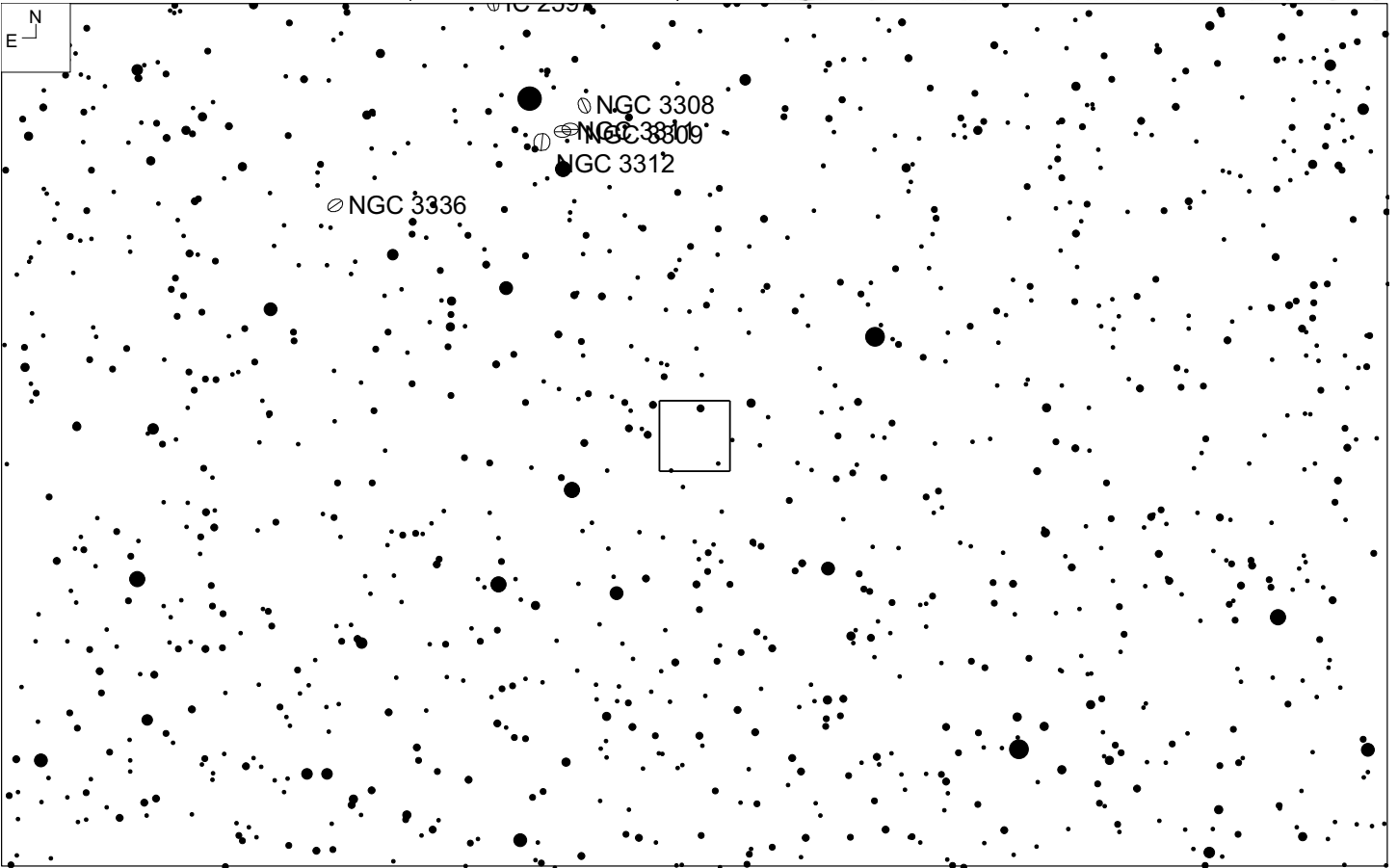
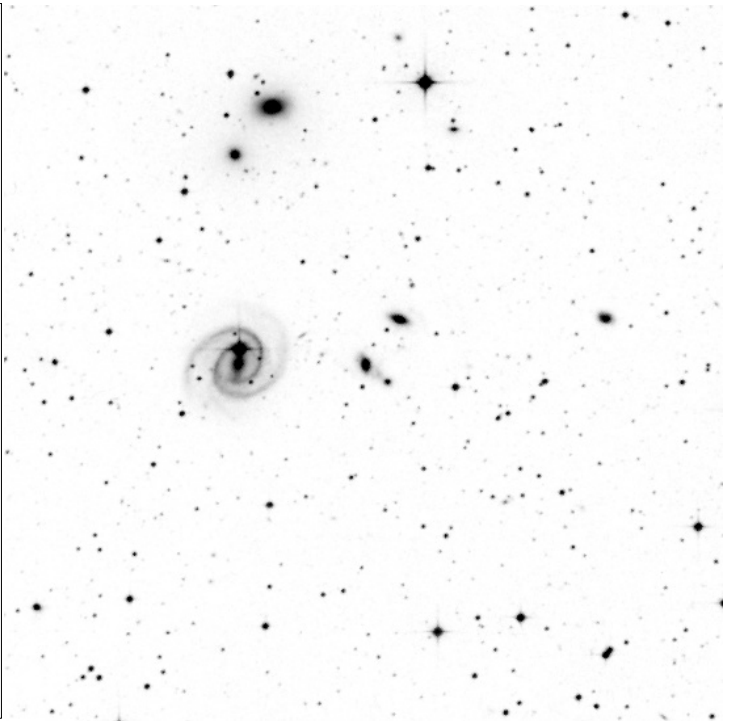
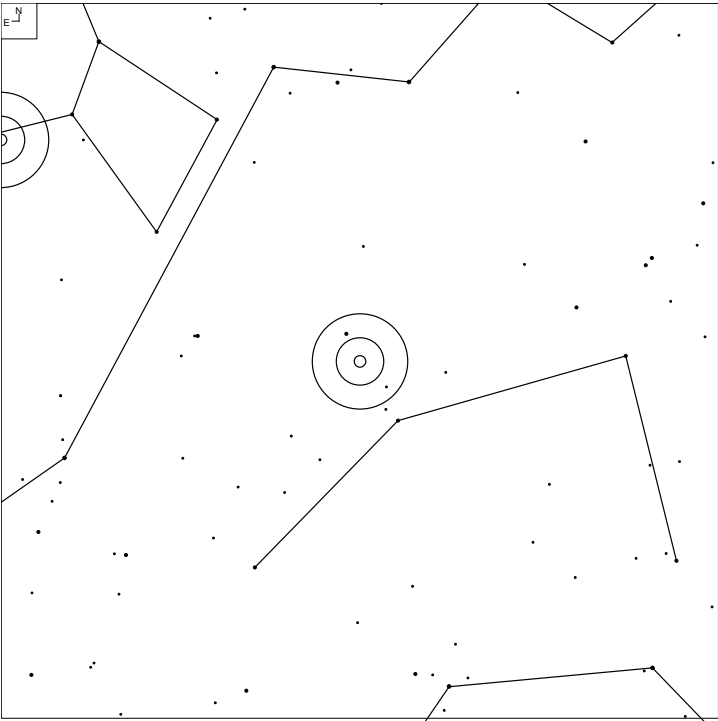
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|-----------------|------------|-----------|------|----------|------|---------|------|
| MAC 1510_5810/A | 15 10 15.8 | +58 10 42 | 16.0 | 41 x 34" | Pair | 22R | 10 |

Shakhbazian 16 (Draco)



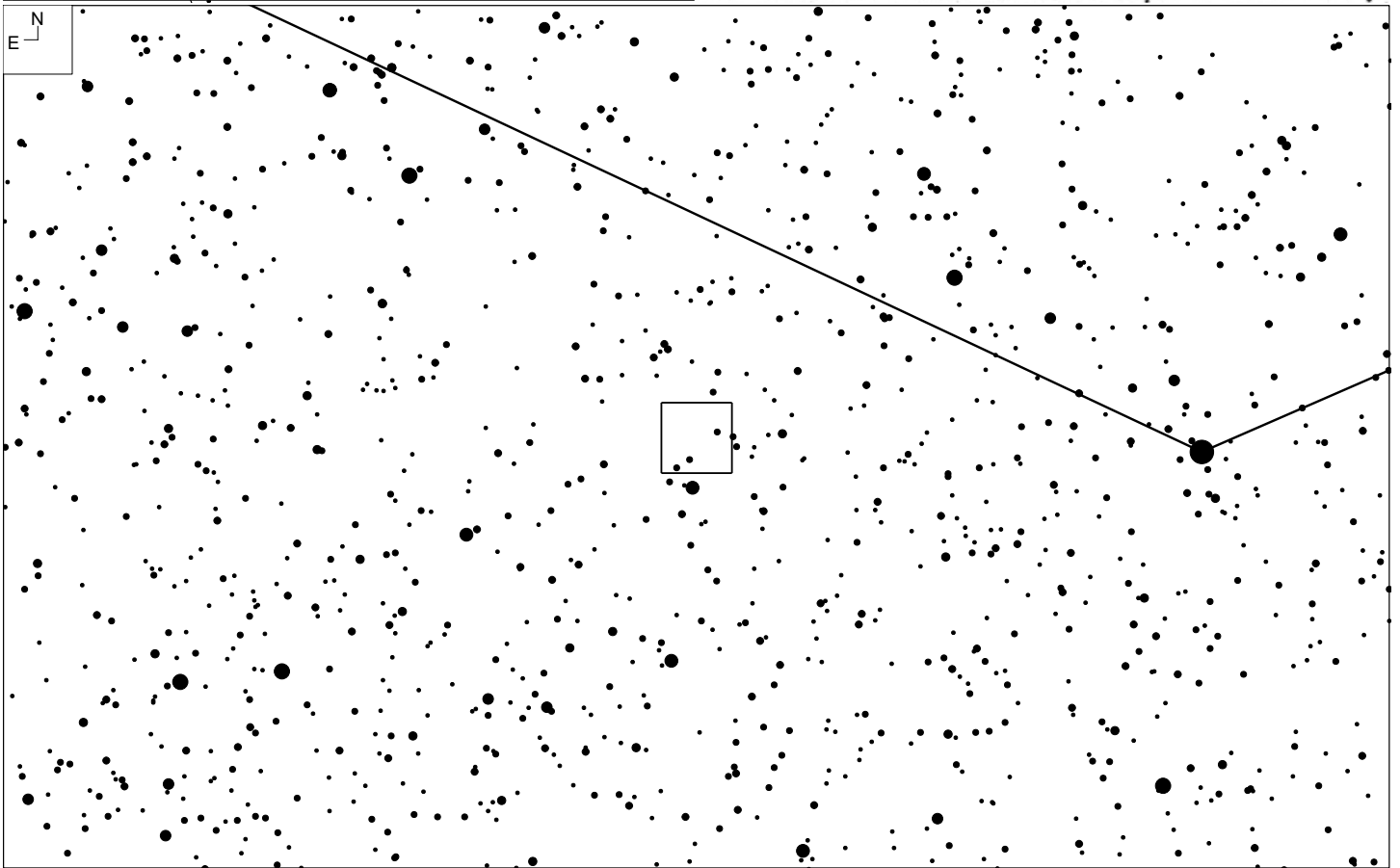
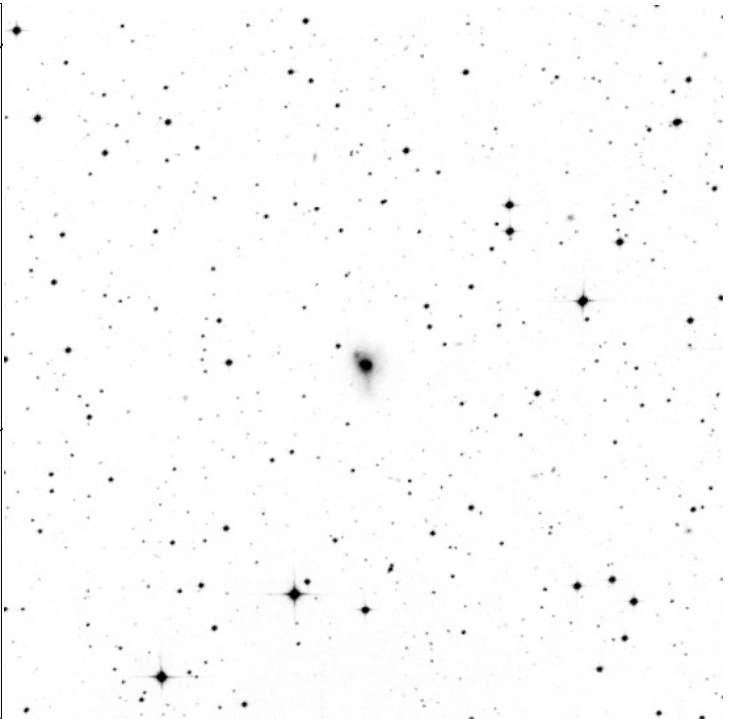
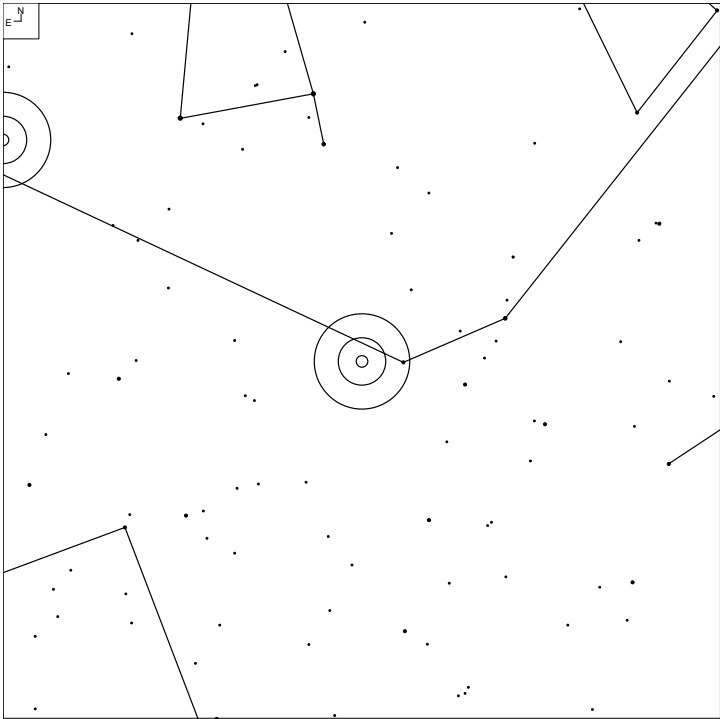
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|------|------------|---------|---------|------|
| | 16 49 11.5 | +53 25 10 | 15.6 | 4.1 x 1.1' | Cluster | 22L | 10 |

Tol 9 (Hydra)



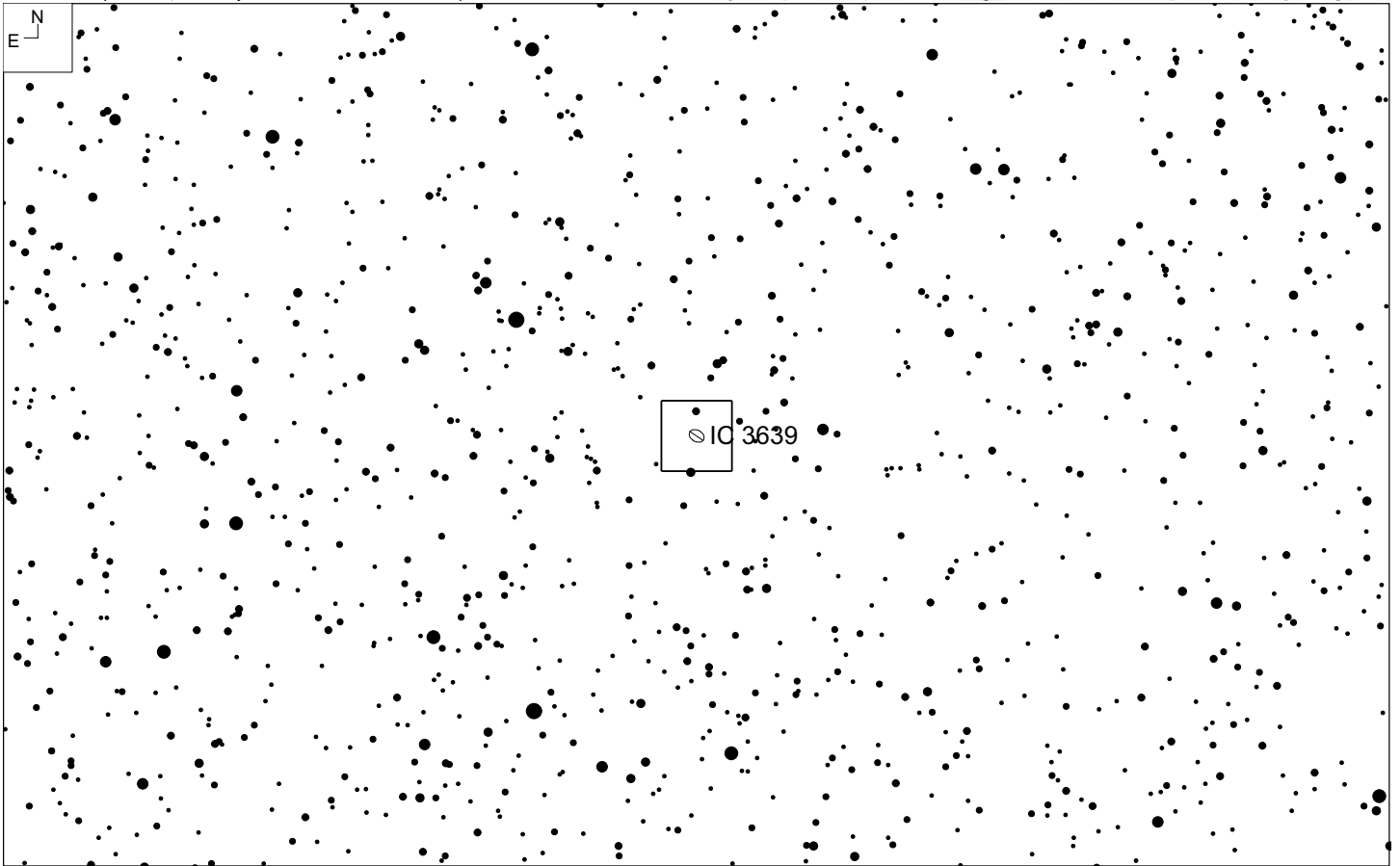
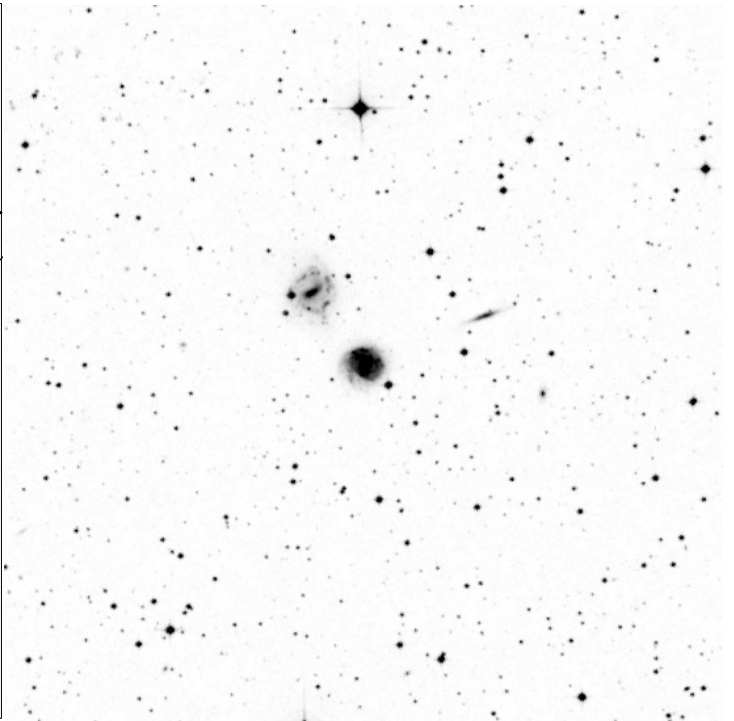
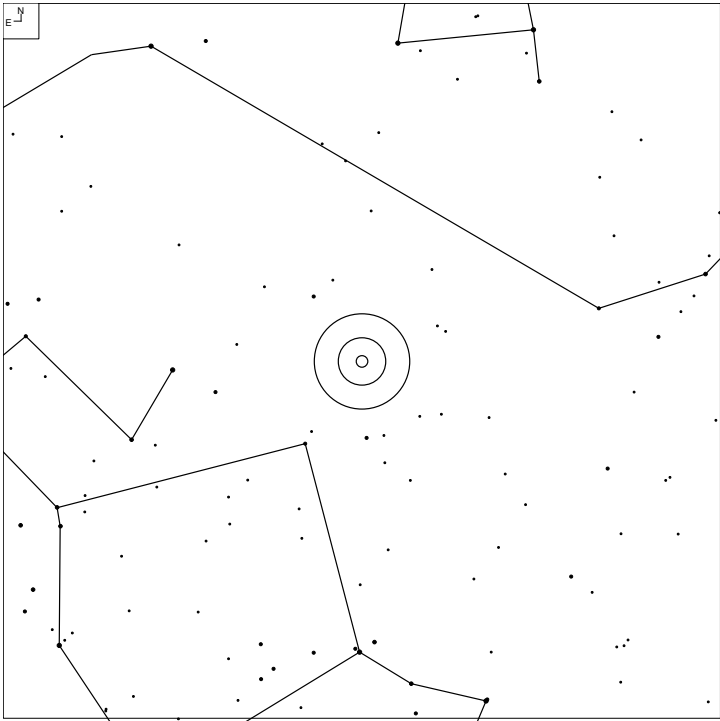
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|------------|------------|-----------|-------|------------|----------|---------|------|
| ESO 436-42 | 10 34 38.9 | -28 35 02 | 13.4p | 0.9 x 0.4' | SB(rs)bc | 151R | 82 |

Tol 60 (Hydra)



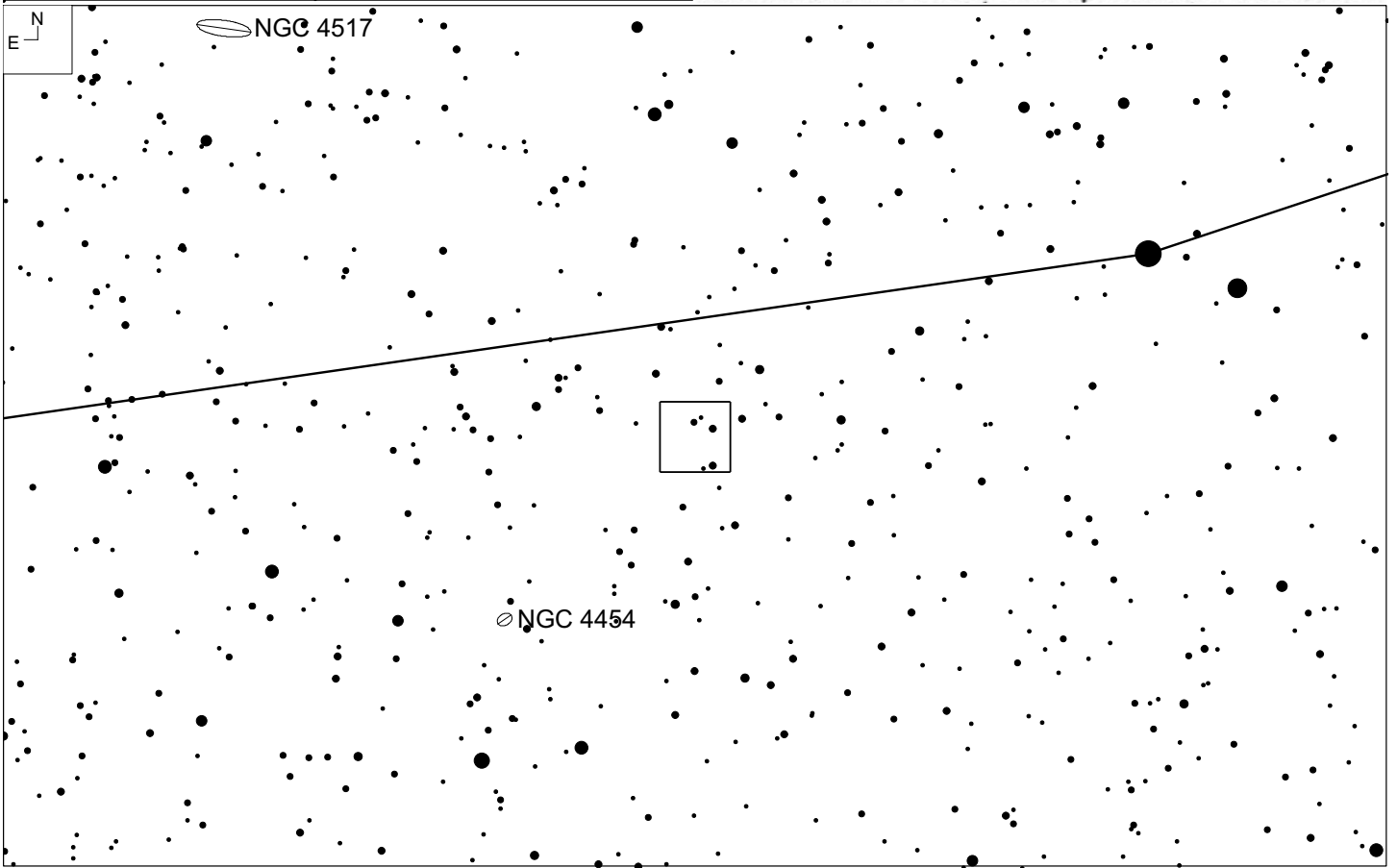
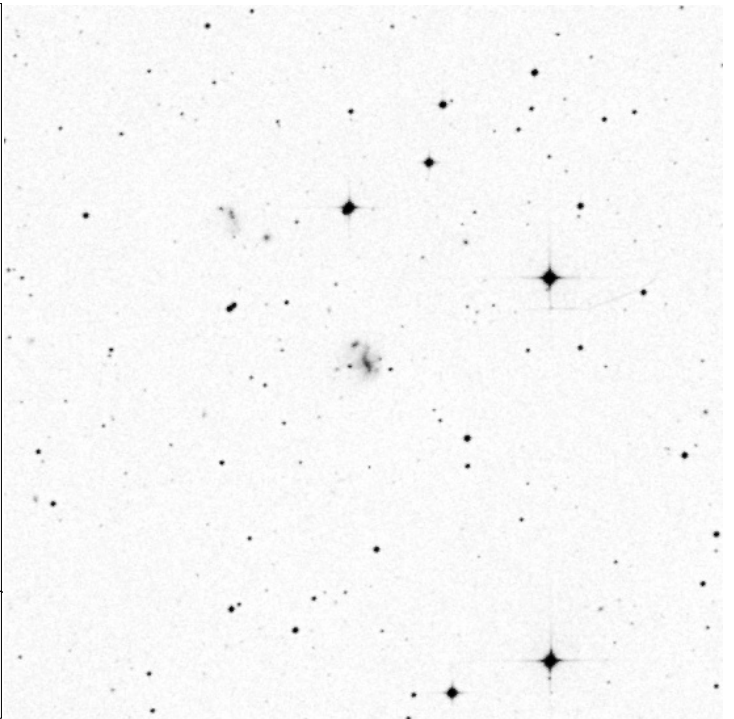
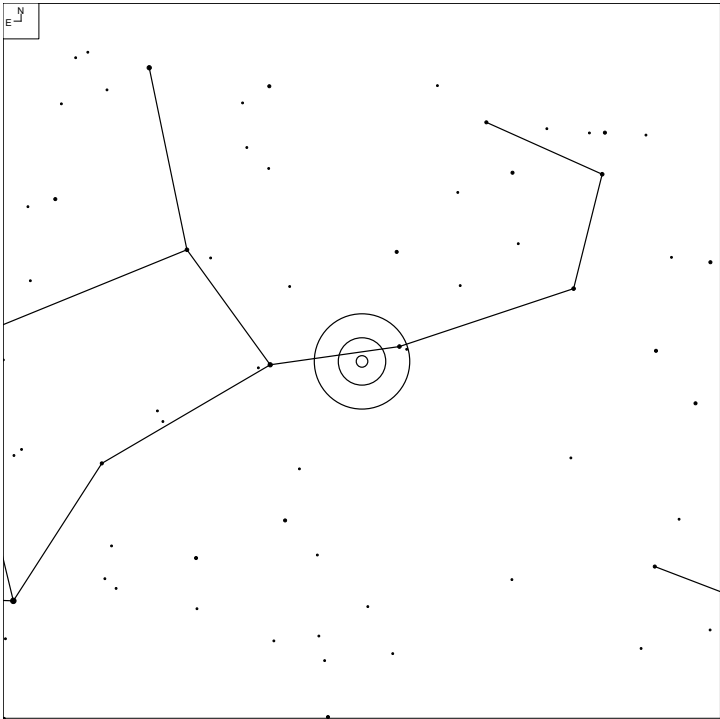
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|------------|------------|-----------|-----|------------|------|---------|------|
| ESO 379-22 | 12 01 20.6 | -33 52 36 | 14p | 1.1 x 0.7' | S? | 168L | 81 |

Tol 74 (Centaurus)



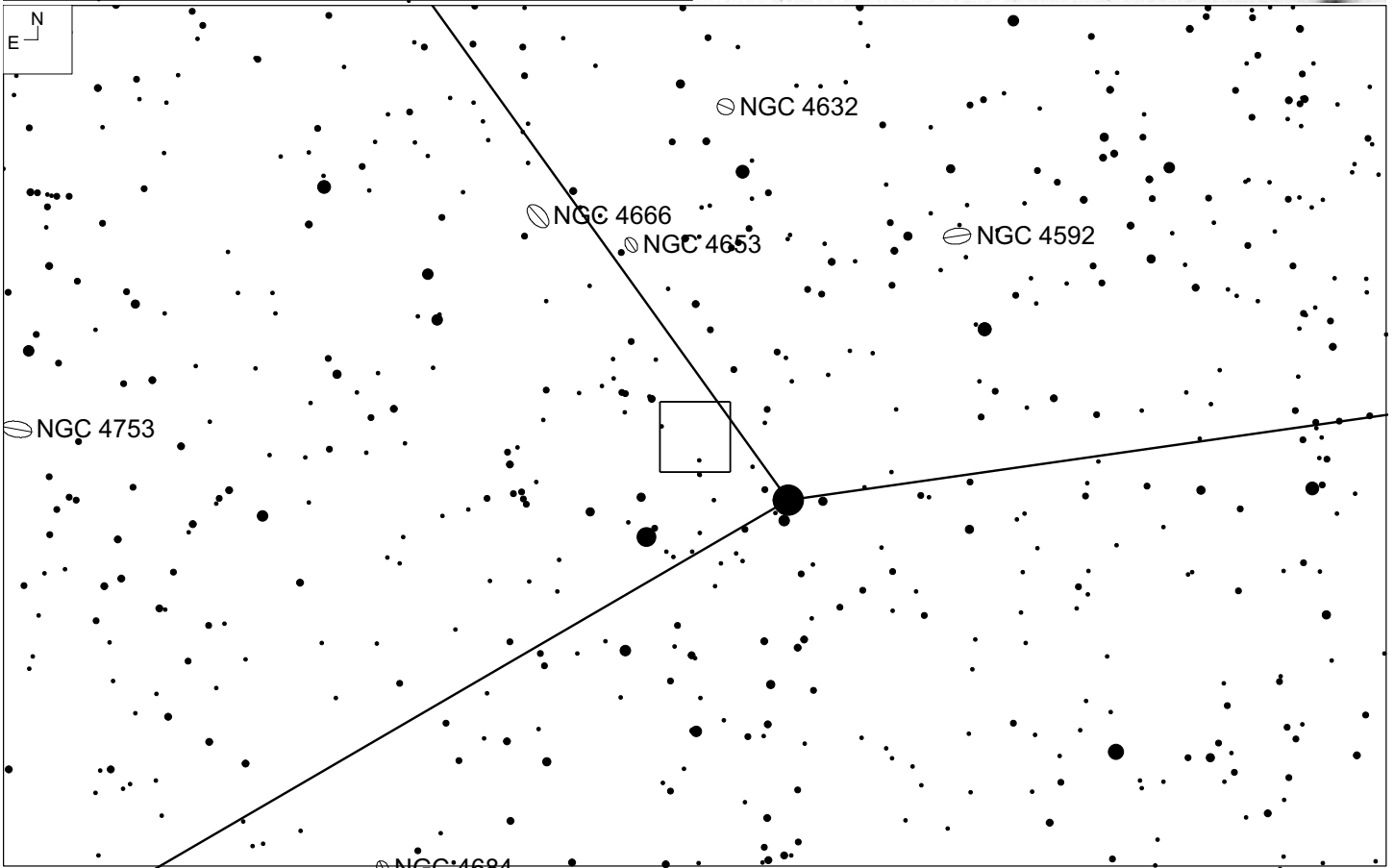
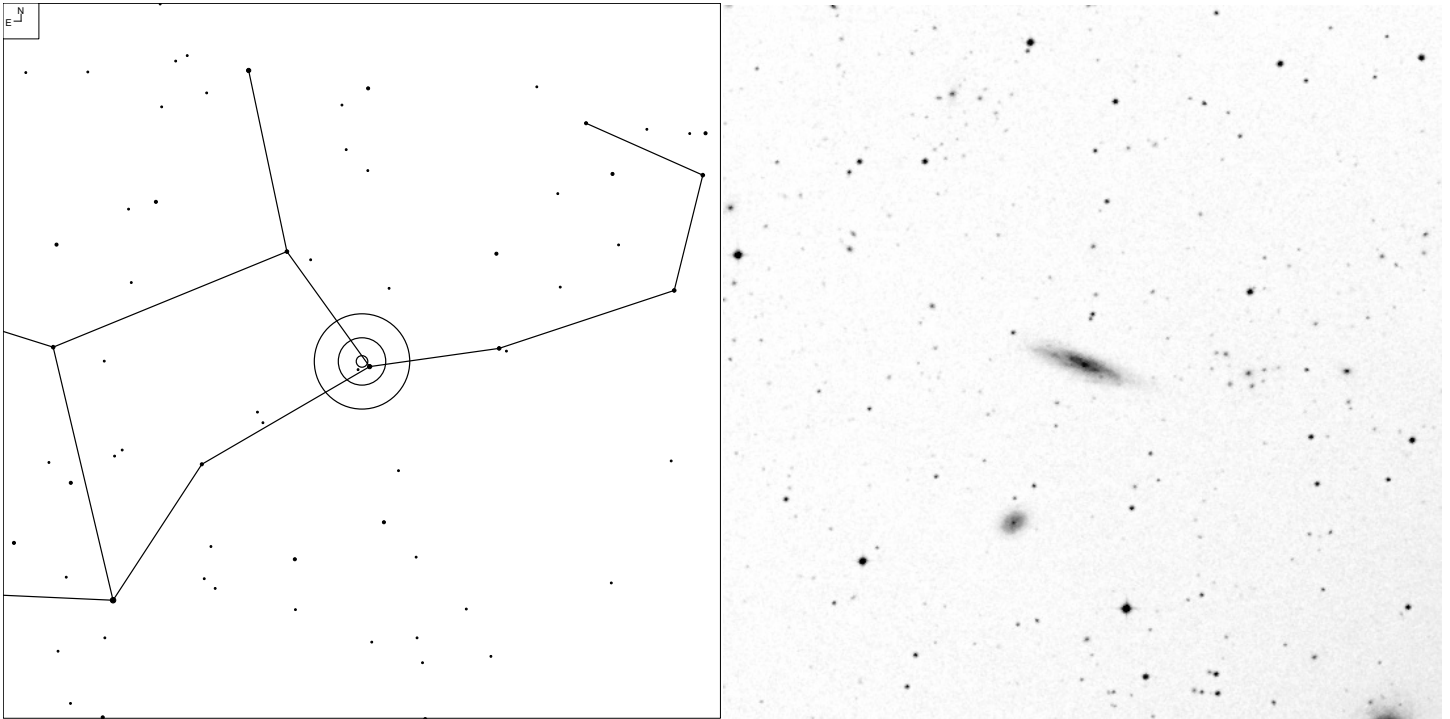
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-------|------------|----------|---------|------|
| IC 3639 | 12 40 52.7 | -36 45 21 | 13.9p | 1.2 x 1.1' | SB(rs)bc | 167R | 81 |

UM 500 (Virgo)



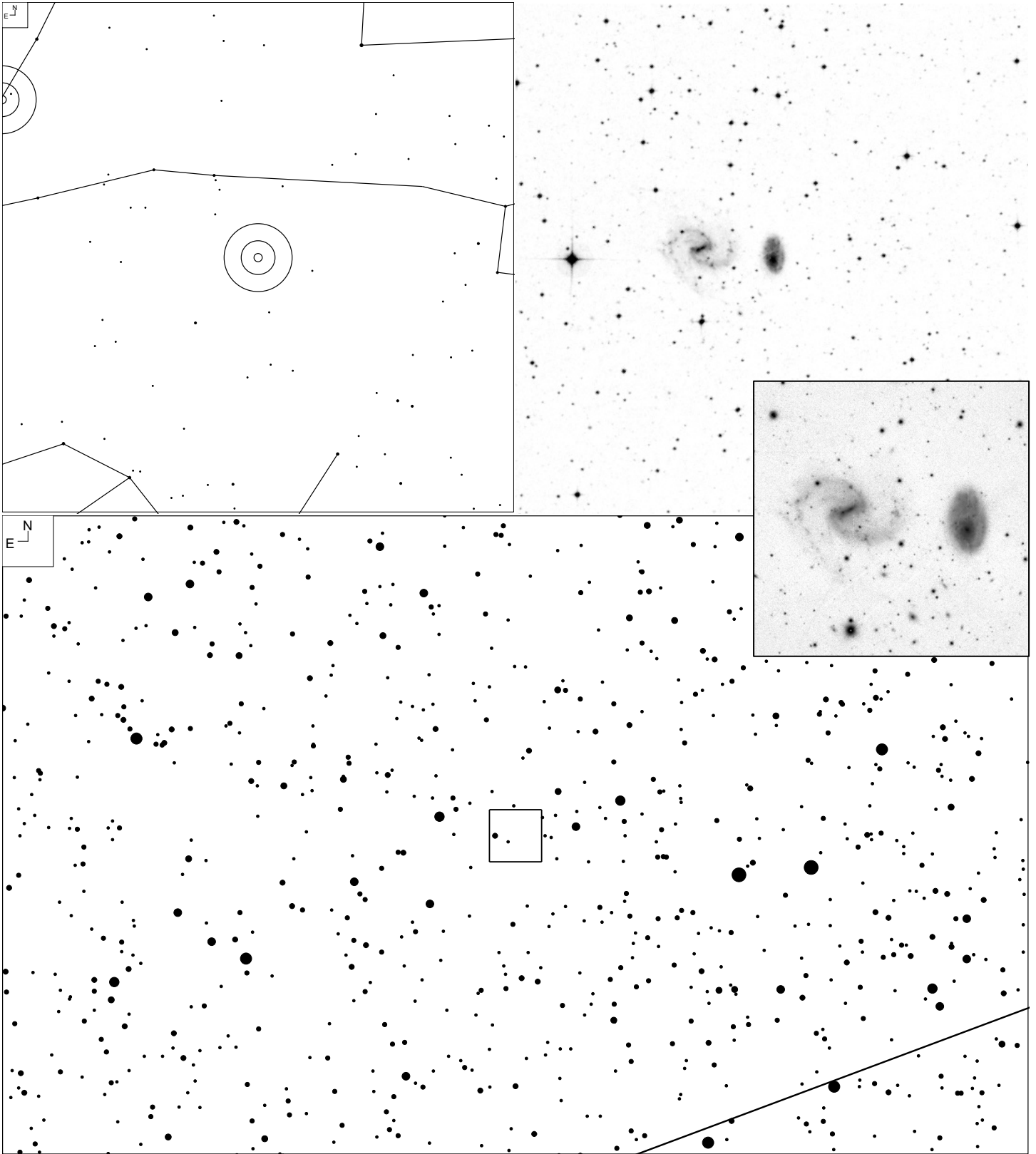
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|------|------------|---------|---------|------|
| UGC 7531 | 12 26 11.8 | -01 18 16 | 14.4 | 1.0 x 0.8' | IBm pec | 111L | 57 |

UGC 7883 (Virgo)



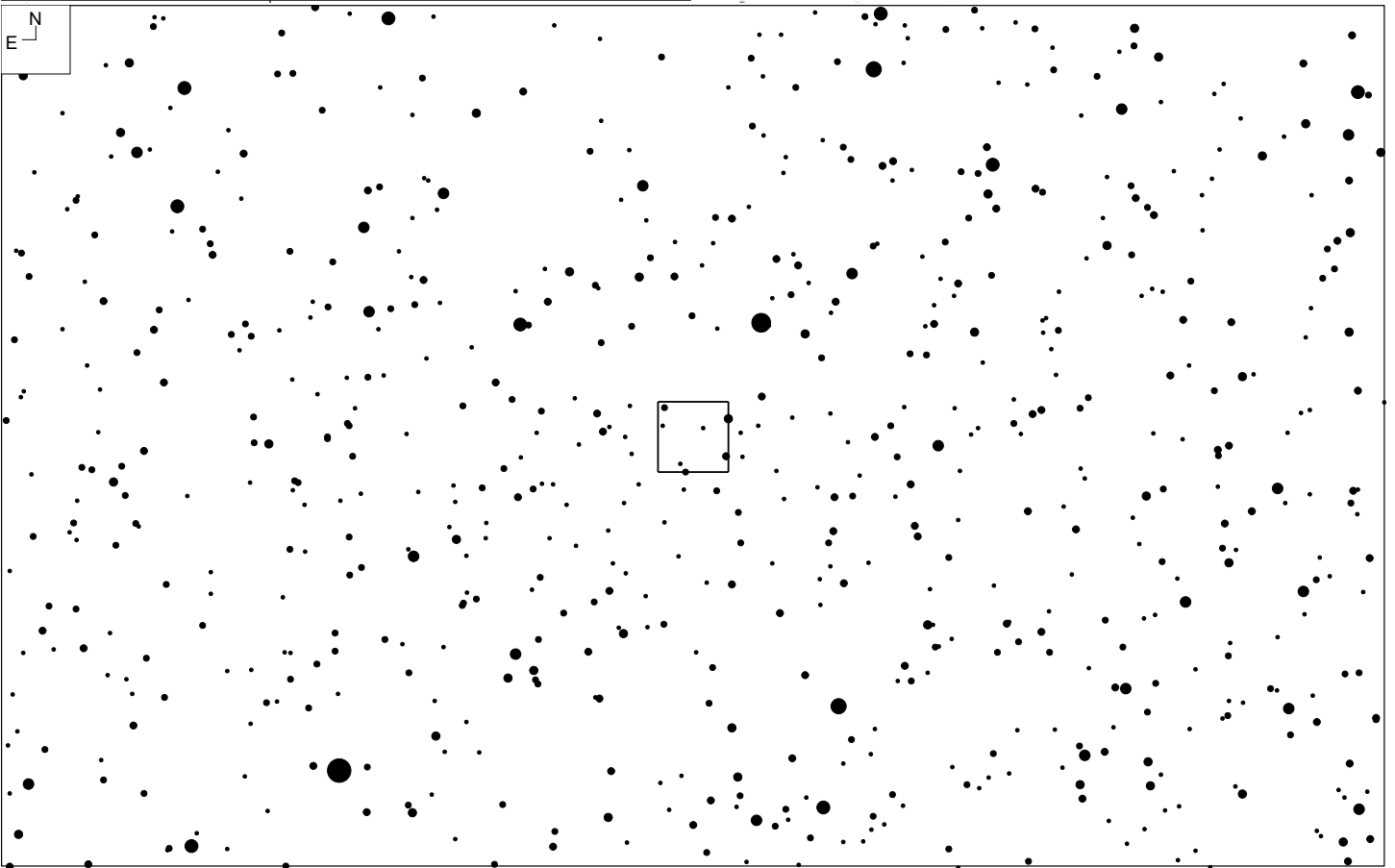
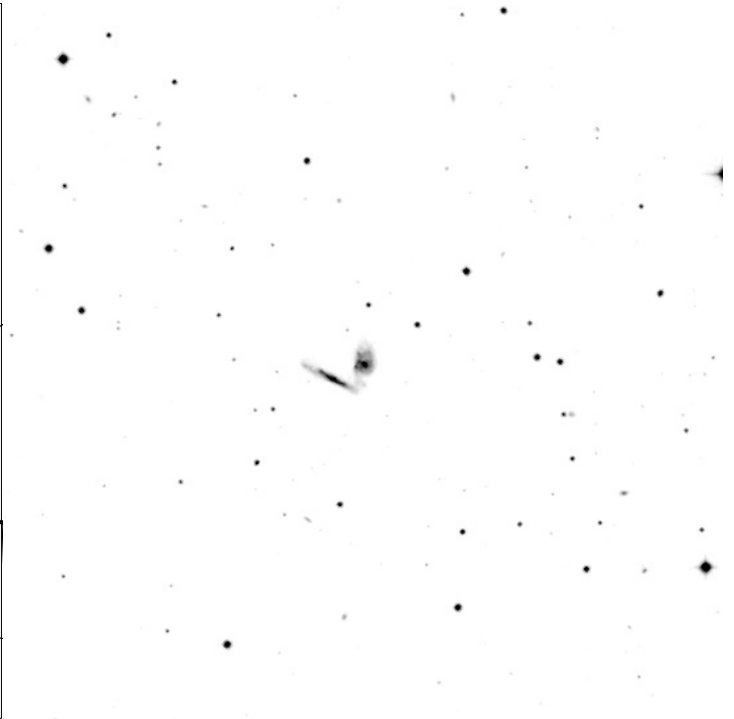
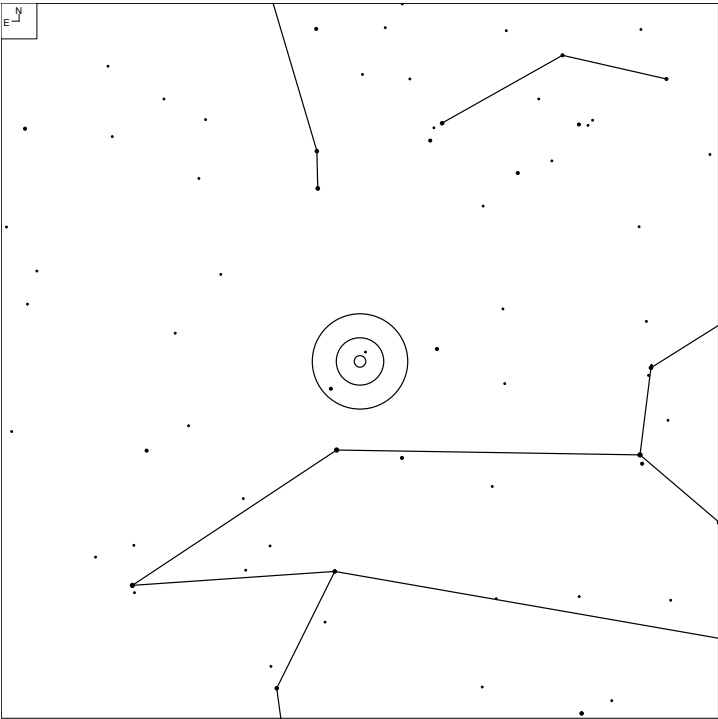
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|-----------|-------------|-----------|-------|------------|------------|---------|------|
| CGCG 15-2 | 12 42 57.4- | -01 13 44 | 13.7p | 2.6 x 0.6' | SA(s)cd sp | 110R | 57 |

UGCA 382 / 383 (Hydra)



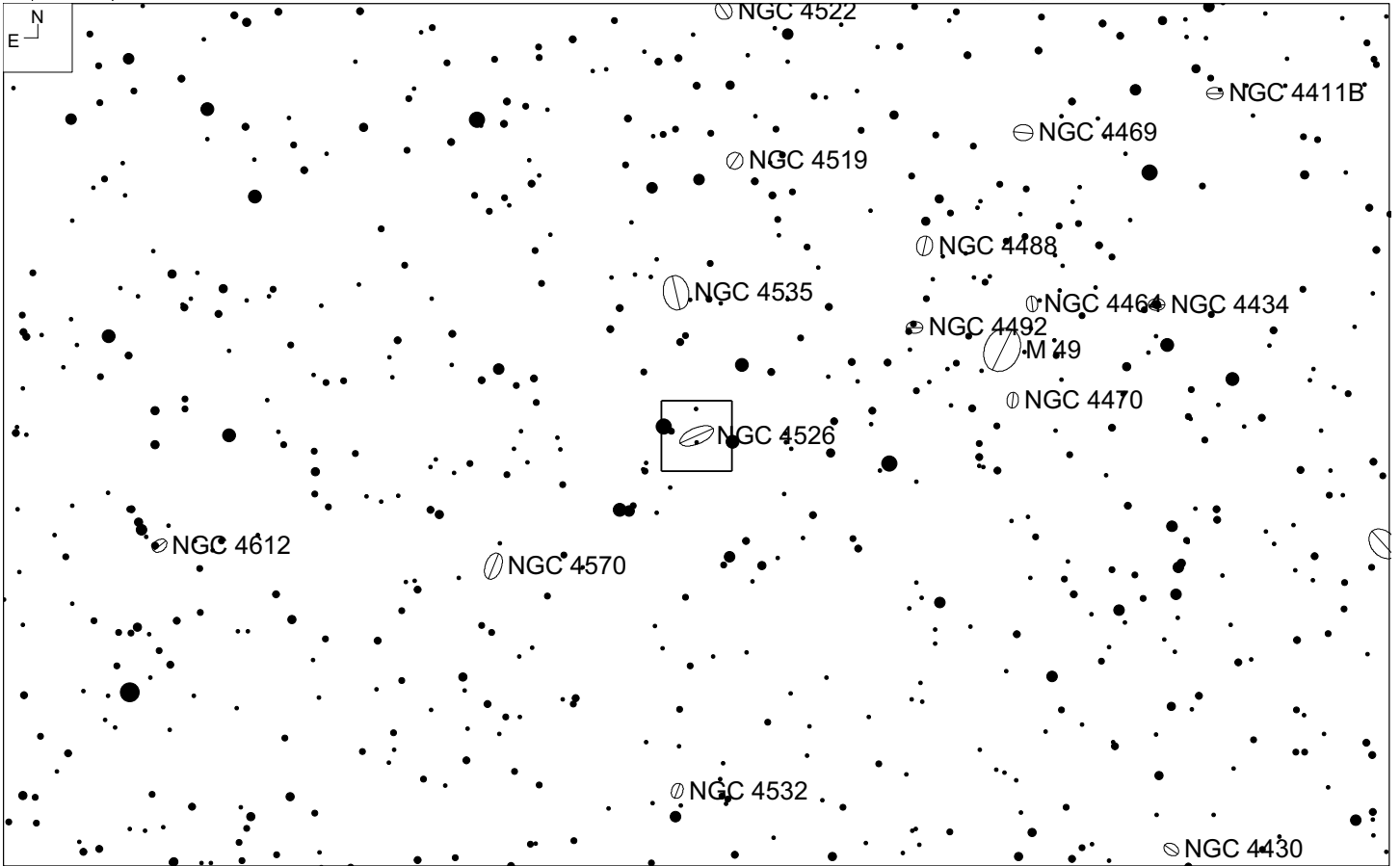
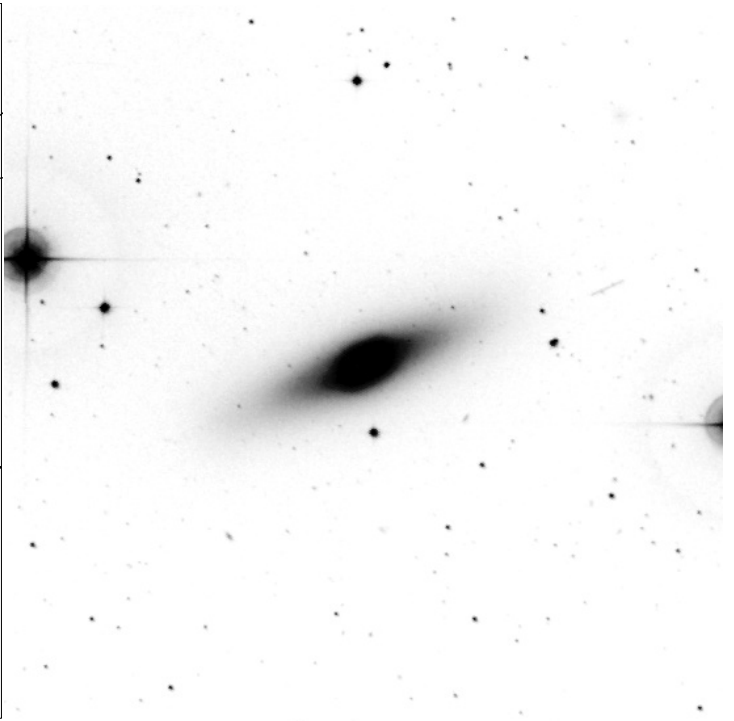
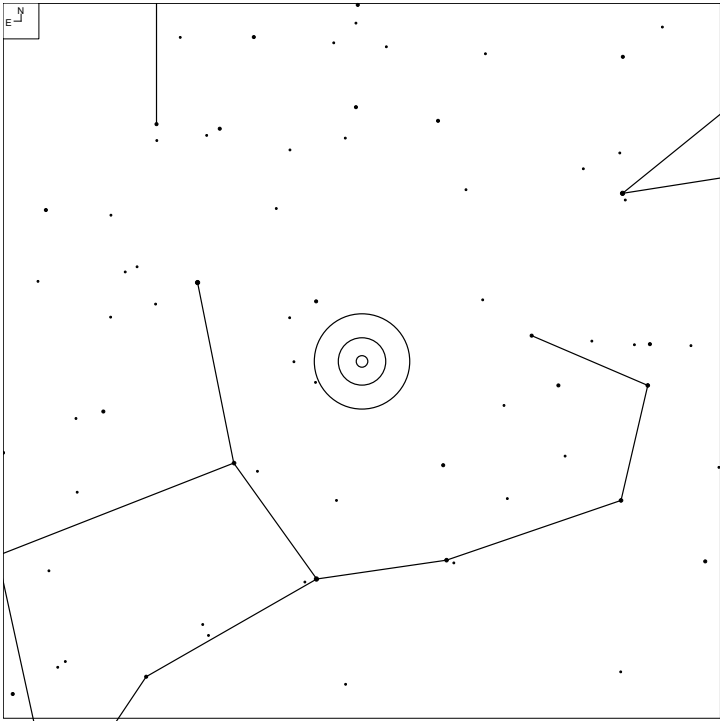
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-------|------------|----------|---------|------|
| | 14 04 37.2 | -24 49 53 | 14.0p | 3.9 x 2.5' | SB(s)cd? | 148R | 80 |

VV 229 (Leo)



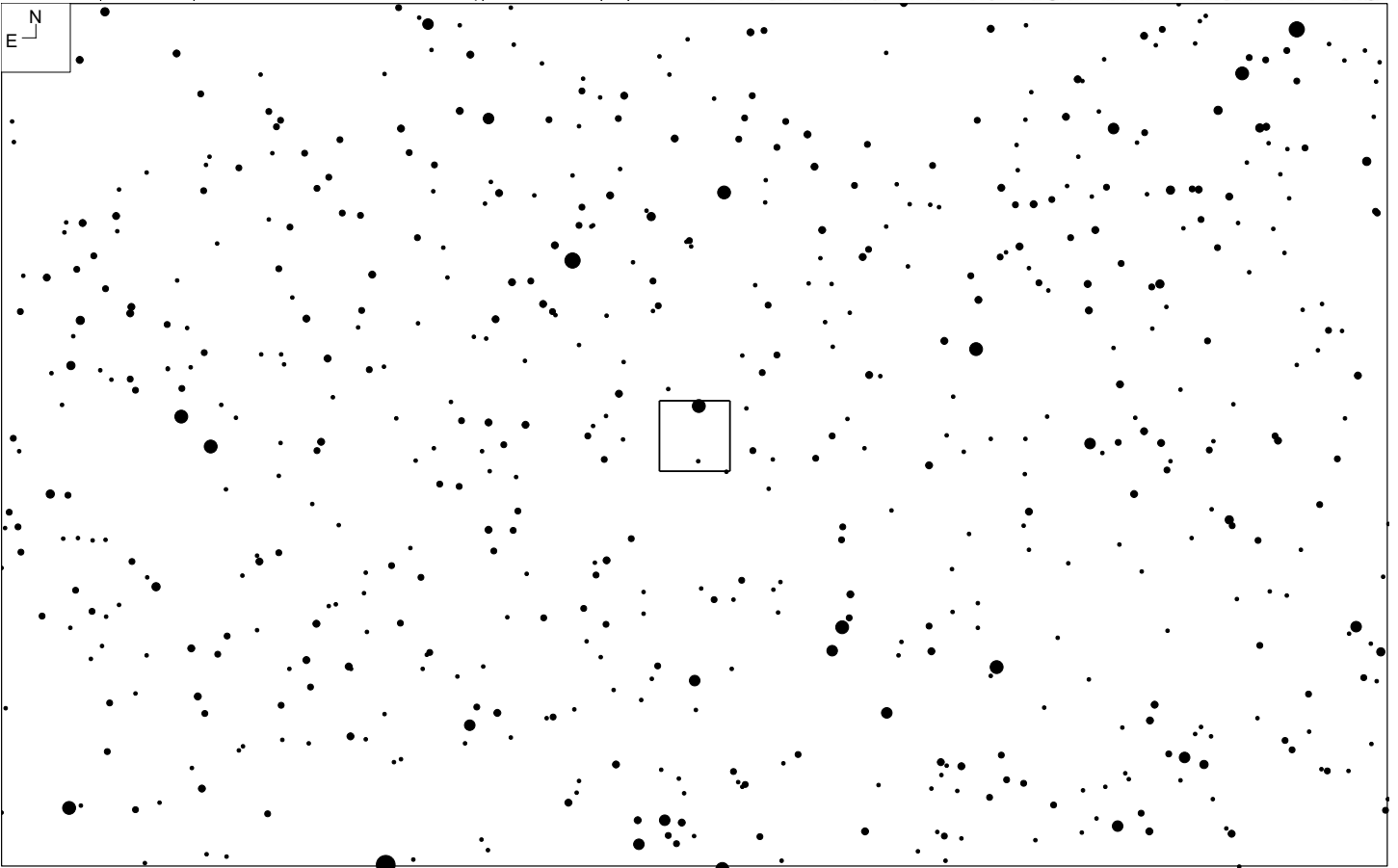
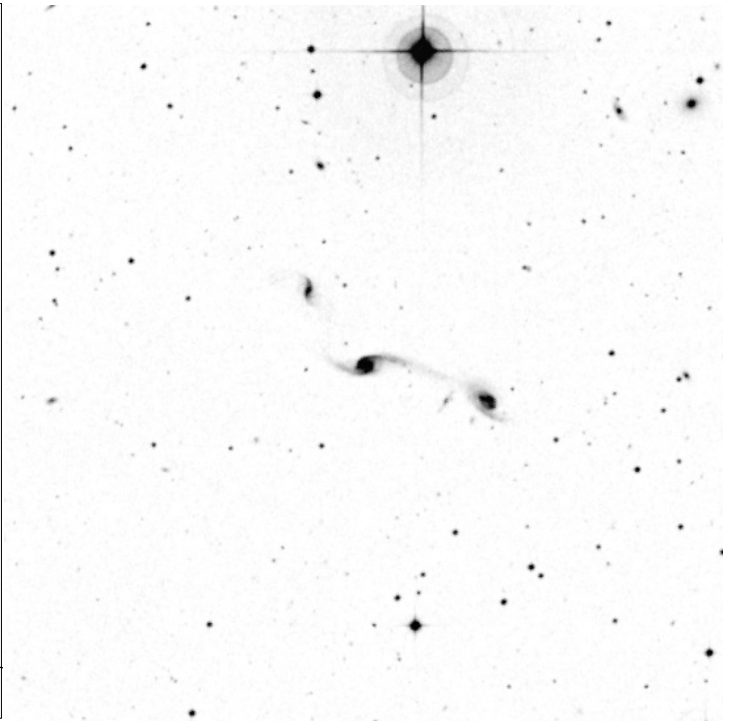
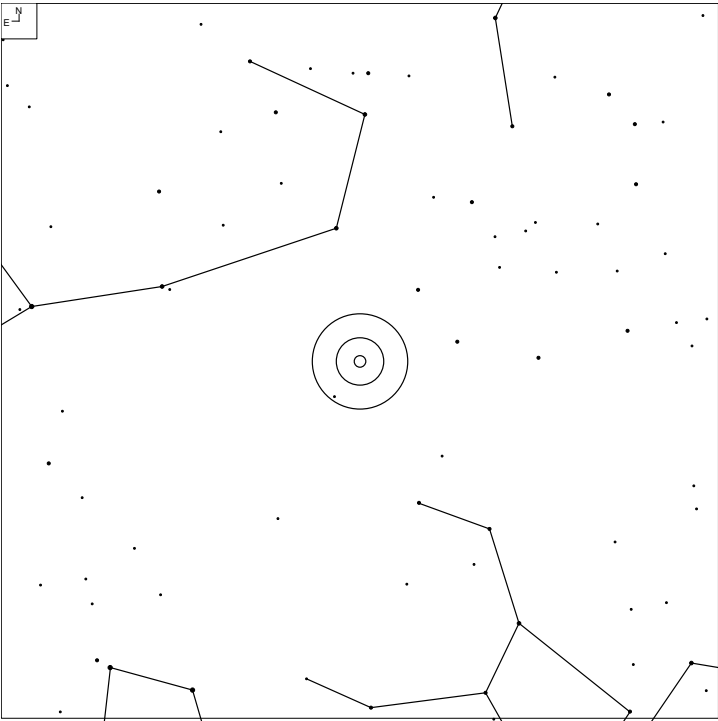
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|-------------------|------------|-----------|-------|------------|------|---------|------|
| UGC 6204, Arp 301 | 11 09 51.7 | +24 15 40 | 14.8p | 1.8 x 1.6' | Dbl | 73L | 34 |

VCC 1535 (Virgo)



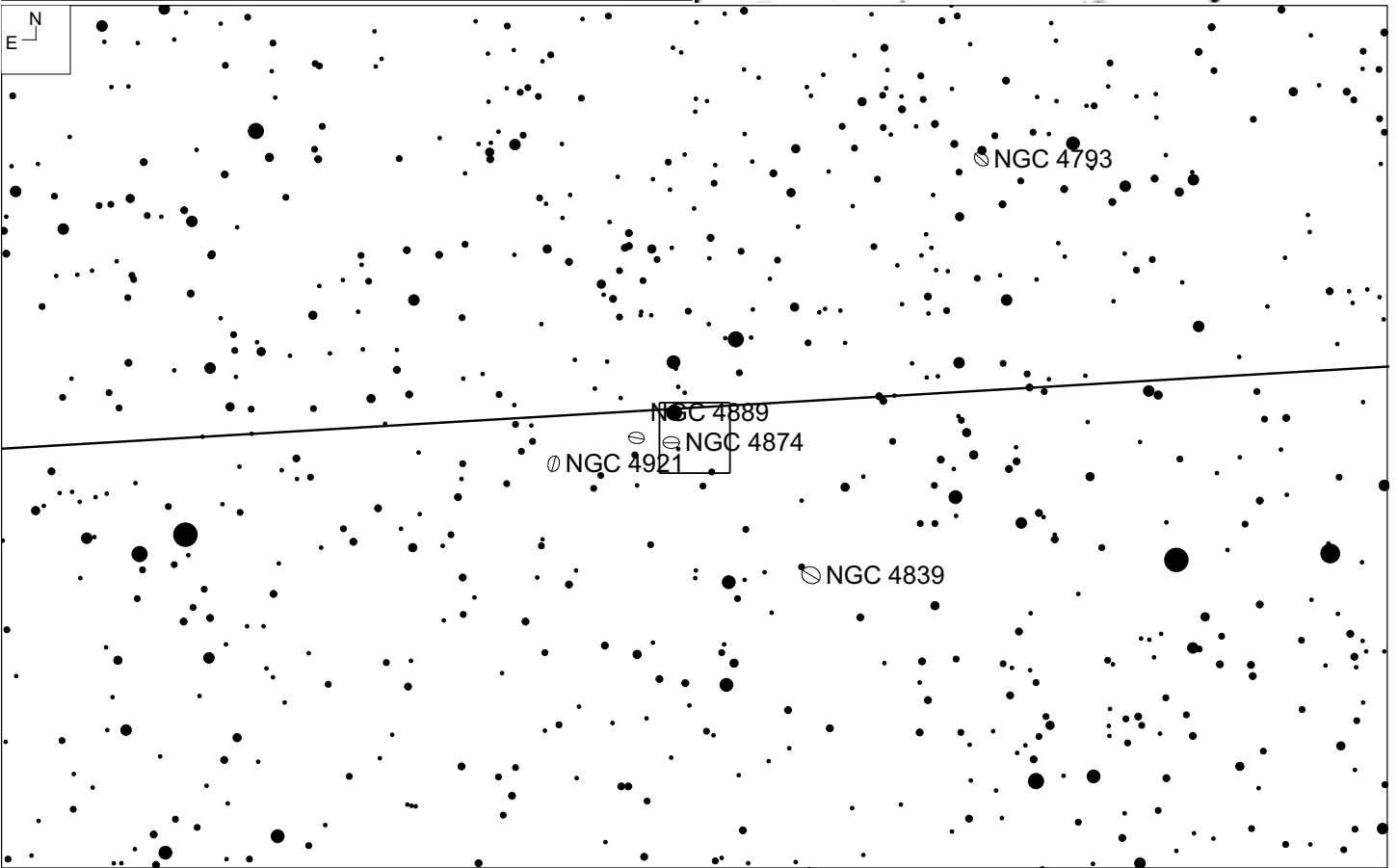
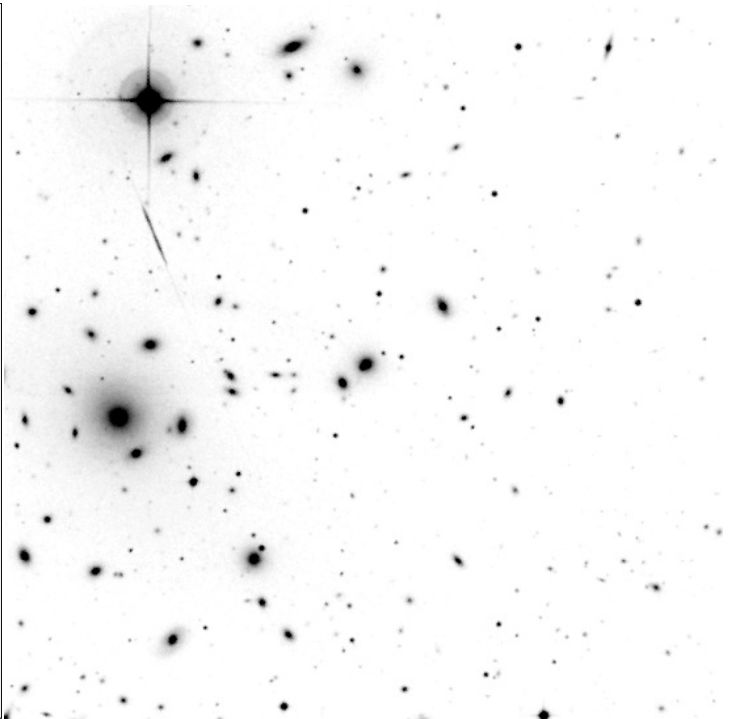
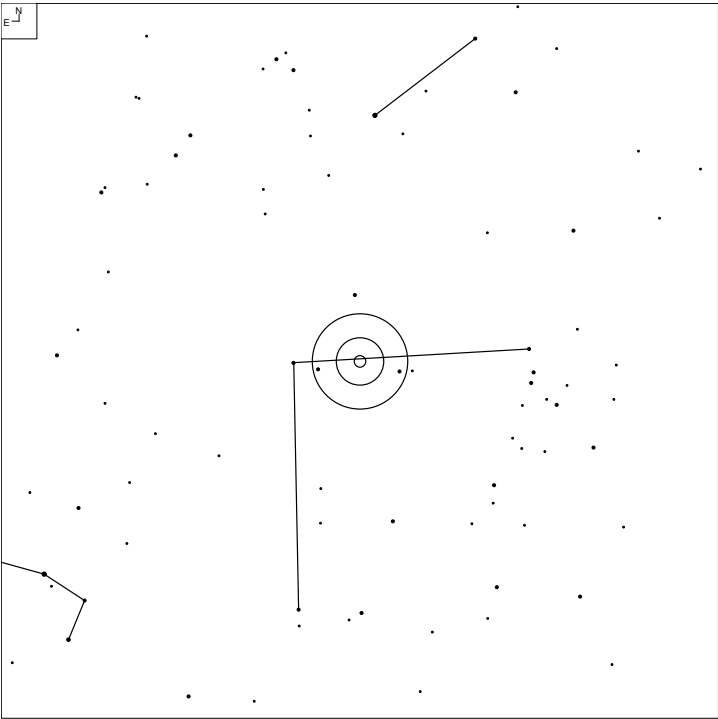
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-------|------------|--------|---------|------|
| NGC 4526 | 12 34 02.9 | +07 42 01 | 10.7b | 7.2 x 2.3' | SAB(s) | 91L | 45 |

Wild's Triplet (Virgo)



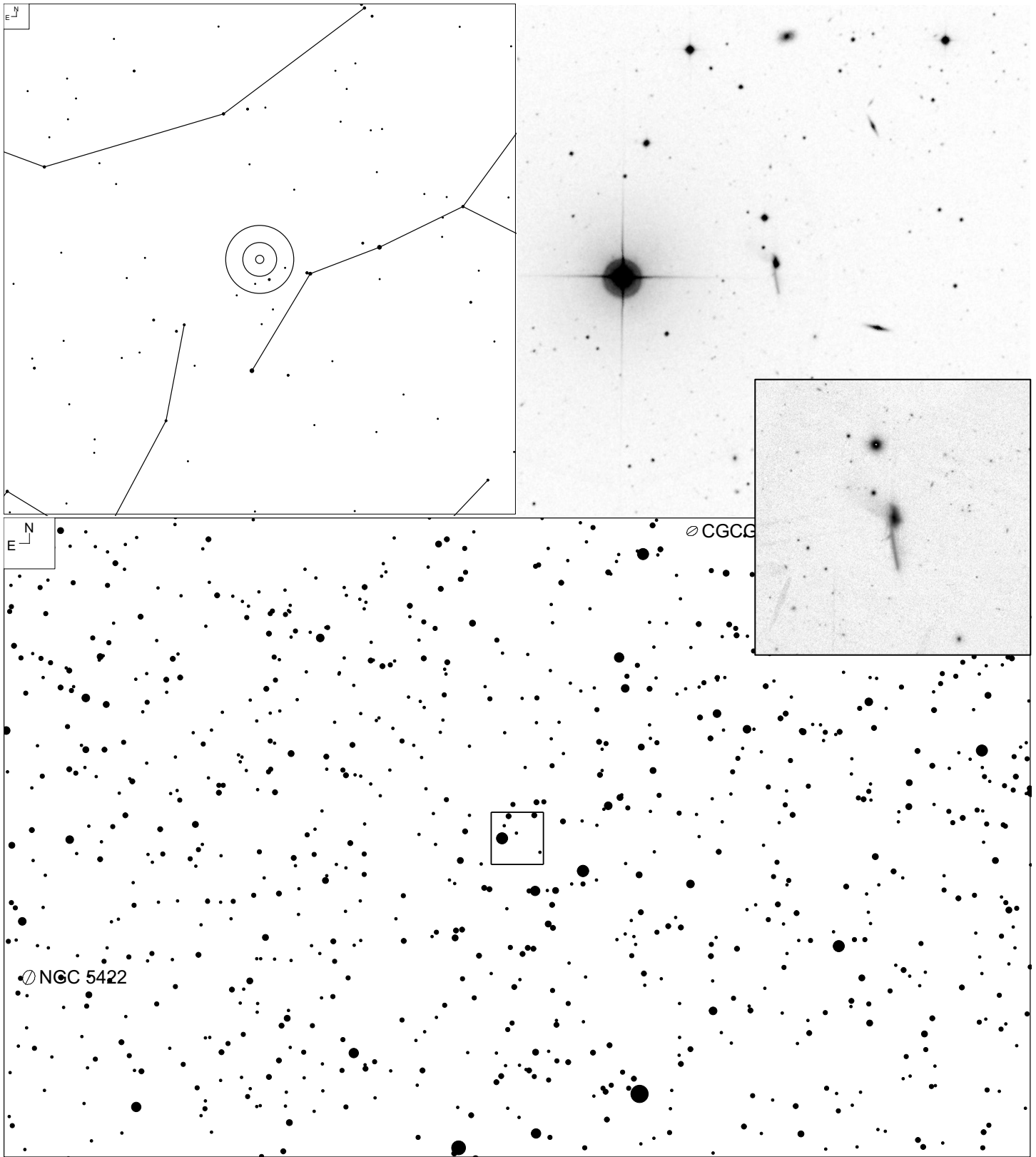
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|-------------|------------|-----------|------|------------|------|---------|------|
| MCG-1-30-33 | 11 46 42.5 | -03 50 50 | 13.7 | 5.9 x 1.9' | Trio | 111R | 58 |

WBL 426-063 (Coma Berenices)



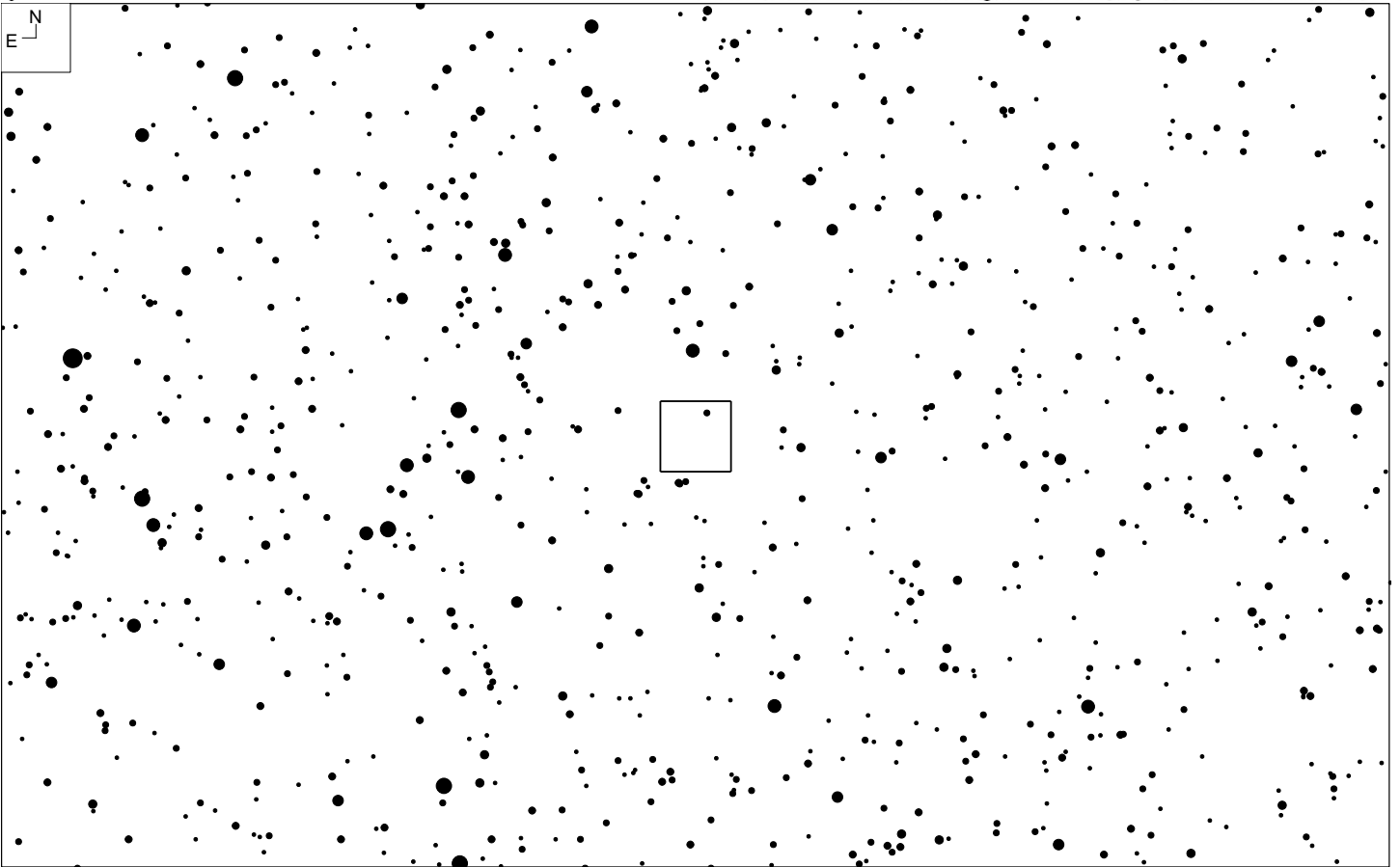
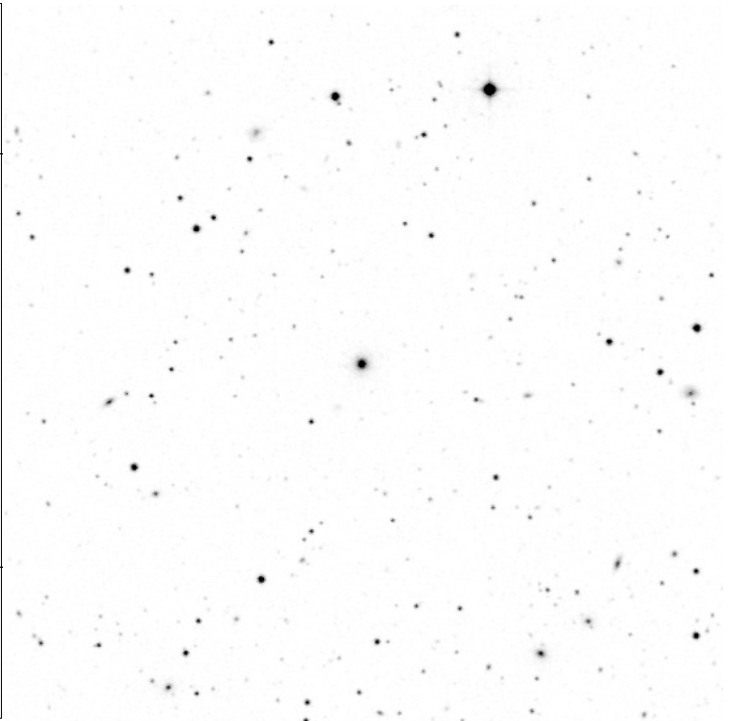
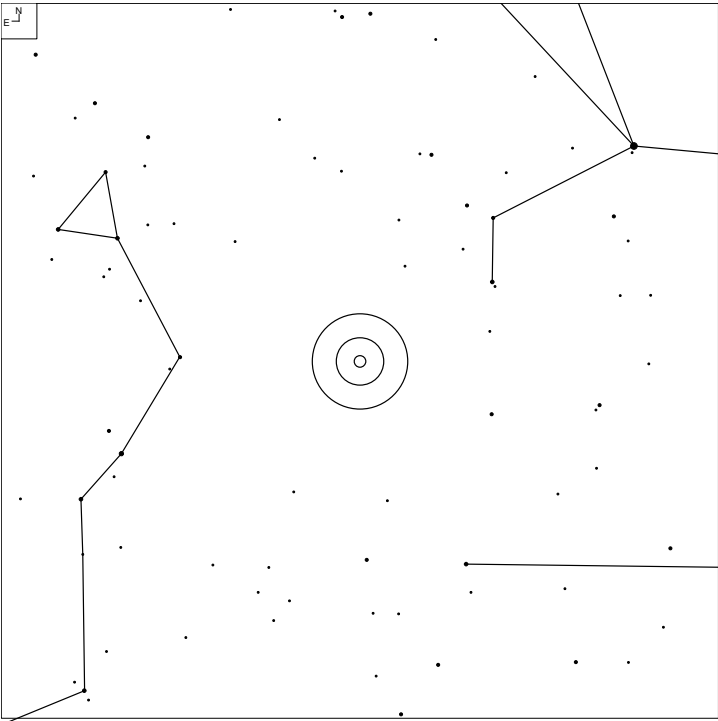
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-------|------------|------|---------|------|
| NGC 4864 | 12 59 13.2 | +27 58 35 | 14.6b | 0.7 x 0.7' | E2 | 71R | 33 |

XXM 2002 (Ursa Major)



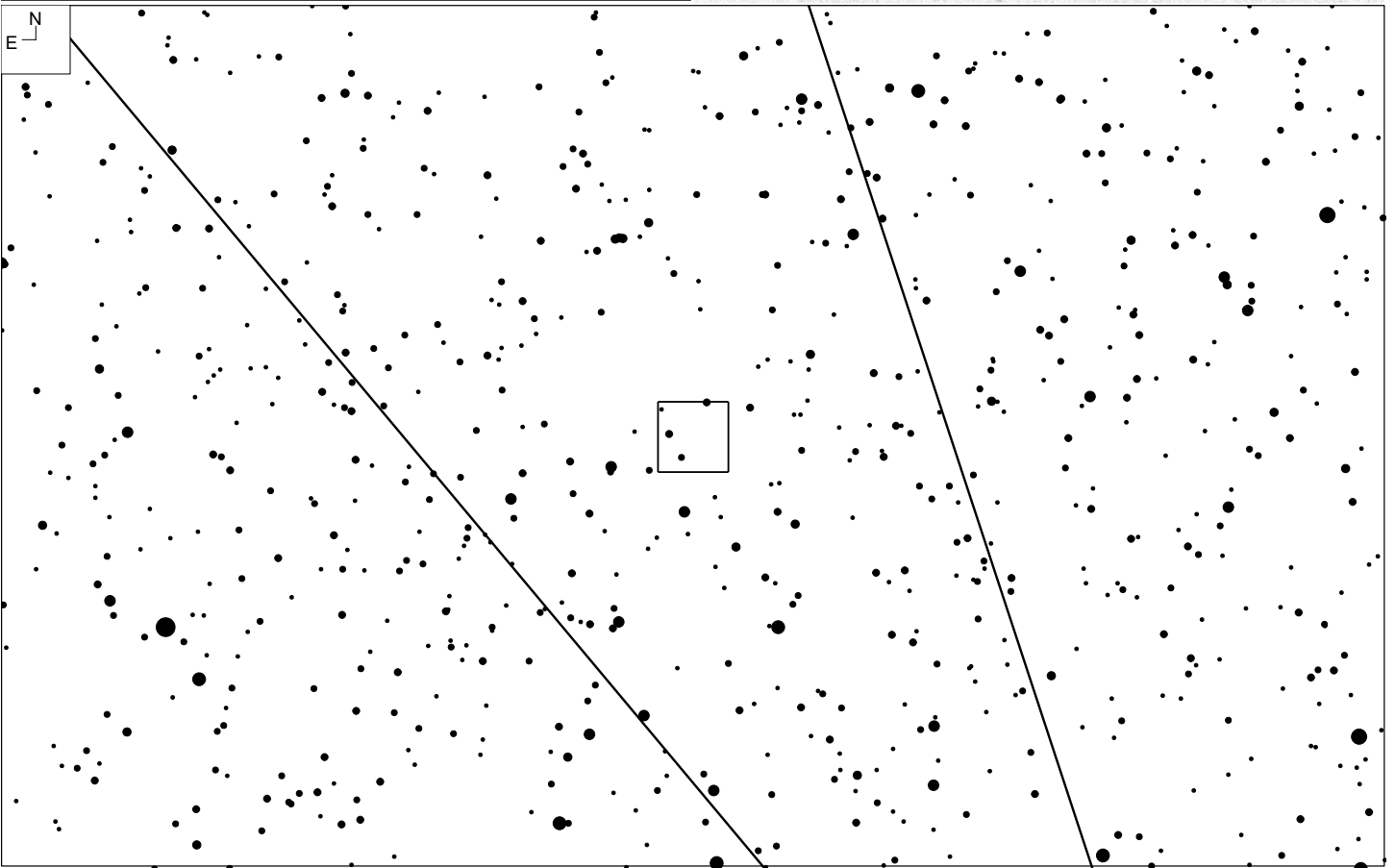
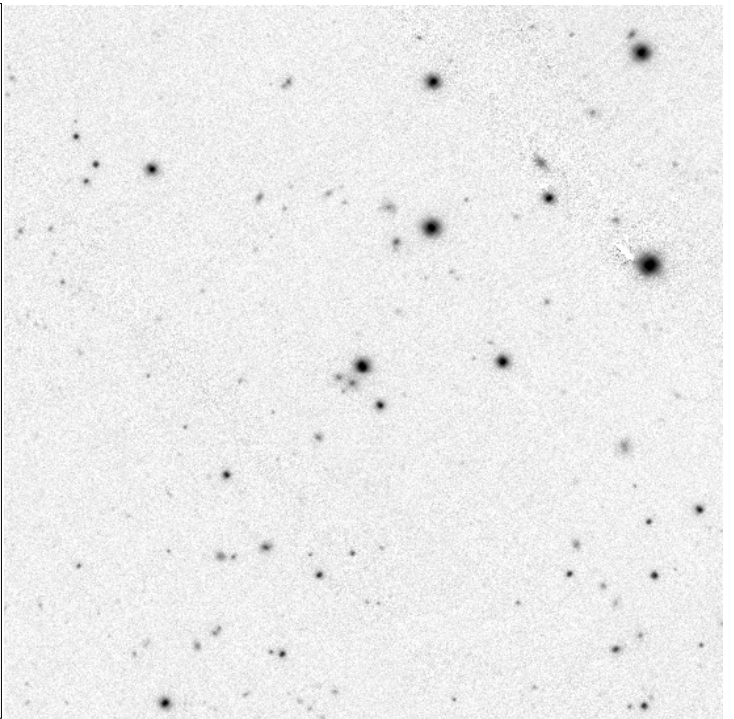
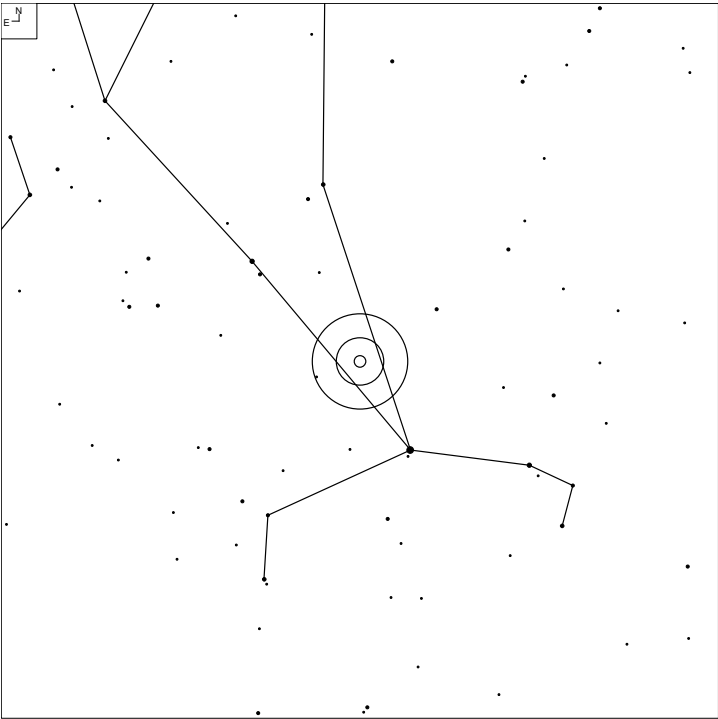
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-------|------------|------|---------|------|
| Mrk 273 | 13 44 41.9 | +55 52 57 | 15.1p | 1.3 x 0.3' | Pec | 23R | 11 |

XSS J15042+1046 (Boötes)



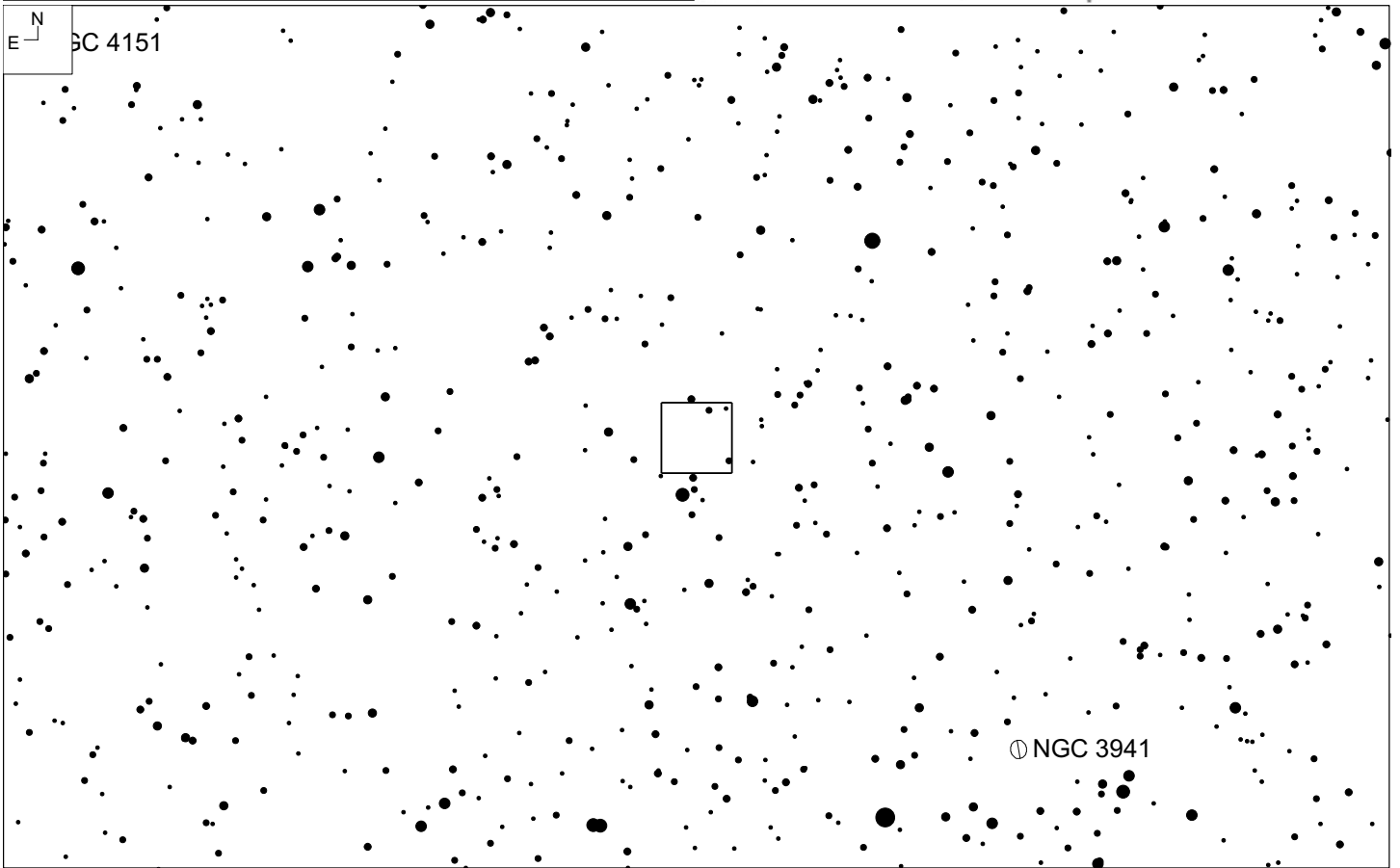
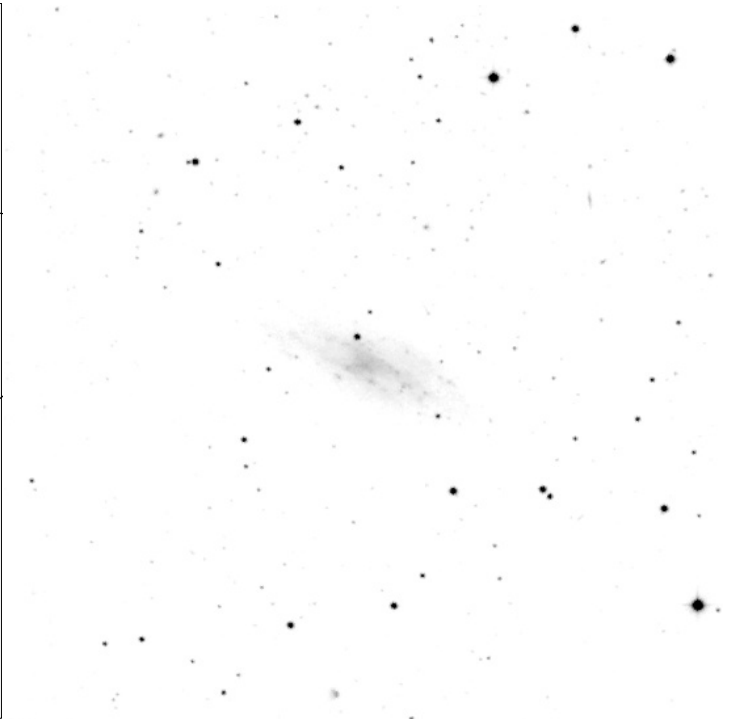
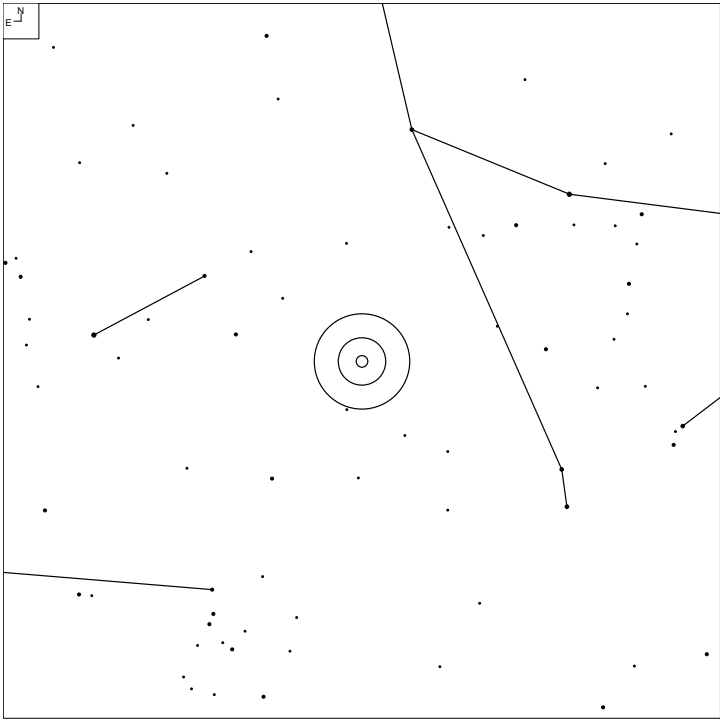
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|------|---------|------|---------|------|
| Mrk 841 | 15 04 01.2 | +10 26 16 | 14.0 | Stellar | Xray | 88R | 44 |

YE 94 (Boötes)



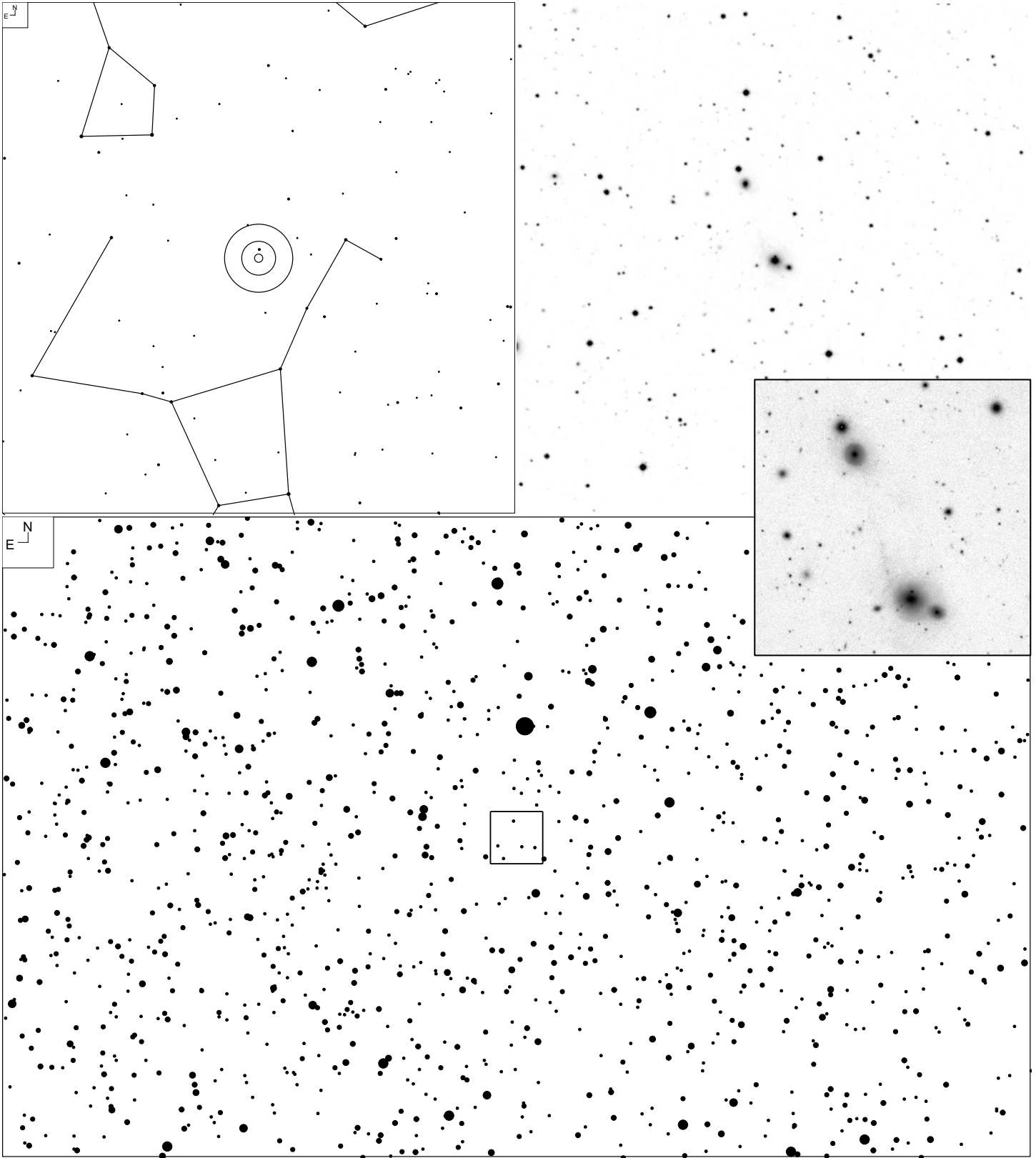
| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|------|---------|------------|---------|------|
| 1422+231 | 14 24 38.1 | +22 56 01 | 16.5 | Stellar | Grav. Lens | 70R | 32 |

Zwicky #2 (Ursa Major)



| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-------|------------|--------|---------|------|
| DDO 105 | 11 58 29.9 | +38 04 33 | 13.8b | 5.6 x 2.5' | IB(s)m | 54R | 22 |

Zwicky's Triplet (Hercules)



| Other ID | RA | Dec | Mag | Size | Type | Urano 2 | iDSA |
|----------|------------|-----------|-----|------------|------|---------|------|
| Arp 103 | 16 49 28.1 | +45 27 42 | | 3.3 x 1.0' | Sa | 34R | 19 |

2008: The Local Group

Observe Any
20 Objects

“THE LOCAL GROUP”

ADVANCED OBSERVING PROGRAM - TSP 2008

| <u>Name</u> | <u>α (J2000)</u> | <u>δ</u> | <u>Const.</u> | <u>Type</u> | <u>Mag. V</u> | <u>Size'</u> | <u>Distance Light Yrs.</u> | <u>Urano No. 1</u> |
|-------------------------|------------------------------------|----------------------------|---------------|-------------|---------------|--------------|----------------------------|--------------------|
| □Leo A, Leo III, DDO 69 | 09 59 25.3 + 30 44 34 | | UMa | Ir V | 12.69 | 5.3 x 3.4 | 2.21 m | 104 |
| □Sextans B, UGC5373 | 09 59 59.6 + 05 19 53 | | Sex | 1B(s)m | 11.9B | 5.1 x 3.5 | 4.30 m | 189 |
| □Leo I, Regulus Dwarf | 10 08 27.5 + 12 18 27 | | Leo | E3-dSph | 10.2 | 9.8 x 7.4 | 815 k | 189 |
| □Sextans A | 10 11 00.5 - 04 41 57 | | Sex | Ir V | 11.5 | 5.7 x 5.1 | 4.73 m | 234 |
| □Sextans A: A-3 | 10 11 05.4 - 04 42 22 | | " | OB Assoc. | -- | | -- | |
| □Leo II, DDO 93 | 11 13 29.3 + 22 09 12 | | Leo | dESph | 11.9 | 10.1 x 9.0 | 685 k | 146 |
| □Coma Berenices Dwarf | 12 26 59.0 + 23 54 15 | | Com | "Hobbit" | 14.5 | | | 148 |
| □Ursa Minor, DDO 199 | 15 08 48.0 + 67 11 00 | | UMi | DSph | 10.6 | 30.4 x 19.1 | 205 k | 28 |
| □Draco Dwarf, DDO 208 | 17 20 07.7 + 57 54 58 | | Dra | Epec-dSph | 11.0 | 35.5 x 24.5 | 258 k | 52 |
| □MAC 1719+5754 | 17 19 20.3 + 57 54 05 | | " | Galaxy | 15.5 | 0.9 x 0.3 | -- | |
| Sagittarius A - Dwf Sph | 17 45 39.9 - 29 00 28 | | Sgr | S(B)bc | -- | | 79.5 k | |
| □SagA: Wray 16-423 | 19 22 10.5 - 31 30 39 | | Sgr | Planetary | 13.4(P) | -- | -- | 379 |
| □SagA: Arp GC 2 | 19 28 44.1 - 30 21 14 | | Sgr | Globular | 15.5 | 2.3 | -- | 379 |
| □SagA: Henize 2-436 | 19 32 06.8 - 34 12 58 | | Sgr | Planetary | 14.1(P) | 10.0" | -- | 379 |
| □SagA: Terzan 8 | 19 41 45.0 - 34 00 01 | | Sgr | Globular | 15.0 | 3.5' | -- | 380 |
| □SagDIG, ESO594-4 | 19 29 59.6 - 17 40 42 | | Sgr | Ir V | 14.2 | 3.2 x 1.5 | 4.24 m | 342 |
| □NGC6822 | 19 44 56.5 - 14 48 11 | | Sgr | 1B(s)m | 8.52 | 15.6 x 13.5 | 1.63 m | 297 |
| □N6822: A8 | 19 44 52.3 - 14 43 08 | | " | OB Assoc | -- | | -- | |
| □N6822: H-VI | 19 44 52.5 - 14 48 53 | | " | Globular | -- | | -- | |
| □N6822: H-VII | 19 44 55.7 - 14 48 57 | | " | Globular | 16.28v | | -- | |
| □N6822: A13 | 19 45 05.3 - 14 43 16 | | " | OB Assoc | -- | | -- | |
| □Aquarius, DDO 210 | 20 46 52.0 - 12 50 51 | | Aqr | -- | 13.88 | 2.2 x 1.1 | 3.34 m | 299 |
| □Pegasus, DDO 216 | 23 28 34 + 14 44 48 | | Peg | Ir V | 12.59 | 8.2 x 2.5 | 2.48 m | 214 |
| □WLM, DDO 221 | 00 01 56.3 - 15 27 21 | | Cet | Ir IV-V | 10.42 | 11.6 x 4.0 | 3.02 m | 260 |
| □WLM: CG 1 | 00 01 49.6 - 15 27 29 | | " | Globular | -- | | -- | |
| □WLM: A3 | 00 01 56.9 - 15 27 01 | | " | OB Assoc | -- | | -- | |
| □IC 10 | 00 20 18.2 + 59 18 06 | | Cas | Ir IV | 10.4 | 6.3 x 5.1 | 2.15 m | 35 |
| □IC10: A-12 | 00 20 28.2 + 59 17 38 | | " | OB Assoc. | -- | | -- | |
| □NGC147 | 00 33 11.6 + 48 30 28 | | Cas | E5 pec-Sph | 9.52 | 13.2 x 7.7 | 2.15 m | 60 |
| □NI47: GC-3 | 00 33 15.4 + 48 27 23 | | " | Clobular | | | -- | |
| □NGC185 | 00 38 57.7 + 48 20 14 | | Cas | E3 pec-Sph | 9.19 | 11.9 x 10.1 | 2.15 m | 60 |
| □N185: GC-1 | 00 38 42.8 + 48 18 38 | | " | Globular | -- | | -- | |
| □N185: GC-4 | 00 39 03.9 + 48 19 58 | | " | Globular | -- | | -- | |
| □N185: GC-5 | 00 39 13.8 + 48 23 05 | | " | Globular | -- | | -- | |
| □M110, NGC205 | 00 40 22.9 + 41 41 22 | | And | E5 pec-Sph | 8.06 | 21.9 x 10.9 | 2.48 m | 60 |
| □M110: GC 73 | 00 40 55.2 + 41 41 25 | | " | Globular | -- | | -- | |
| □M32, NGC221 | 00 42 41.9 + 40 51 56 | | And | E2 | 8.06 | 8.7 x 6.4 | 2.48 m | 60 |
| □M31, NGC224 | 00 42 44.4 + 41 16 09 | | And | Sb I-II | 3.38 | 192.4 x 62.2 | 2.48 m | 60 |
| □M31: GC-119 | 00 41 53.0 + 40 47 10 | | " | Globular | 15.04 | | -- | |
| □M31: No. 74 | 00 42 58.9 + 41 37 17 | | " | HII Region | -- | | -- | |
| □M31: GC-272 | 00 44 14.5 + 41 19 18 | | " | Globular | 14.75 | | -- | |
| □M31: GC-279 | 00 44 27.0 + 41 28 50 | | " | Globular | 15.40 | | -- | |
| □M31: GC-280 | 00 44 29.5 + 41 21 37 | | " | Globular | 14.2 | | -- | |
| □Andromeda I | 00 45 41.5 + 38 02 09 | | And | E3 pec | 12.75 | 4.0 x 3.0 | 2.64 m | 90 |

Enjoy the Neighborhood-
Larry Mitchell

k = Thousand
m = Million

Use the Local Group Guide as a reference to observe the above:

<https://www.faintfuzzies.com/Files/LocalGroup-v5.pdf>

2009: Galaxy Groups – Clusters - Superclusters

Observe: Galaxy Groups - Clusters - Superclusters Advanced Observing – Texas Star Party 2009

| Name: | Coordinates 2000: | Const. | Mag. Brightest | Notes | Urano 1: |
|--|-----------------------|--------|-------------------|-----------------------------------|----------|
| <input type="checkbox"/> Abell 754 | 09 08 53.9 – 09 38 56 | Hya | 14.3 | Two clusters merging | 277 |
| <input type="checkbox"/> WBL 213, AWM 1, N2809 | 09 17 06.9 + 20 04 11 | Cnc | 12.8 | A chain – N2809 = cD | 142 |
| <input type="checkbox"/> MKW 1, NGC3090 | 10 00 30.2 – 02 58 08 | Sex | 13.6 | Nice, ~10, N3090 = cD | 234 |
| <input type="checkbox"/> NGC3158 Group | 10 13 50.5 + 38 45 53 | LMi | 11.9 | Bright NGC Objects, Nice | 104 |
| <input type="checkbox"/> Hydra 1, Abell 1060 | 10 36 43.1 – 27 31 35 | Hya | 11.6 | 158M LYrs, Beautiful | 325 |
| <input type="checkbox"/> Shakhbazian 26 | 11 02 13.1 + 50 20 50 | UMa | -- | Small 16 th Mag. chain | 46 |
| <input type="checkbox"/> Shakhbazian 3 | 11 15 53.5 + 53 45 15 | UMa | -- | Handful of faint objects | 46 |
| <input type="checkbox"/> Abell 1185 (Arp 105) | 11 10 48.0 + 28 40 00 | UMa | 14.3 | Many NGC, Arp105 inside | 106 |
| <input type="checkbox"/> Abell 1213 | 11 16 30.0 + 29 15 00 | UMa | 14.4 | Two clusters superimposed | 106 |
| <input type="checkbox"/> Hick 58, WBL350, NGC3822 | 11 42 11.1 + 10 16 40 | Vir | 13.0 | 5 galaxies, mostly spirals | 192 |
| <input type="checkbox"/> The Leo Cluster, Abell 1367 | 11 44 30.0 + 19 50 00 | Leo | 13.7 | 330 MLYrs, Very Nice | 147 |
| <input type="checkbox"/> Ursa Major 1, Abell 1377 | 11 47 06.3 + 55 44 09 | UMa | 14.3 | Nearly a Billion LYrs | 47 |
| <input type="checkbox"/> MKW 3 | 11 49 41.0 – 03 30 34 | Vir | 14.2 | 7 CGCG Galaxies, No cD | 237 |
| <input type="checkbox"/> NGC3987 Group | 11 57 21.2 + 25 11 36 | Leo | 12.9 | Nice NGC Group | 147 |
| <input type="checkbox"/> NGC4066 Group | 12 04 09.7 + 20 20 56 | Com | 12.6 | Nice NGC Group | 148 |
| <input type="checkbox"/> MKW 4, NGC4073 | 12 04 27.1 + 01 53 45 | Vir | 11.1 | 14 Spirals, N4073 = cD | 238 |
| <input type="checkbox"/> The Virgo Cluster | 12 26 11.8 + 12 56 49 | Vir | 09.6 | 50MLYrs, Over 2000 | 193 |
| <input type="checkbox"/> Centaurus Cluster, Abell 3526 | 12 48 49.2 – 41 18 40 | Cen | 11.4 | 155MLYrs, Nice | 402 |
| <input type="checkbox"/> The Coma Cluster, Abell 1656 | 12 59 48.0 + 27 58 00 | Com | 12.0 | 300MLYrs, Over 1000 | 149 |
| <input type="checkbox"/> Shakhbazian 19 | 13 28 30.1 + 15 50 26 | Com | -- | Small & Faint, 16+ mag. | 195 |
| <input type="checkbox"/> MKW 11, N5171 | 13 29 21.6 + 11 44 05 | Vir | 12.7 | Infall, N5171 = cD | 195 |
| <input type="checkbox"/> Hickson 65, ESO444-55 | 13 29 51.0 – 29 30 53 | Hya | 14.4 | 5 accordant galaxies | 370 |
| <input type="checkbox"/> Abell 3574, IC4329 | 13 49 05.3 – 30 17 45 | Cen | 12.2 | Rich Class 1 cluster | 371 |
| <input type="checkbox"/> MKW 5, NGC5400 | 14 00 37.2 – 02 51 27 | Vir | 13.9 | N5400 dominates, 6 objects | 241 |
| <input type="checkbox"/> NGC5434 Group | 14 02 48.6 + 09 20 29 | Boo | 13.2 | Chain ~12 galaxies | 196 |
| <input type="checkbox"/> Hickson 70 | 14 04 09.8 + 33 20 14 | CVn | 14.5 | 7 objs, 2 overlapping groups | 110 |
| <input type="checkbox"/> Shakhbazian 14 | 14 25 20.0 + 47 15 01 | Boo | -- | Small & Faint, Interacting ? | 77 |
| <input type="checkbox"/> WBL 514, MKW 7 | 14 33 59.1 + 03 46 40 | Vir | 15.0 | Poor cluster, Infall | 242 |
| <input type="checkbox"/> MKW 8, N5718 | 14 40 42.9 + 03 27 57 | Vir | 13.9 | N5718 & IC1042 dominate | 243 |
| <input type="checkbox"/> Corona Cluster, Abell 2065 | 15 22 27.2 + 27 42 35 | CrB | 16.5 | 1.5 billion LYrs, Faint | 154 |
| <input type="checkbox"/> Abell 2124 | 15 44 59.1 + 36 06 34 | CrB | 14.5 | UGC10012 = cD | 113 |
| <input type="checkbox"/> Abell 2147 & Arp 324 | 16 02 13.7 + 15 57 06 | Her | 14.0 | Herc. Supercluster, Arp324 | 200 |
| <input type="checkbox"/> AWM 4, N6051 | 16 04 56.7 + 23 55 57 | Ser | 14.2 | N6051 dominant, Poor clustr | 155 |
| <input type="checkbox"/> Hercules Cluster, Abell 2151 | 16 05 12.0 + 17 44 00 | Her | 13.5 | 500MLYrs, Many Spirals | 155 |
| <input type="checkbox"/> Abell 2197 | 16 28 12.0 + 40 54 00 | Her | 13.1 | 450MLYrs, N6160/73 | 80 |
| <input type="checkbox"/> Abell 2199 | 16 28 36.0 + 39 31 00 | Her | 12.8 | 450MLYrs, N6166 = cD | 80 |
| <input type="checkbox"/> Abell 2218 | 16 35 49.0 + 66 12 47 | Dra | -- | 2 billion LYrs, Faint, Lens | 29 |
| <input type="checkbox"/> Shakhbazian 166 | 16 52 47.3 + 81 37 58 | UMi | 15.5 | Chain ~ 10 galaxies | 11 |
| <input type="checkbox"/> AWM 5, N6269 | 16 57 58.1 + 27 51 15 | Her | 12.2 | Loose group, bright & faint | 157 |
| <input type="checkbox"/> HCG 88, NGC6977 | 20 52 29.7 – 05 44 45 | Aqr | 14.1 | 4 accordant galaxies | 16 |

Good Luck – Good Hunting
Larry Mitchell – Houston, Texas

Observe ANY 20 Objects
Star-Hop Only – PLEASE **NO** Computers

| Guide | Page | TSP AO Object |
|--------------|-------------|--------------------------------------|
| AGC | 204 | Abell 754 |
| SGG | 60 | WBL 213, AWM 1, NGC 2809 |
| SGG | 66 | MKW 1, NGC 3090 |
| SGG | 80 | NGC 3158 Group |
| AGC | 208 | Hydra 1, Abell 1060 |
| Shk | 60 | Shakhbazian 26 |
| Shk | 64 | Shakhbazian 3 |
| AGC | 232 | Abell 1185 (Arp 105) |
| AGC | 236 | Abell 1213 |
| HCG | 158 | Hickson 58, WBL 350, NGC 3822 |
| AGC | 192 | The Leo Cluster, Abell 1367 |
| AGC | 256 | Ursa Major 1, Abell 1377 |
| SGG | 116 | MKW 3 |
| SGG | 92 | NGC 3987 Group (NGC 4005) |
| SGG | 102 | NGC4066 Group (NGC 4065) |
| SGG | 118 | MKW 4, NGC 4073 |
| - | - | The Virgo Cluster |
| AGC | 284 | Centaurus Cluster, Abell 3526 |
| AGC | 264 | The Coma Cluster, Abell 1656 |
| Shk | 93 | Shakhbazian 19 |
| SGG | 134 | MKW 11, NGC 5171 |
| HCG | 172 | Hickson 65, ESO 444-55 |
| AGC | 316 | Abell 3574, IC 4329 |
| SGG | 136 | MKW 5, NGC5400 |
| SGG | 150 | NGC 5434 Group |
| HCG | 182 | Hickson 70 |
| Shk | 116 | Shakhbazian 14 |
| SGG | 140 | WBL 514, MKW 7 |
| SGG | 142 | MKW 8, N5718 |
| AGC | 332 | Corona Cluster, Abell 2065 |
| AGC | 340 | Abell 2124 |
| AGC | 348 | Abell 2147 & Arp 324 |
| SGC | 174 | AWM 4, N6051 |
| AGC | 352 | Hercules Cluster, Abell 2151 |
| AGC | 360 | Abell 2197 |
| AGC | 364 | Abell 2199 |
| AGC | 368 | Abell 2218 |
| Shk | 74 | Shakhbazian 166 |
| SGG | 176 | AWM 5, NGC 6269 |
| HCG | 218 | Hickson 88, NGC 6977 |

See corresponding guide and page number for the object.

- AGC = Abell Galaxy Clusters
- SGG = Small Galaxy Groups
- Shk = Shakhbazian Compact Galaxy Clusters
- HCG = Hickson Compact Galaxy Groups

2010: Super-Thin Galaxies

TSP *Advanced Observing List* - 2010

Super-Thin Galaxies

| Primary Name | Alternate Name | Coordinates - 2000 | Const. | Mag. | Size Arcsec | Axial Ratio | SBr | Distance MLy | Urano 1 |
|--------------|----------------|-----------------------|--------|------|-------------|-------------|------|--------------|---------|
| □NGC 2357 | UGC 3782 | 07 17 41.0 + 23 21 22 | Gem | 14.2 | 209 x 20 | 10.5 | 22.9 | 102.7 | 139 |
| □UGC 4134 | CGCG 287-26 | 08 00 12.8 + 56 21 11 | Lyn | 15.1 | 122 x 7 | 17.4 | 22.0 | 420.0 | 43 |
| □UGC 4171 | MCG +2-21-3 | 08 01 30.8 + 09 42 25 | Cnc | 14.2 | 128 x 14 | 9.1 | 22.0 | 220.0 | 185 |
| □UGC 4186 | MCG 11-10-58 | 08 04 13.8 + 62 58 54 | Cam | 15.4 | 66 x 7 | 9.4 | 22.4 | -- | 22 |
| □IC 2233 | UGC 4278 | 08 13 58.9 + 45 44 43 | Lyn | 12.4 | 256 x 15 | 17.1 | 21.2 | 26.0 | 69 |
| □UGC 4719 | MCG +9-15-72 | 09 00 38.2 + 50 40 43 | Uma | 14.6 | 145 x 12 | 12.1 | 22.4 | 238.0 | 44 |
| □UGCA 151 | ESO 564-27 | 09 11 54.7 - 20 07 09 | Hya | 14.5 | 291 x 16 | 18.2 | 23.2 | 102.0 | 322 |
| □NGC 2820 | UGC4961 | 09 21 47.1 + 64 15 28 | UMa | 13.2 | 195 x 18 | 10.8 | 21.7 | 74.0 | 23 |
| □UGC 5164 | 8ZW 53 | 09 40 49.8 + 11 33 11 | Leo | 14.6 | 78 x 7 | 11.1 | 21.0 | -- | 188 |
| □UGC 5173 | CGCG 63-40 | 09 41 32.2 + 11 24 47 | Leo | 14.7 | 138 x 12 | 11.5 | 22.4 | 280.0 | 188 |
| □UGC 5267 | MCG 2-25-41 | 09 49 52.9 + 09 05 45 | Leo | 14.6 | 97 x 12 | 8.1 | 21.5 | 250.0 | 188 |
| □NGC 3044 | UGC 5311 | 09 53 40.5 + 01 34 45 | Sex | 12.4 | 280 x 34 | 8.2 | 21.9 | 63.0 | 234 |
| □UGC 5341 | CGCG 123-8 | 09 56 36.0 + 20 38 44 | Leo | 15.1 | 177 x 10 | 17.7 | 22.8 | 352.0 | 144 |
| □UGC 5495 | MCG +3-26-39 | 10 11 53.3 + 16 26 24 | Leo | 14.4 | 162 x 16 | 10.1 | 22.6 | 370.0 | 189 |
| □UGC 5509 | CGCG 93-72 | 10 13 32.3 + 20 10 32 | Leo | 14.6 | 86 x 10 | 8.6 | 21.6 | 370.0 | 144 |
| □NGC 3245A | UGC 5662 | 10 27 01.1 + 28 38 22 | LMi | 15.2 | 207 x 12 | 17.3 | 23.1 | 69.0 | 145 |
| □UGC 5708 | Kara 422 | 10 31 13.4 + 04 28 14 | Sex | 14.2 | 186 x 18 | 10.3 | 22.9 | 56.0 | 235 |
| □NGC 3279 | IC 622 | 10 34 42.7 + 11 11 54 | Leo | 13.8 | 151 x 14 | 10.8 | 22.0 | 66.0 | 190 |
| □UGCA 221 | ESO 569-14 | 10 51 24.0 - 19 53 32 | Hya | 14.0 | 214 x 26 | 8.2 | 22.8 | 140.7 | 325 |
| □NGC 3432 | UGC 5986 | 10 52 31.0 + 36 37 12 | LMi | 11.7 | 274 x 32 | 8.6 | 22.3 | 29.0 | 105 |
| □NGC 3501 | UGC 6116 | 11 02 47.3 + 17 59 21 | Leo | 13.7 | 225 x 17 | 13.2 | 22.6 | 50.0 | 146 |
| □UGC 6378 | MCG 12-11-20 | 11 22 07.3 + 69 38 02 | UMa | 14.3 | 116 x 12 | 9.7 | 21.9 | -- | 24 |
| □IC 716 | UGC 6612 | 11 39 03.1 - 00 12 20 | Vir | 14.8 | 105 x 11 | 9.5 | 22.1 | 253.0 | 237 |
| □UGC 6667 | CGCG 268-71 | 11 42 26.3 + 51 35 52 | UMa | 14.2 | 160 x 12 | 13.3 | 22.1 | 46.0 | 47 |
| □IC 755 | UGC 7001 | 12 01 10.3 + 14 06 20 | Com | 14.1 | 130 x 15 | 8.7 | 21.6 | 70.0 | 193 |
| □NGC 4183 | UGC 7222 | 12 13 17.2 + 43 41 48 | CVn | 12.8 | 245 x 26 | 9.4 | 22.3 | 297.0 | 74 |
| □NGC 4222 | IC 3087 | 12 16 22.4 + 13 18 26 | Com | 13.9 | 183 x 12 | 15.3 | 22.4 | 11.0 | 193 |
| □NGC 4244 | UGC 7322 | 12 17 30.0 + 37 48 27 | CVn | 10.4 | 834 x 76 | 11.0 | 23.4 | 15.0 | 107 |
| □UGC 7321 | Kara 524 | 12 17 34.1 + 22 32 27 | Com | 14.1 | 313 x 15 | 20.9 | 22.9 | 20.0 | 148 |
| □NGC 4289 | UGC 7403 | 12 21 02.2 + 03 43 16 | Vir | 14.5 | 250 x 13 | 19.2 | 23.0 | 118.0 | 238 |
| □IC 3799 | MCG -2-33-11 | 12 48 59.7 - 14 23 57 | Crv | 14.3 | 154 x 14 | 11.0 | 22.3 | 170.0 | 284 |
| □NGC 4700 | PGC 43330 | 12 49 07.7 - 11 24 42 | Vir | 12.6 | 211 x 26 | 8.2 | 67.3 | 66.0 | 284 |
| □UGC 8040 | CGCG 293-41 | 12 54 43.8 + 58 46 38 | UMa | 14.1 | 80 x 10 | 8.0 | 20.8 | 117.0 | 48 |
| □UGCA 311 | PGC 44358 | 12 57 46.7 - 09 37 56 | Vir | 13.8 | 193 x 18 | 10.7 | 22.2 | 70.0 | 284 |
| □UGC 8146 | MCG +10-19-15 | 13 02 07.7 + 58 42 01 | Uma | 14.3 | 224 x 11 | 20.4 | 22.9 | 32.0 | 48 |
| □UGCA 320 | DDO 161 | 13 03 15.6 - 17 25 13 | Vir | 13.5 | 401 x 36 | 11.1 | 23.5 | 35.0 | 329 |
| □NGC 5023 | UGC 8286 | 13 12 12.0 + 44 02 19 | CVn | 12.8 | 321 x 22 | 14.6 | 22.6 | 18.0 | 76 |
| □UGC 9169 | CGCG 75-8 | 14 19 44.9 + 09 21 47 | Boo | 14.3 | 213 x 24 | 8.9 | 23.8 | 60 | 197 |
| □UGC 9242 | 1ZW 88 | 14 25 20.9 + 39 32 22 | Boo | 14.1 | 277 x 13 | 21.3 | 22.6 | 67.0 | 111 |
| □NGC 5714 | UGC 9431 | 14 38 11.4 + 46 38 19 | Boo | 13.9 | 172 x 16 | 10.8 | 22.2 | 105.0 | 77 |
| □UGCA 394 | MCG -3-38-8 | 14 47 24.0 - 17 26 32 | Lib | 14.7 | 190 x 23 | 8.3 | 23.5 | 103.0 | 333 |
| □NGC 5907 | UGC 9801 | 15 15 53.9 + 56 19 38 | Dra | 11.1 | 689 x 46 | 15.0 | 14.6 | 24.0 | 50 |
| □UGC 9856 | MCG+7-32-8 | 15 26 28.7 + 41 17 31 | Boo | 15.5 | 108 x 6 | 18.0 | 22.7 | -- | 78 |
| □NGC5981 | UGC 9948 | 15 37 53.3 + 59 23 29 | Dra | 13.9 | 146 x 18 | 8.1 | 21.8 | 82.0 | 5 |
| □UGC 9977 | CGCG 22-29 | 15 41 59.5 + 00 42 47 | Ser | 14.4 | 212 x 14 | 15.1 | 22.9 | 89.0 | 244 |
| □UGC 10043 | MCG +4-37-34 | 15 48 41.3 + 21 52 06 | Ser | 15.0 | 141 x 8 | 17.6 | 22.9 | 97.7 | 155 |
| □IC 1197 | UGC 10219 | 16 08 17.3 + 07 32 20 | Ser | 14.4 | 185 x 14 | 13.2 | 22.8 | -- | 200 |
| □UGC 10288 | MCG +0-41-9 | 16 14 25.2 - 00 12 24 | Ser | 14.2 | 296 x 18 | 16.4 | 23.4 | 95.0 | 245 |
| □UGC 11093 | MCG +1-46-3 | 18 01 51.7 + 06 58 00 | Oph | 14.2 | 200 x 20 | 10.0 | 23.3 | 90.0 | 204 |

Observe and Log any 20 Objects - Good Hunting

Larry Mitchell - Jim & Ana Chandler T.S.P. Advanced Observing - 2010

| Page | TSP AO Object | Page | TSP AO Object |
|------|-------------------------------------|------|---------------------------------|
| 63 | NGC 2357 UGC 3782 | 118 | NGC 4183 UGC 7222 |
| 79 | UGC 4133 (typo?) CGCG 287-26 | 128 | NGC 4222 IC 3087 |
| 66 | UGC 4171 MCG +2-21-3 | 119 | NGC 4244 UGC 7322 |
| 74 | UGC 4186 MCG 11-10-58 | 129 | UGC 7321 Kara 524 |
| 82 | IC 2233 UGC 4278 | 139 | NGC 4289 UGC 7403 |
| 107 | UGC 4719 MCG +9-15-72 | 167 | IC 3799 MCG -2-33-11 |
| 105 | UGCA 151 ESO 564-27 | 151 | NGC 4700 PGC 43330 |
| 108 | NGC 2820 UGC4961 | 115 | UGC 8040 CGCG 293-41 |
| 86 | UGC 5164 8ZW 53 | 155 | UGCA 311 PGC 44358 |
| 86 | UGC 5173 CGCG 63-40 | 116 | UGC 8146 MCG +10-19-15 |
| 87 | UGC 5267 MCG 2-25-41 | 158 | UGCA 320 DDO 161 |
| 100 | NGC 3044 UGC 5311 | 123 | NGC 5023 UGC 8286 |
| 88 | UGC 5341 CGCG 123-8 | 179 | UGC 9169 CGCG 75-8 |
| 89 | UGC 5495 MCG +3-26-39 | 180 | UGC 9242 1ZW 88 |
| 90 | UGC 5509 CGCG 93-72 | 183 | NGC 5714 UGC 9431 |
| 98 | NGC 3245A UGC 5662 | 168 | UGCA 394 MCG-3-38-8 |
| 102 | UGC 5708 Kara 422 | 171 | NGC 5907 UGC 9801 |
| 91 | NGC 3279 IC 622 | 185 | UGC 9856 MCG+7-32-8 |
| 106 | UGCA 221 ESO 569-14 | 173 | NGC 5981 UGC 9948 |
| 99 | NGC 3432 UGC 5986 | 191 | UGC 9977 CGCG 22-29 |
| 93 | NGC 3501 UGC 6116 | 192 | UGC 10043 MCG+4-37-34 |
| 111 | UGC 6378 MCG 12-11-20 | 193 | IC 1197 UGC 10219 |
| 134 | IC 716 UGC 6612 | 194 | UGC 10288 MCG+0-41-9 |
| 112 | UGC 6667 CGCG 268-71 | 196 | UGC 11093 MCG+1-46-3 |
| 125 | IC 755 UGC 7001 | | |

See corresponding page number of the Flat Galaxy Observing Guide:
<https://www.faintfuzzies.com/Files/FlatGalaxies%20v5.pdf>

2011: Proximity – Friends of Friends

TSP Advanced Observing Program – 2011

Proximity - Friends of Friends

Observe any 20 Objects on the Following List

| <u>Bright / Proximity</u> | <u>Class.</u> | <u>2000 Coordinates</u> | <u>Const.</u> | <u>Mag.</u> | <u>Size</u> | <u>Urano 1</u> |
|--|---------------|-------------------------|---------------|-------------|-------------|----------------|
| M5 - Globular: | | Dist: 26,620 LYrs | | | | |
| <input type="checkbox"/> IC 4537 | Galaxy | 15 17 32.4 + 02 02 50 | Ser | 15.6 | 0.8" x 0.3" | 244 |
| M7 – Open Cluster: | | Dist: 980 LYrs | | | | |
| <input type="checkbox"/> NGC6453 | Globular | 17 50 51.8 – 34 35 35 | Sco | 10.2 | 7.6' | 377 |
| <input type="checkbox"/> Sanduleak 2-253 | Planitary | 17 51 12.2 – 34 55 26 | | 13.7p | 9.0" | |
| <input type="checkbox"/> Minkowski 1-30 | Planitary | 17 52 58.9 – 34 38 25 | | 14.7p | 5.0" | |
| <input type="checkbox"/> Cannon 2-1 | Planitary | 17 54 32.9 – 34 22 22 | | 13.9p | 2.0" | |
| <input type="checkbox"/> Henize 2-308 | Planitary | 17 57 19.1 – 34 09 49 | | 13.0p | 10.0" | |
| M8 – “Lagoon” Nebula: | | Dist: 4,310 LYrs | | | | |
| <input type="checkbox"/> B88 | Dk. Neb. | 18 04 36.0 – 24 07 00 | Sgr | -- | 2.0 x 0.5' | 339 |
| <input type="checkbox"/> B89 | Dk. Neb. | 18 05 00.0 – 24 22 00 | | -- | 0.5' | |
| M13 – Globular Cluster: | | Dist: 25,890 LYrs | | | | |
| <input type="checkbox"/> UGC 10477 | Galaxy | 16 37 34.5 + 37 17 11 | Her | 15.2p | 1.7 x 0.4' | 114 |
| <input type="checkbox"/> NGC6196 Group | Galaxy | 16 37 53.9 + 36 04 26 | | 13.9b | 2.0 x 1.1' | |
| <input type="checkbox"/> CGCG 197-2 | Galaxy | 16 40 06.4 + 37 11 29 | | 14.8 | 0.9 x 0.6' | |
| <input type="checkbox"/> IC 4617 | Galaxy | 16 42 08.1 + 36 40 59 | | 15.5 | 1.2 x 0.4' | |
| <input type="checkbox"/> NGC6207 | Galaxy | 16 43 04.0 + 36 49 56 | | 12.2b | 3.3' x 1.7' | |
| M39 – Open Cluster: | | Dist: 1,010 LYrs | | | | |
| <input type="checkbox"/> Platais 1 | Open Clstr | 21 30 02 + 48 58 36 | Cyg | | | |
| M40 – Double Star: | | Dist: 1,860 LYrs | | | | |
| <input type="checkbox"/> NGC 4290 | Galaxy | 12 20 47.9 + 58 05 35 | UMa | 12.7p | 2.3 x 1.5' | 47 |
| <input type="checkbox"/> NGC 4284 | Galaxy | 12 20 12.6 + 58 05 34 | | 14.3p | 2.5 x 1.1' | |
| M49 – Galaxy: | | Dist: 53.1 MLYrs | | | | |
| <input type="checkbox"/> NGC 4465 | Galaxy | 12 29 23.5 + 08 01 34 | Vir | 15.6 | 0.4 x 0.2' | 193 |
| <input type="checkbox"/> NGC 4467 | Galaxy | 12 29 30.2 + 07 59 34 | | 14.8B | 0.5 x 0.5' | |
| <input type="checkbox"/> UGC 7636 | Galaxy | 12 30 00.8 + 07 55 50 | | 15.8P | 0.8 x 0.4' | |
| M51 – Interacting Galaxy: | | Dist: 26.8 MLYrs | | | | |
| <input type="checkbox"/> IC4278 | Galaxy | 13 30 27.5 + 47 14 48 | CVn | -- | 0.5 x 0.4' | 76 |
| M53 – Globular Cluster: | | Dist: 61,270 LYrs | | | | |
| <input type="checkbox"/> NGC 5053 | Globular | 13 16 27.0 + 17 41 53 | | 9.0 | 10.0' | |
| M57 – “Ring” Nebula: | | Dist: 2,300 LYrs | | | | |
| <input type="checkbox"/> IC 1296 | Galaxy | 18 53 18.8 +33 03 57 | Lyr | 14.8p | 0.9 x 0.5' | 117 |
| M59 – Elliptical Galaxy: | | Dist: 48.3 MLYrs | | | | |
| <input type="checkbox"/> MAC1241+1146 | Galaxy | 12 41 55.1 + 11 46 27 | Vir | 16.0 | 1.3 x 0.4 | 193 |
| <input type="checkbox"/> IC3672, UGC7863 | Galaxy | 12 42 08.7 + 11 45 15 | | 14.5P | 0.9 x 0.9' | |
| <input type="checkbox"/> VCC 1921 | Galaxy | 12 42 26.3 + 11 44 25 | | 15.9 | 1.3 x 0.4' | |
| M60 – Galaxy: | | Dist: 53.2 MLYrs | | | | |
| <input type="checkbox"/> NGC4647 | Galaxy | 12 43 32.4 + 11 34 56 | Vir | 11.9(B) | 2.9 x 2.3' | 194 |
| M61 – Galaxy: | | Dist: 49.6 MLYrs | | | | |
| <input type="checkbox"/> HK 155 | Knot | 12 21 53.6 + 04 27 42 | Vir | | | 238 |
| <input type="checkbox"/> NGC4303A | Galaxy | 12 22 27.4 + 04 34 01 | | 13.4(B) | 1.5 x 1.2' | |
| M68 – Globular Cluster: | | Dist: 36,580 LYrs | | | | |

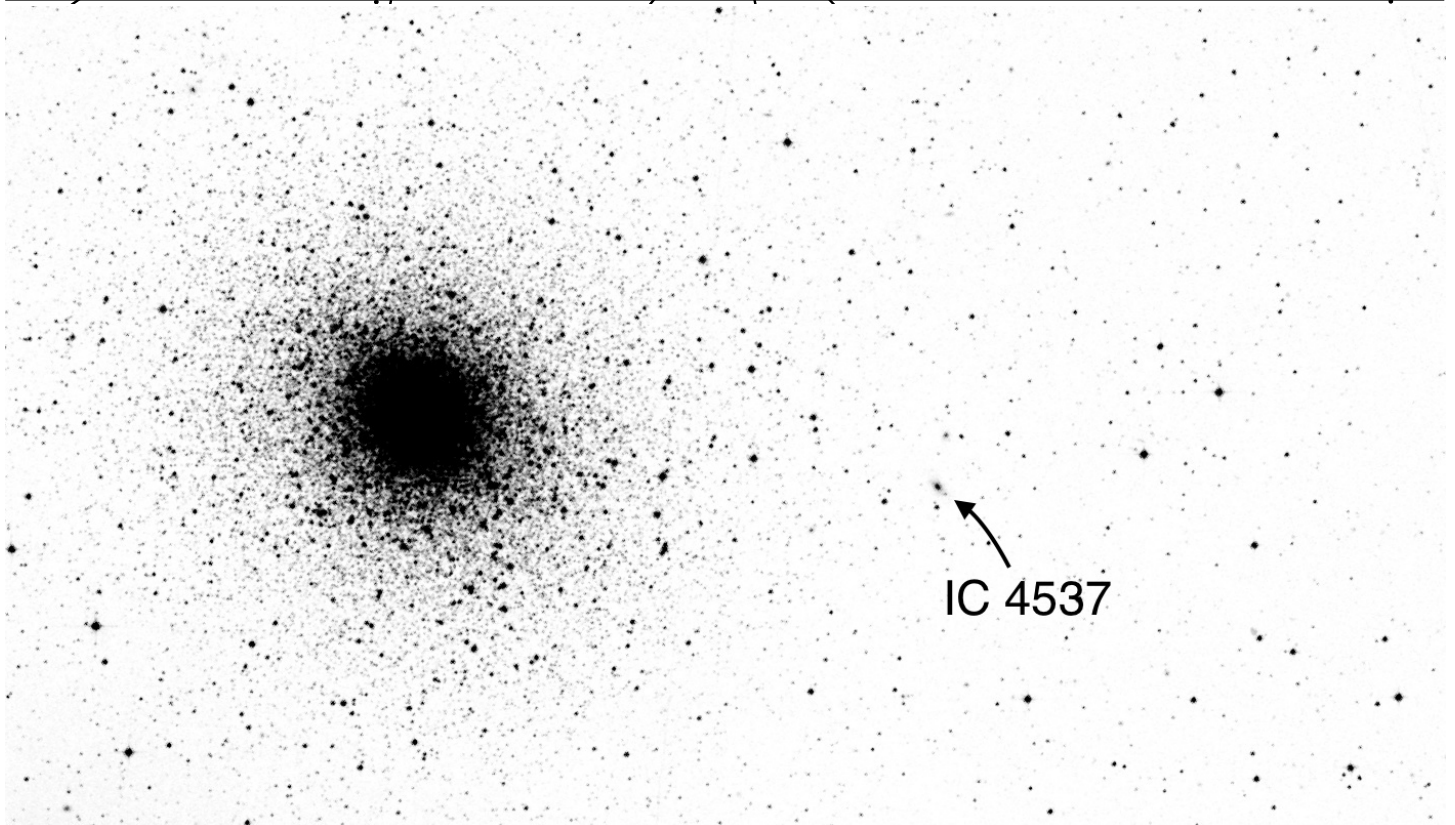
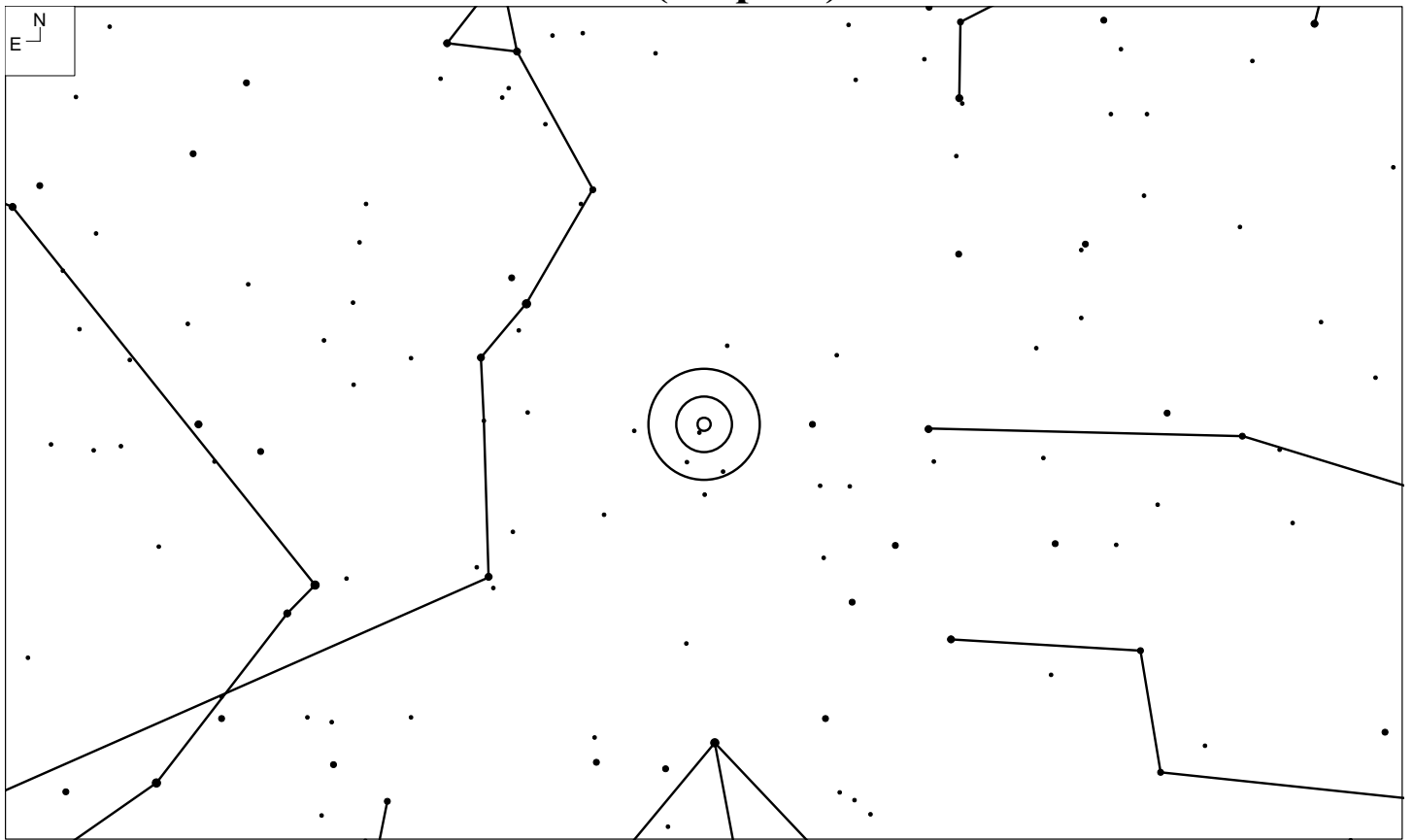
TSP Advanced Observing Program – 2011

Proximity - Friends of Friends

Observe any 20 Objects on the Following List

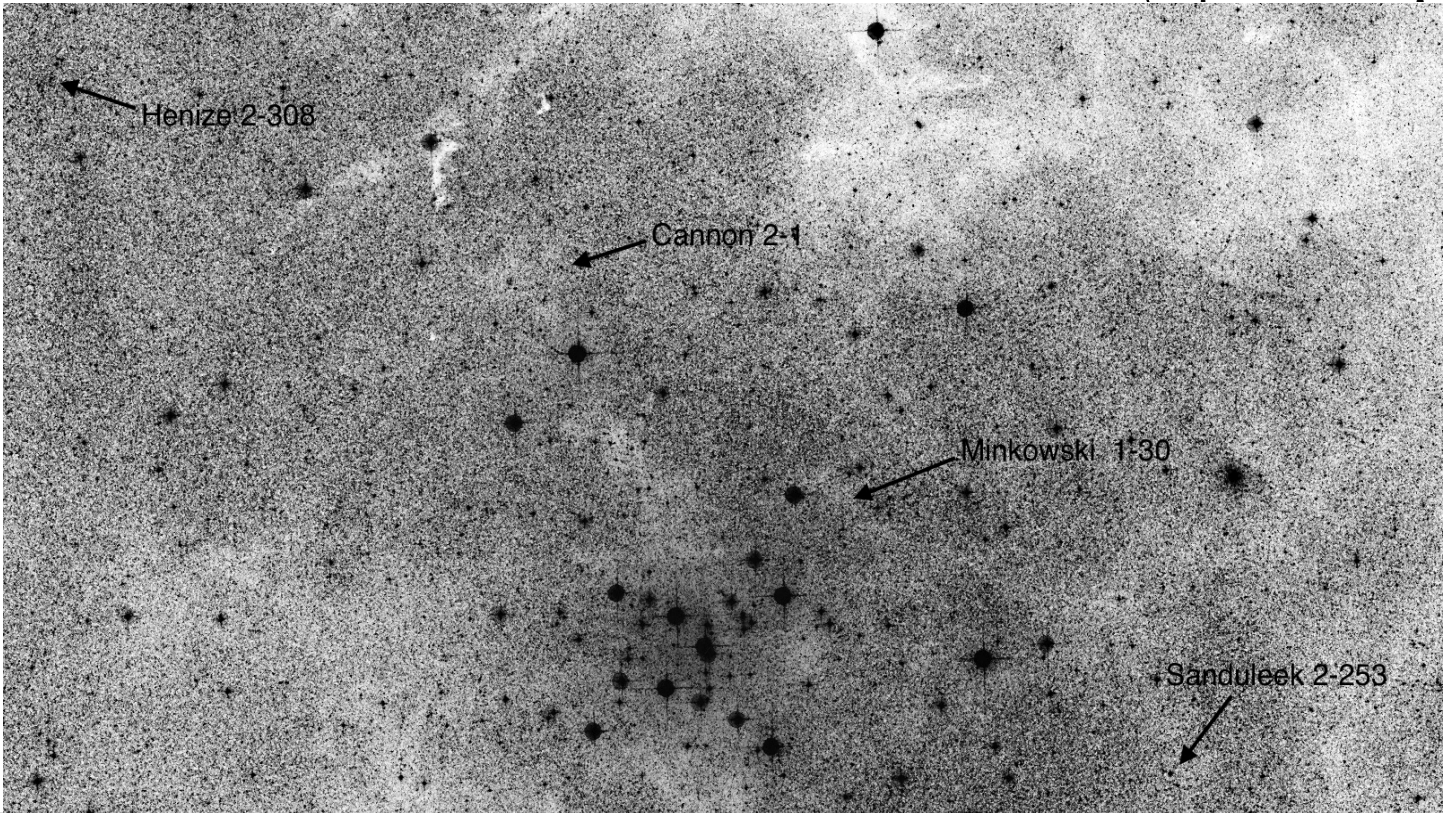
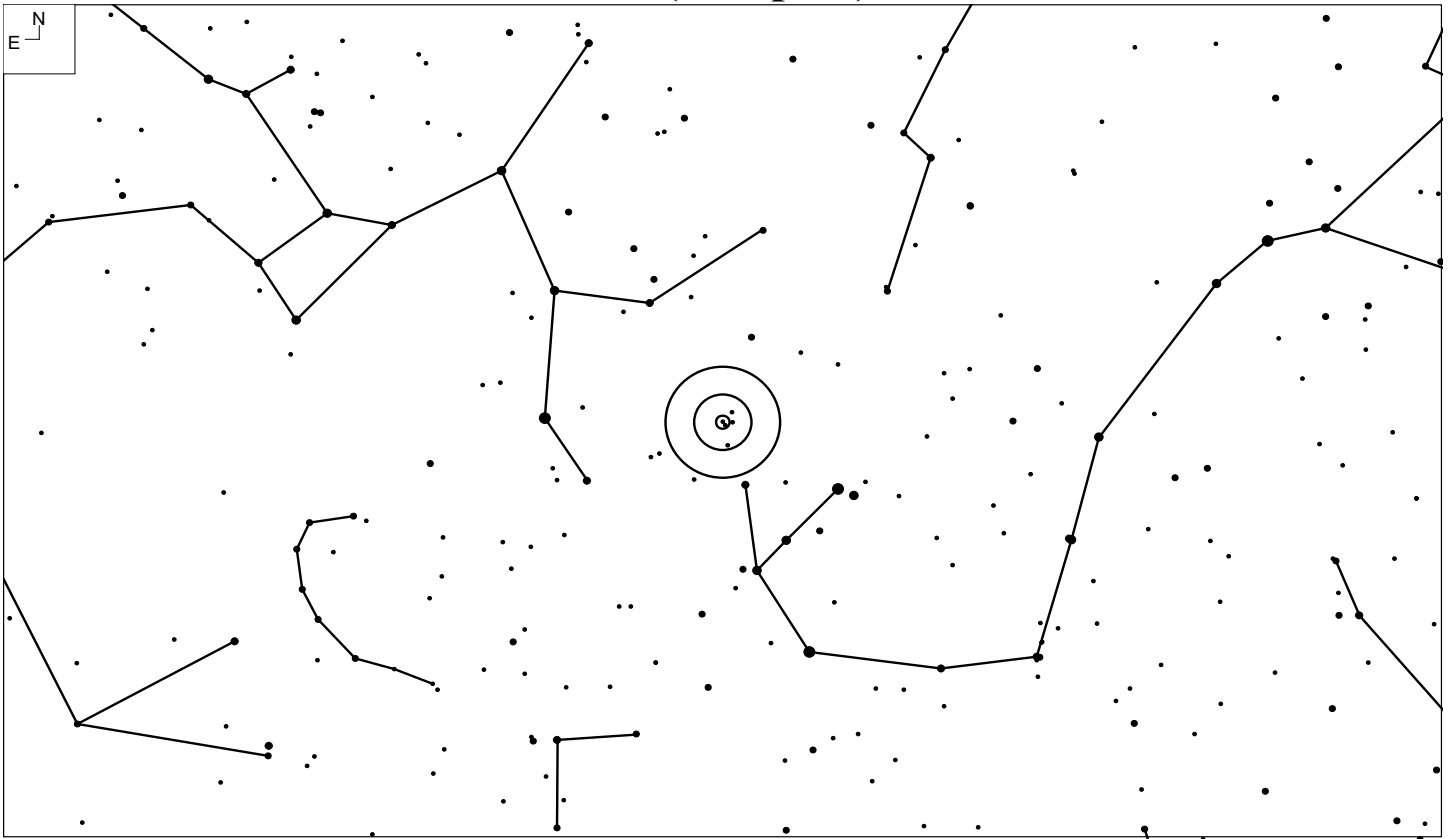
| <u>Bright / Proximity</u> | <u>Class.</u> | <u>2000 Coordinates</u> | <u>Const.</u> | <u>Mag.</u> | <u>Size</u> | <u>Urano 1</u> |
|--|---------------|-------------------------|---------------|-------------|-------------|----------------|
| M5 - Globular: | | Dist: 26,620 LYrs | | | | |
| <input type="checkbox"/> IC 4537 | Galaxy | 15 17 32.4 + 02 02 50 | Ser | 15.6 | 0.8" x 0.3" | 244 |
| M7 – Open Cluster: | | Dist: 980 LYrs | | | | |
| <input type="checkbox"/> NGC6453 | Globular | 17 50 51.8 – 34 35 35 | Sco | 10.2 | 7.6' | 377 |
| <input type="checkbox"/> Sanduleak 2-253 | Planitary | 17 51 12.2 – 34 55 26 | | 13.7p | 9.0" | |
| <input type="checkbox"/> Minkowski 1-30 | Planitary | 17 52 58.9 – 34 38 25 | | 14.7p | 5.0" | |
| <input type="checkbox"/> Cannon 2-1 | Planitary | 17 54 32.9 – 34 22 22 | | 13.9p | 2.0" | |
| <input type="checkbox"/> Henize 2-308 | Planitary | 17 57 19.1 – 34 09 49 | | 13.0p | 10.0" | |
| M8 – "Lagoon" Nebula: | | Dist: 4,310 LYrs | | | | |
| <input type="checkbox"/> B88 | Dk. Neb. | 18 04 36.0 – 24 07 00 | Sgr | -- | 2.0 x 0.5' | 339 |
| <input type="checkbox"/> B89 | Dk. Neb. | 18 05 00.0 – 24 22 00 | | -- | 0.5' | |
| M13 – Globular Cluster: | | Dist: 25,890 LYrs | | | | |
| <input type="checkbox"/> UGC 10477 | Galaxy | 16 37 34.5 + 37 17 11 | Her | 15.2p | 1.7 x 0.4' | 114 |
| <input type="checkbox"/> NGC6196 Group | Galaxy | 16 37 53.9 + 36 04 26 | | 13.9b | 2.0 x 1.1' | |
| <input type="checkbox"/> CGCG 197-2 | Galaxy | 16 40 06.4 + 37 11 29 | | 14.8 | 0.9 x 0.6' | |
| <input type="checkbox"/> IC 4617 | Galaxy | 16 42 08.1 + 36 40 59 | | 15.5 | 1.2 x 0.4' | |
| <input type="checkbox"/> NGC6207 | Galaxy | 16 43 04.0 + 36 49 56 | | 12.2b | 3.3' x 1.7' | |
| M39 – Open Cluster: | | Dist: 1,010 LYrs | | | | |
| <input type="checkbox"/> Platais 1 | Open Clstr | 21 30 02 + 48 58 36 | Cyg | | | |
| M40 – Double Star: | | Dist: 1,860 LYrs | | | | |
| <input type="checkbox"/> NGC 4290 | Galaxy | 12 20 47.9 + 58 05 35 | UMa | 12.7p | 2.3 x 1.5' | 47 |
| <input type="checkbox"/> NGC 4284 | Galaxy | 12 20 12.6 + 58 05 34 | | 14.3p | 2.5 x 1.1' | |
| M49 – Galaxy: | | Dist: 53.1 MLYrs | | | | |
| <input type="checkbox"/> NGC 4465 | Galaxy | 12 29 23.5 + 08 01 34 | Vir | 15.6 | 0.4 x 0.2' | 193 |
| <input type="checkbox"/> NGC 4467 | Galaxy | 12 29 30.2 + 07 59 34 | | 14.8B | 0.5 x 0.5' | |
| <input type="checkbox"/> UGC 7636 | Galaxy | 12 30 00.8 + 07 55 50 | | 15.8P | 0.8 x 0.4' | |
| M51 – Interacting Galaxy: | | Dist: 26.8 MLYrs | | | | |
| <input type="checkbox"/> IC4278 | Galaxy | 13 30 27.5 + 47 14 48 | CVn | -- | 0.5 x 0.4' | 76 |
| M53 – Globular Cluster: | | Dist: 61,270 LYrs | | | | |
| <input type="checkbox"/> NGC 5053 | Globular | 13 16 27.0 + 17 41 53 | | 9.0 | 10.0' | |
| M57 – "Ring" Nebula: | | Dist: 2,300 LYrs | | | | |
| <input type="checkbox"/> IC 1296 | Galaxy | 18 53 18.8 +33 03 57 | Lyr | 14.8p | 0.9 x 0.5' | 117 |
| M59 – Elliptical Galaxy: | | Dist: 48.3 MLYrs | | | | |
| <input type="checkbox"/> MAC1241+1146 | Galaxy | 12 41 55.1 + 11 46 27 | Vir | 16.0 | 1.3 x 0.4 | 193 |
| <input type="checkbox"/> IC3672, UGC7863 | Galaxy | 12 42 08.7 + 11 45 15 | | 14.5P | 0.9 x 0.9' | |
| <input type="checkbox"/> VCC 1921 | Galaxy | 12 42 26.3 + 11 44 25 | | 15.9 | 1.3 x 0.4' | |
| M60 – Galaxy: | | Dist: 53.2 MLYrs | | | | |
| <input type="checkbox"/> NGC4647 | Galaxy | 12 43 32.4 + 11 34 56 | Vir | 11.9(B) | 2.9 x 2.3' | 194 |
| M61 – Galaxy: | | Dist: 49.6 MLYrs | | | | |
| <input type="checkbox"/> HK 155 | Knot | 12 21 53.6 + 04 27 42 | Vir | | | 238 |
| <input type="checkbox"/> NGC4303A | Galaxy | 12 22 27.4 + 04 34 01 | | 13.4(B) | 1.5 x 1.2' | |
| M68 – Globular Cluster: | | Dist: 36,580 LYrs | | | | |

M5 (Serpens)



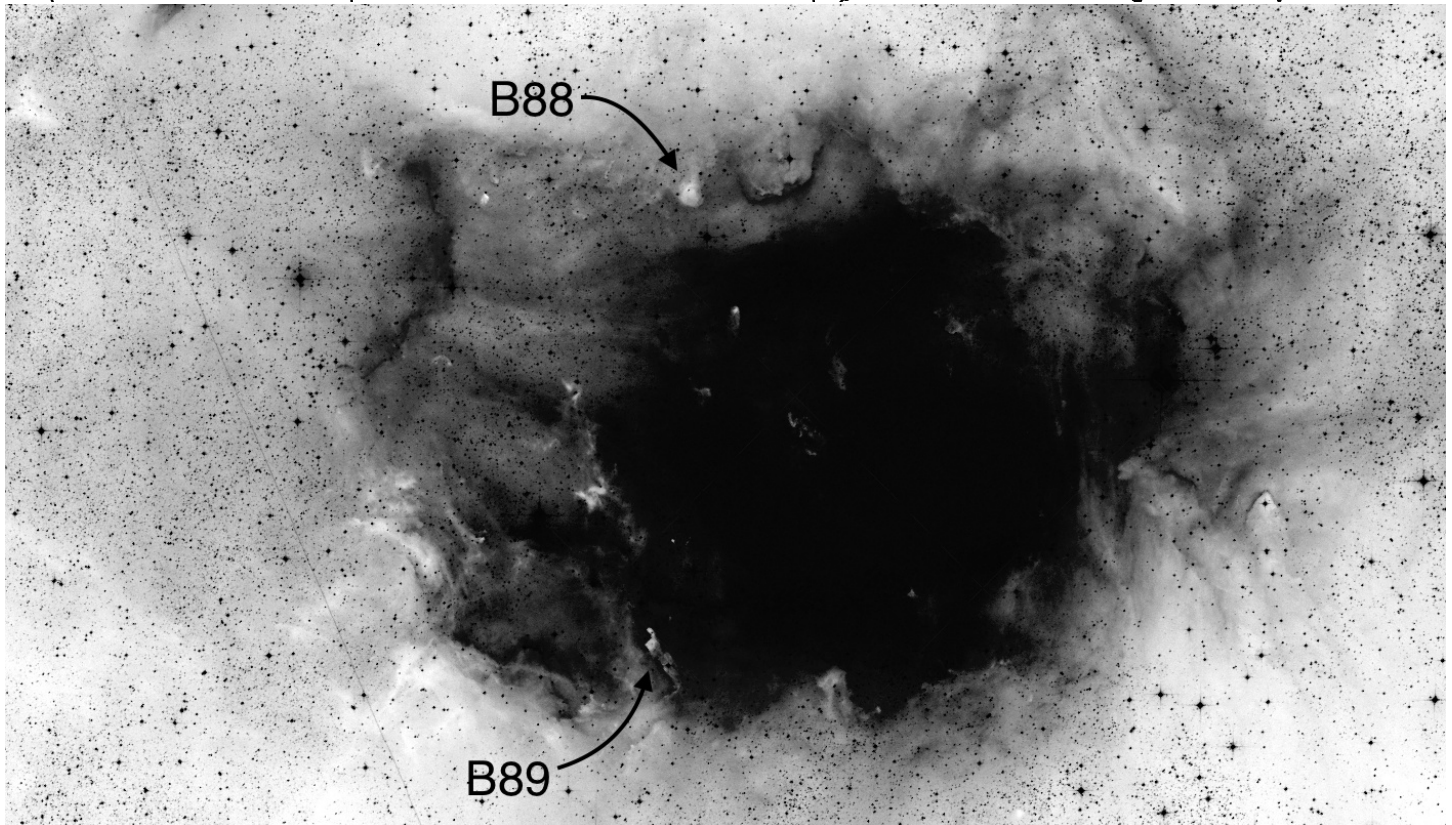
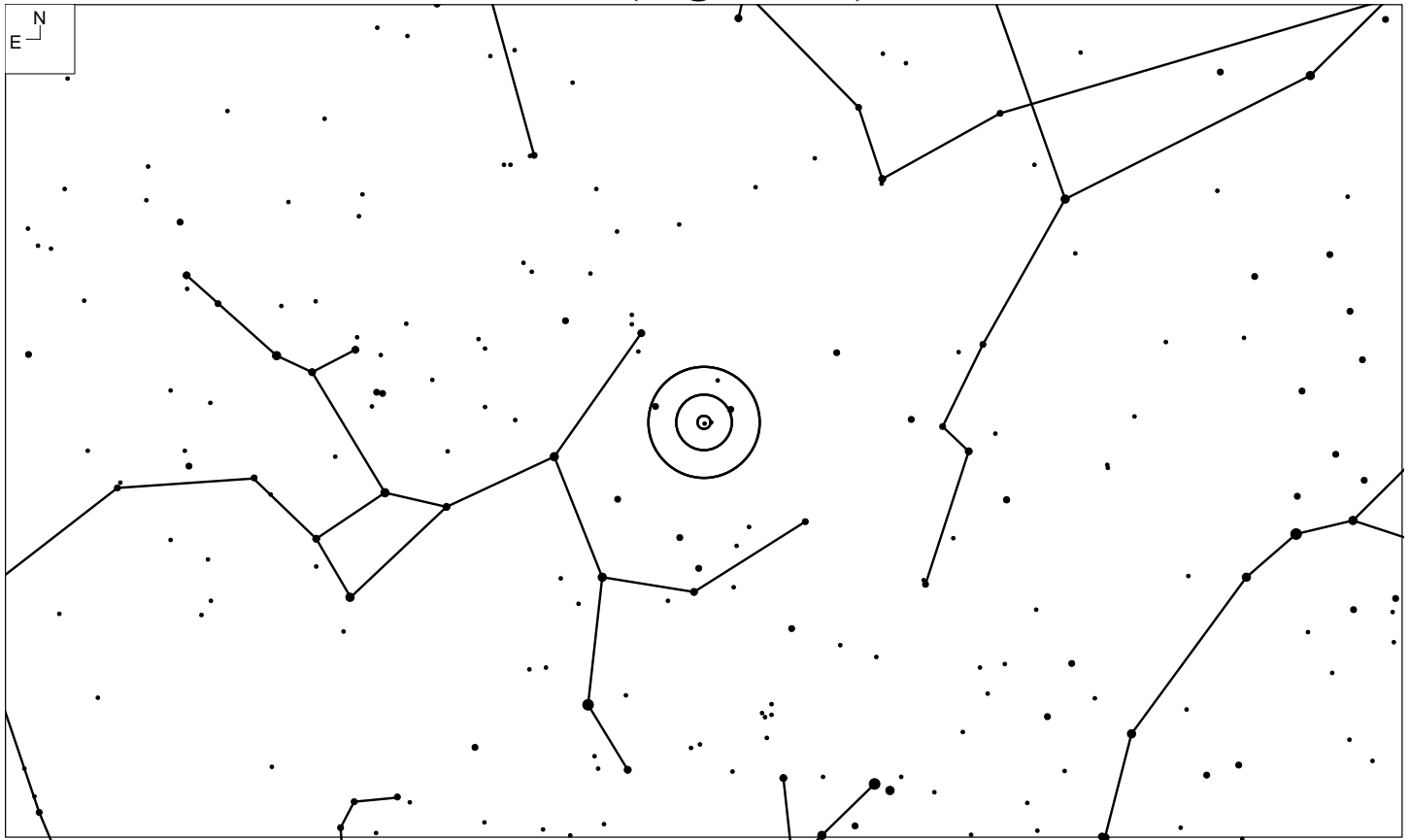
| Object | RA | Dec | Mag | Size | Type |
|---------|------------|-----------|------|-------------|--------|
| IC 4537 | 15 17 32.4 | +02 02 50 | 15.6 | 0.8' x 0.3' | Galaxy |

M7 (Scorpius)



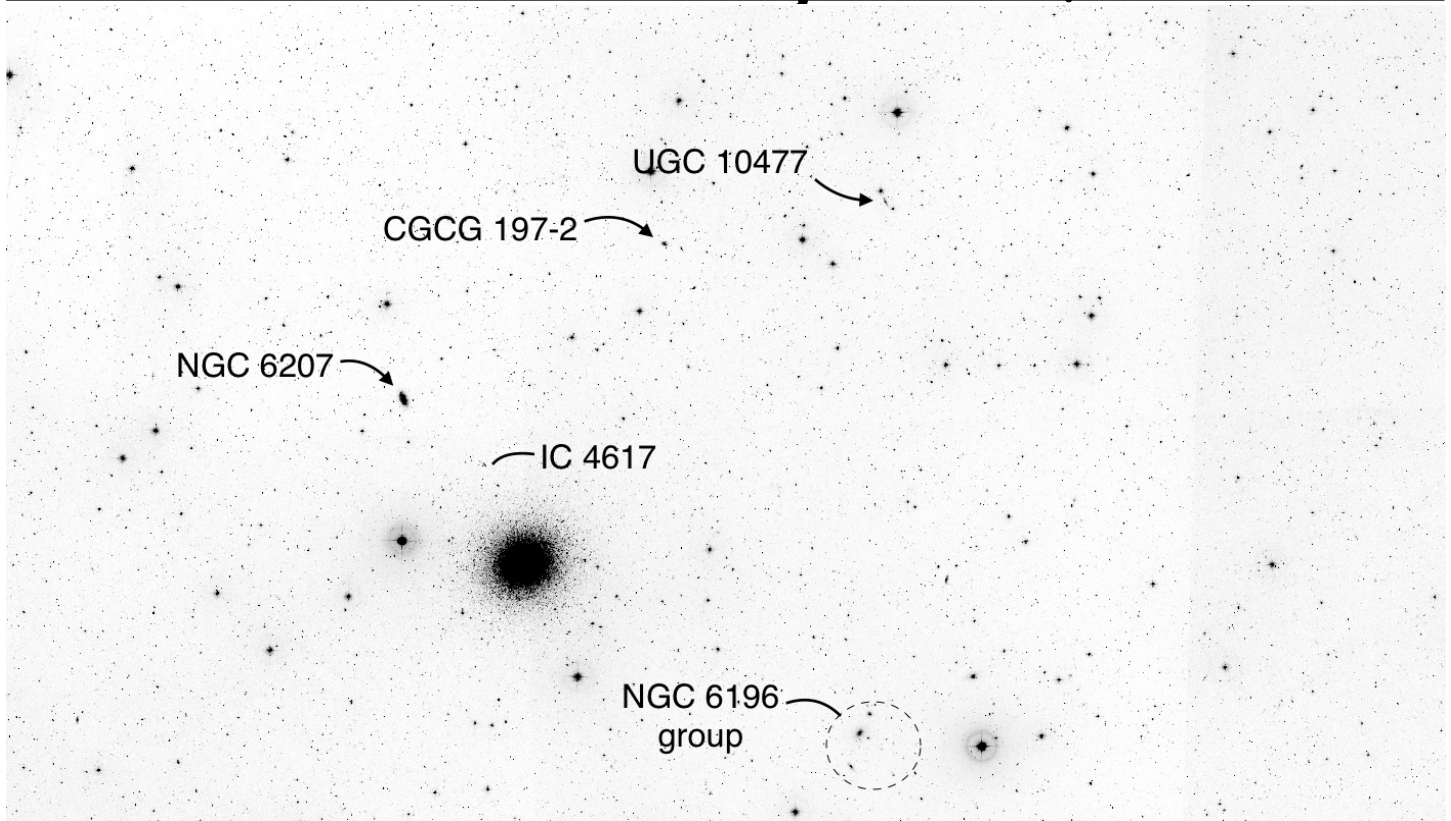
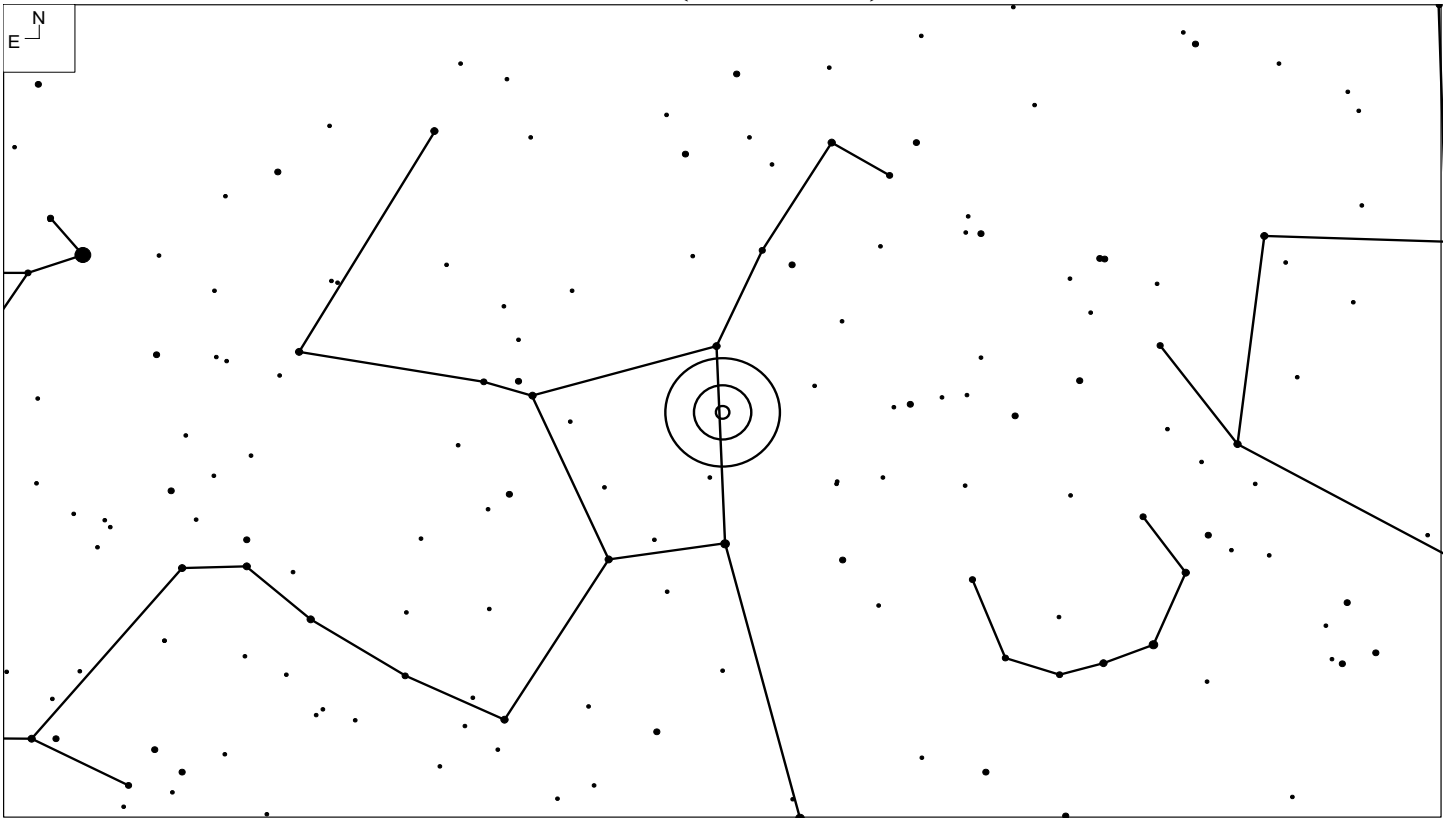
| Object | RA | Dec | Mag | Size | Type |
|-----------------|------------|-----------|-------|-------|------|
| NGC 6453 | 17 50 51.8 | -34 35 35 | 10.2 | 7.6' | GC |
| Sanduleak 2-253 | 17 51 12.2 | -34 55 26 | 13.7p | 9.0" | PNe |
| Minkowski 1-30 | 17 52 58.9 | -34 38 23 | 14.7p | 5.0" | PNe |
| Cannon 2-1 | 17 54 32.9 | -34 22 22 | 13.9p | 2.0" | PNe |
| Henize 2-308 | 17 57 19.1 | -34 09 49 | 13.0p | 10.0" | PNe |

M8 (Sagittarius)



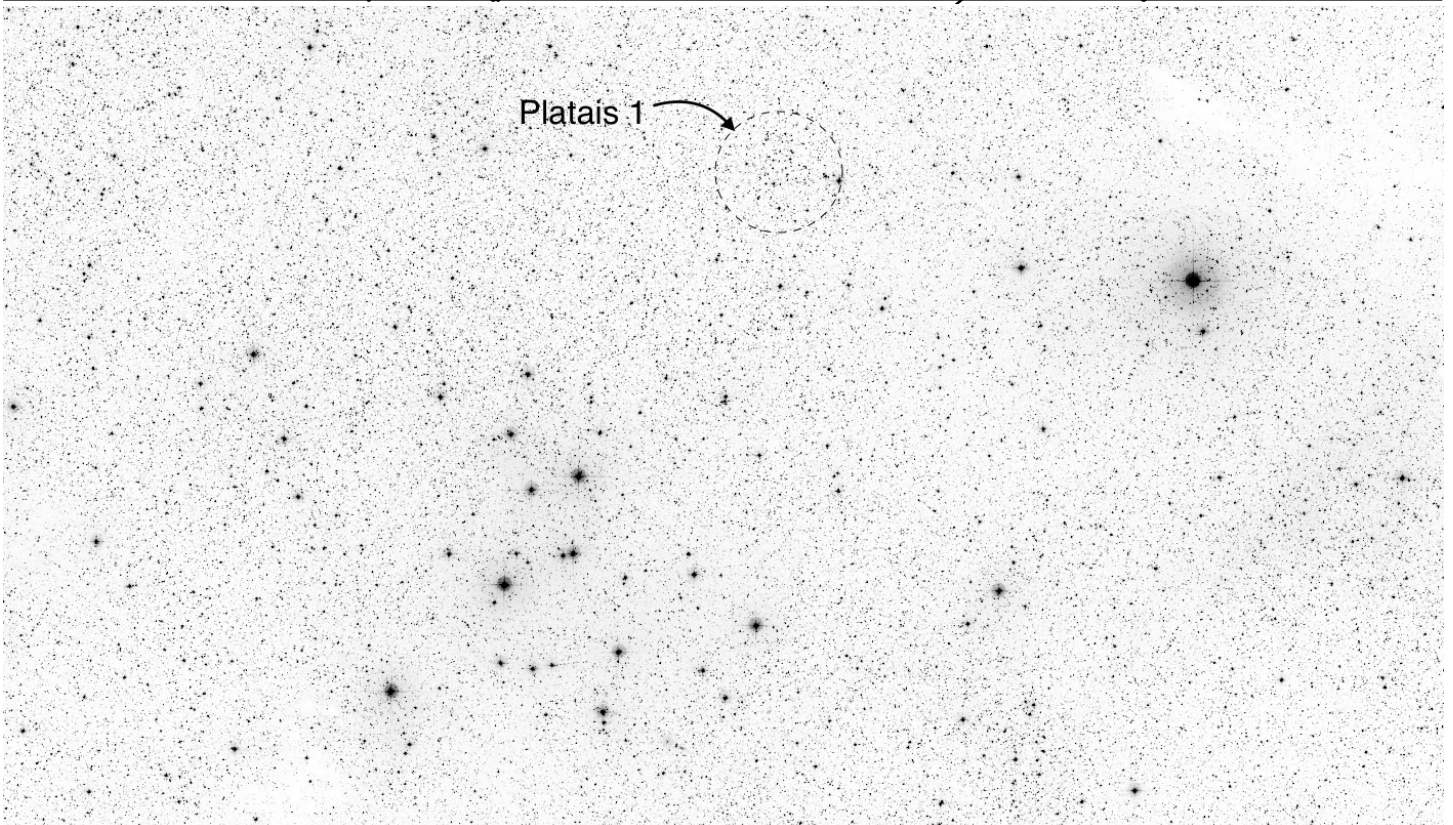
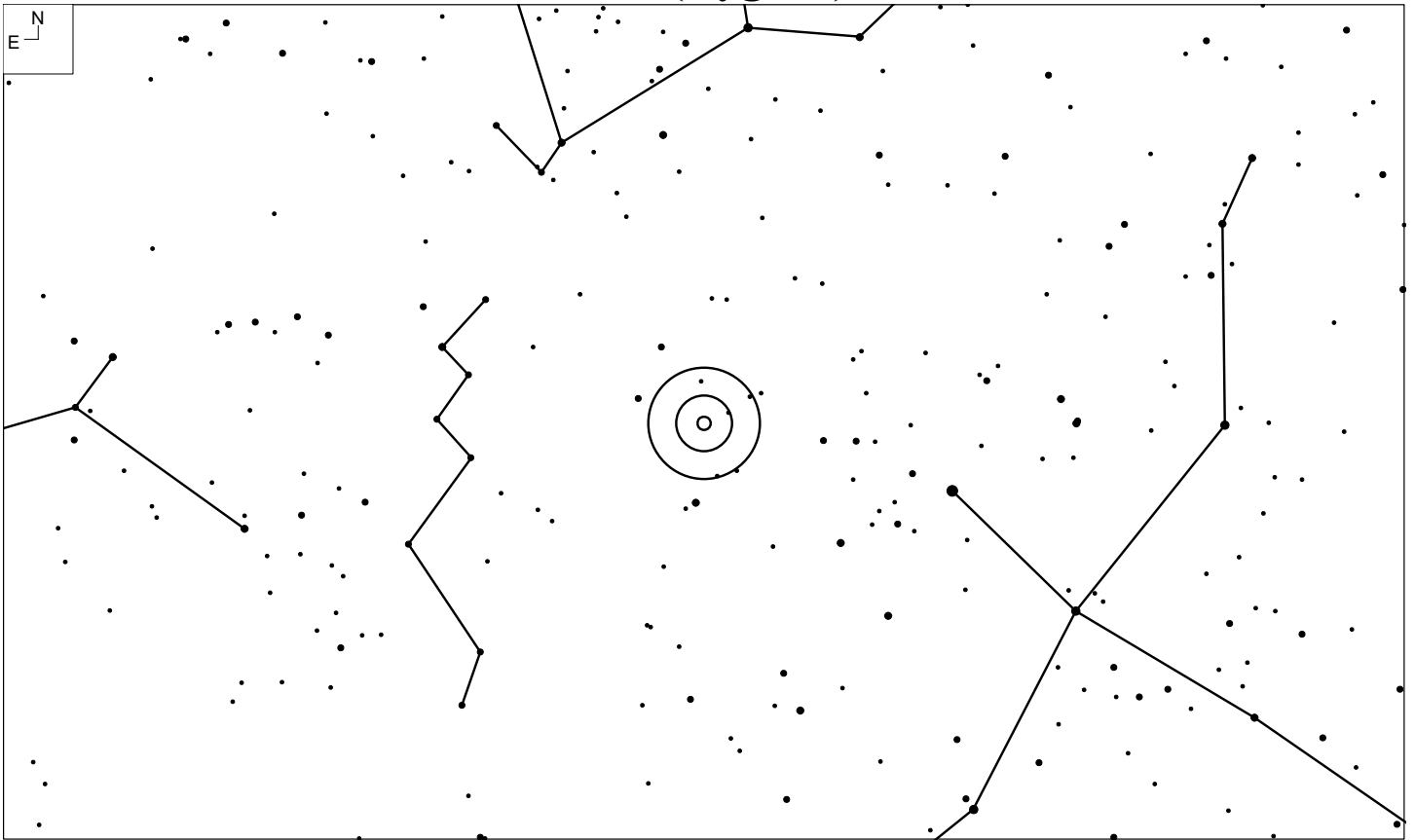
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|--------|------------|-----------|-----|------------|------|
| B88 | 18 04 36.0 | -24 07 00 | - | 2.0 x 0.5' | DN |
| B89 | 18 05 00.0 | -24 22 00 | - | 0.5' | DN |

M13 (Hercules)



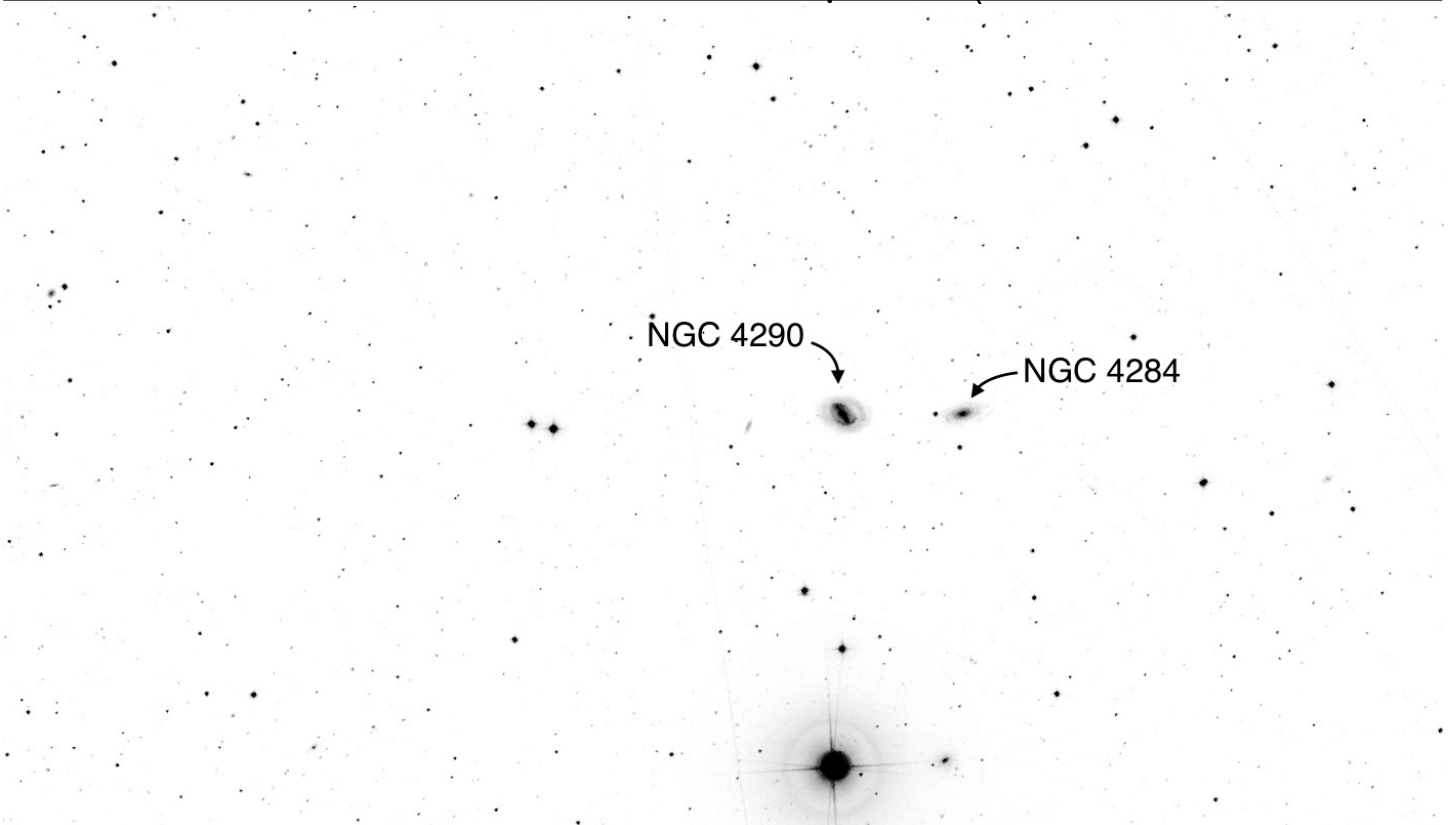
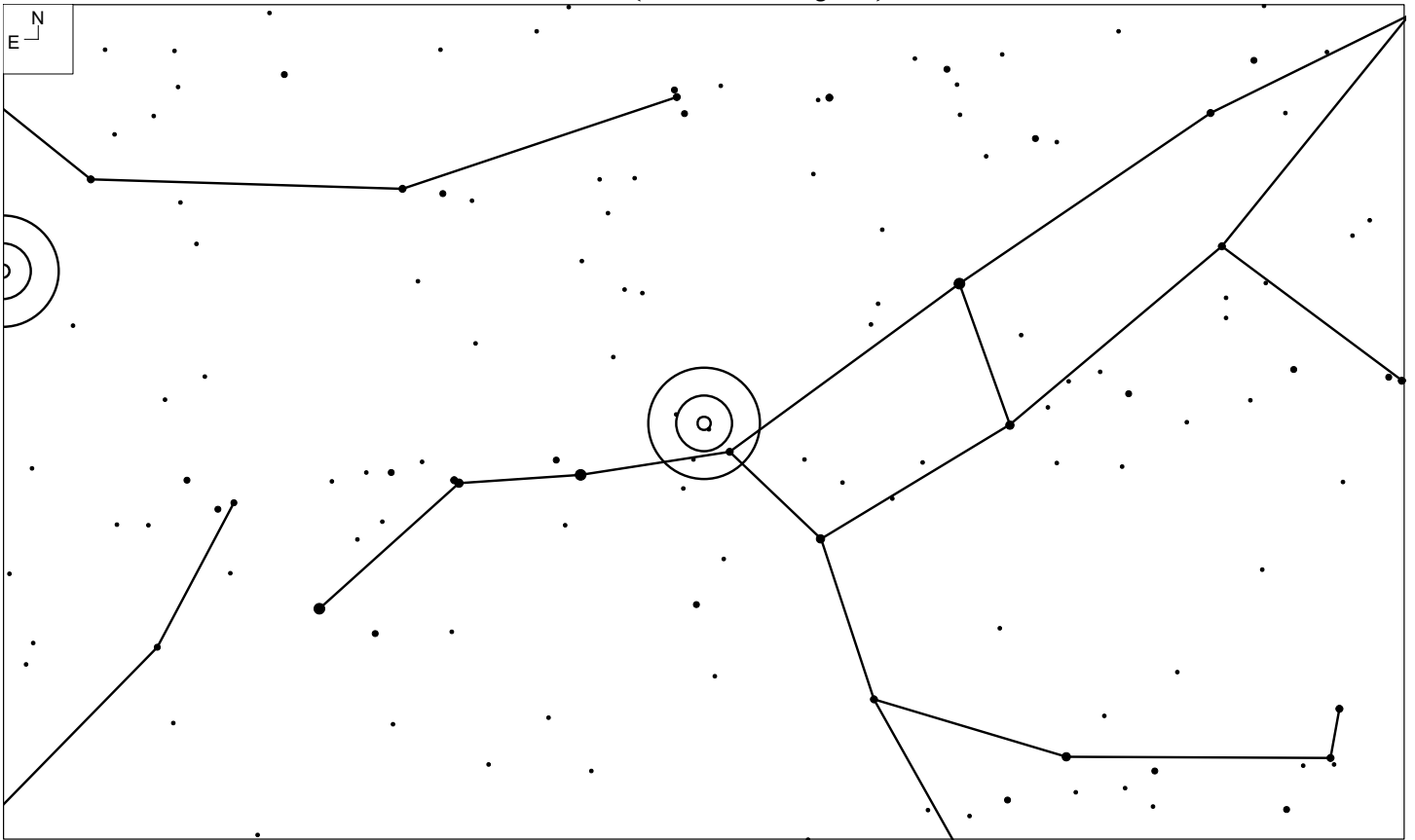
| Object | RA | Dec | Mag | Size | Type |
|----------------|------------|-----------|-------|-------------|--------|
| UGC 10477 | 16 37 34.5 | +37 17 11 | 15.2p | 1.7 x 0.4' | Galaxy |
| NGC 6196 Group | 16 37 53.9 | +36 04 26 | 13.9b | 2.0 x 1.1' | Galaxy |
| CGCG 197-2 | 16 40 06.4 | +37 11 29 | 14.8 | 0.9 x 0.6' | Galaxy |
| IC 4617 | 16 42 08.1 | +36 40 59 | 15.5 | 1.2 x 0.4' | Galaxy |
| NGC 6207 | 16 43 04.0 | +36 49 56 | 12.2b | 3.3' x 1.7' | Galaxy |

M39 (Cygnus)



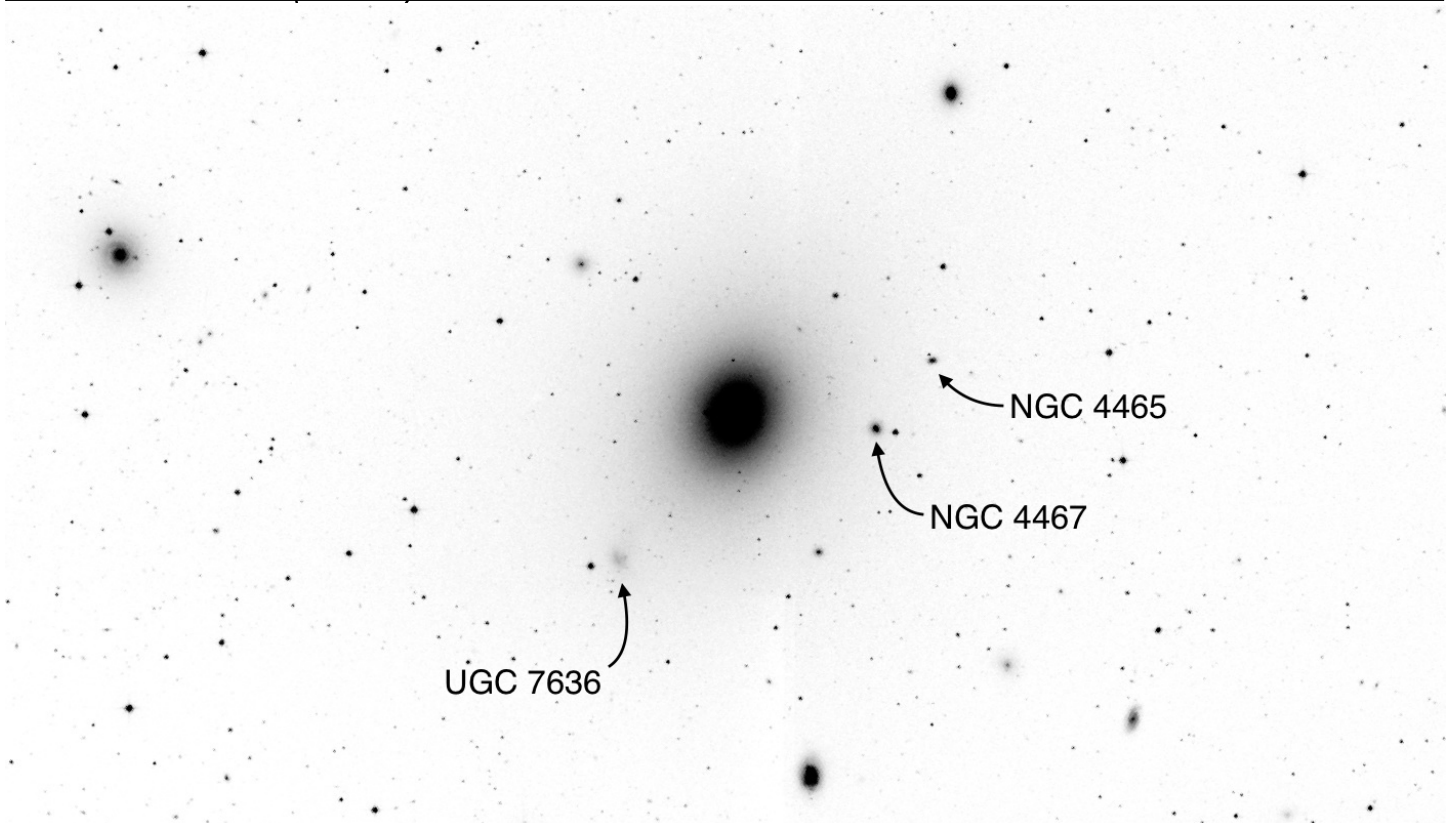
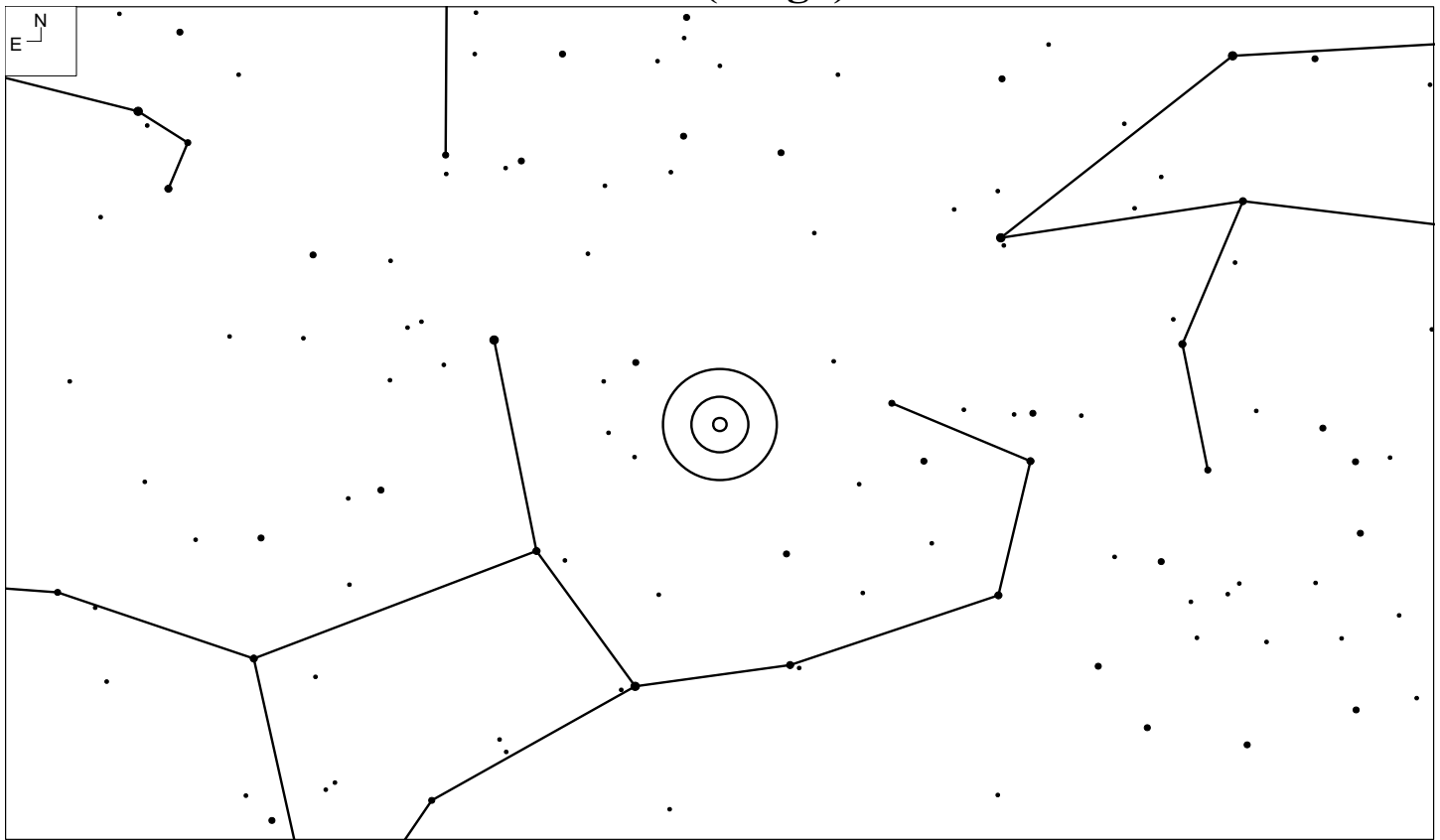
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| Platais 1 | 21 30 02 | +48 58 36 | | | OC |

M40 (Ursa Major)



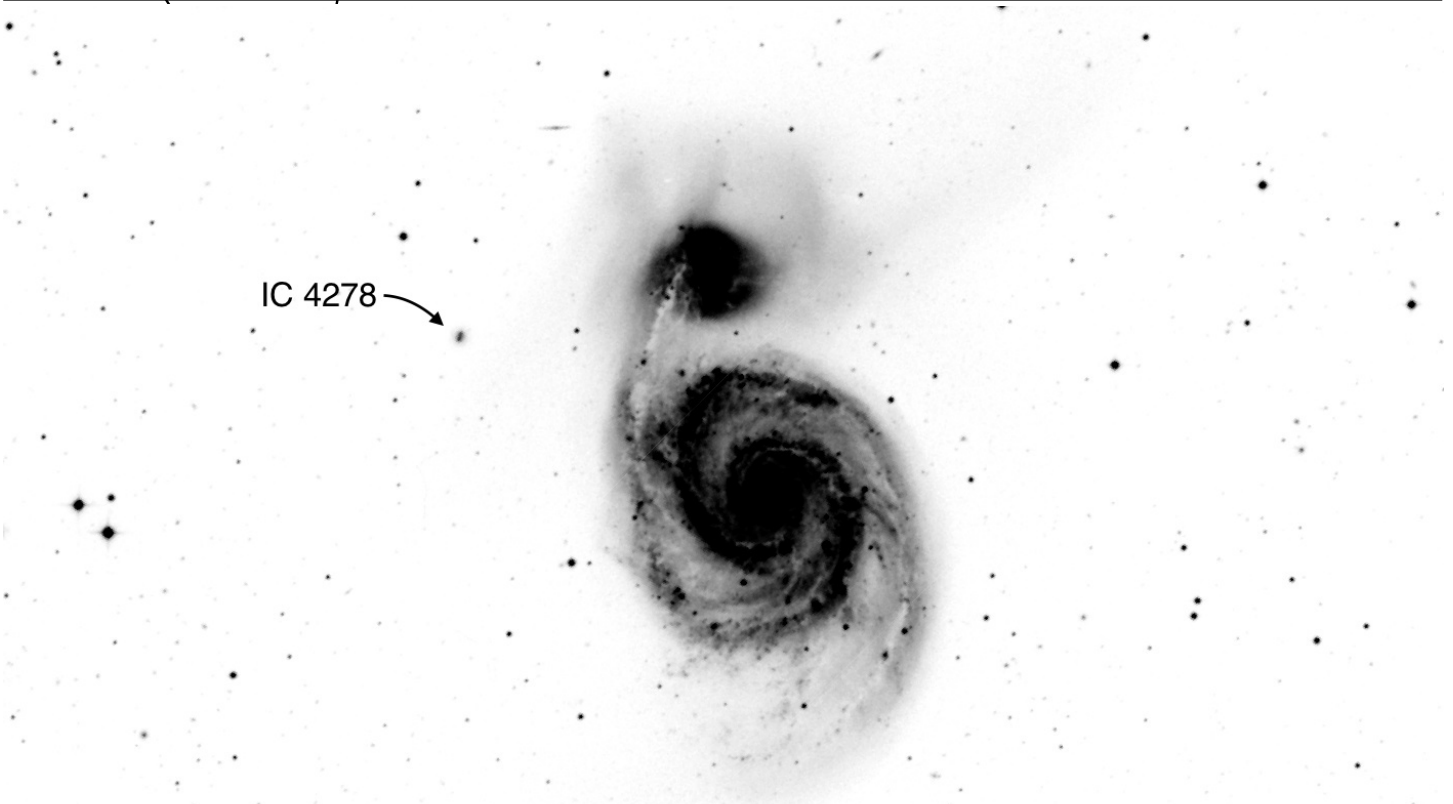
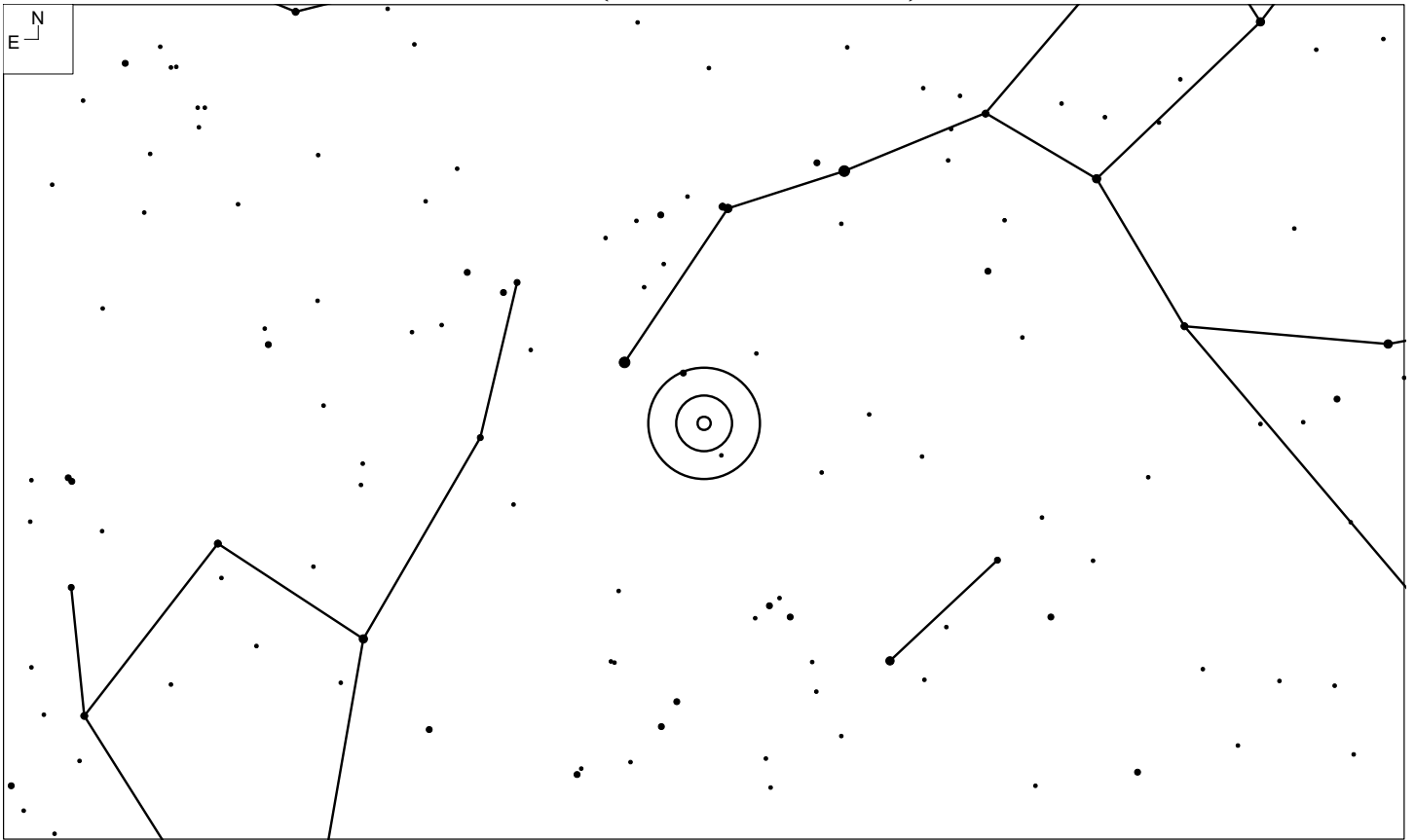
| Object | RA | Dec | Mag | Size | Type |
|----------|------------|-----------|-------|------------|--------|
| NGC 4290 | 12 20 47.9 | +58 05 35 | 12.7p | 2.3 x 1.5' | Galaxy |
| NGC 4284 | 12 20 12.6 | +58 05 34 | 14.3p | 2.5 x 1.1' | Galaxy |

M49 (Virgo)



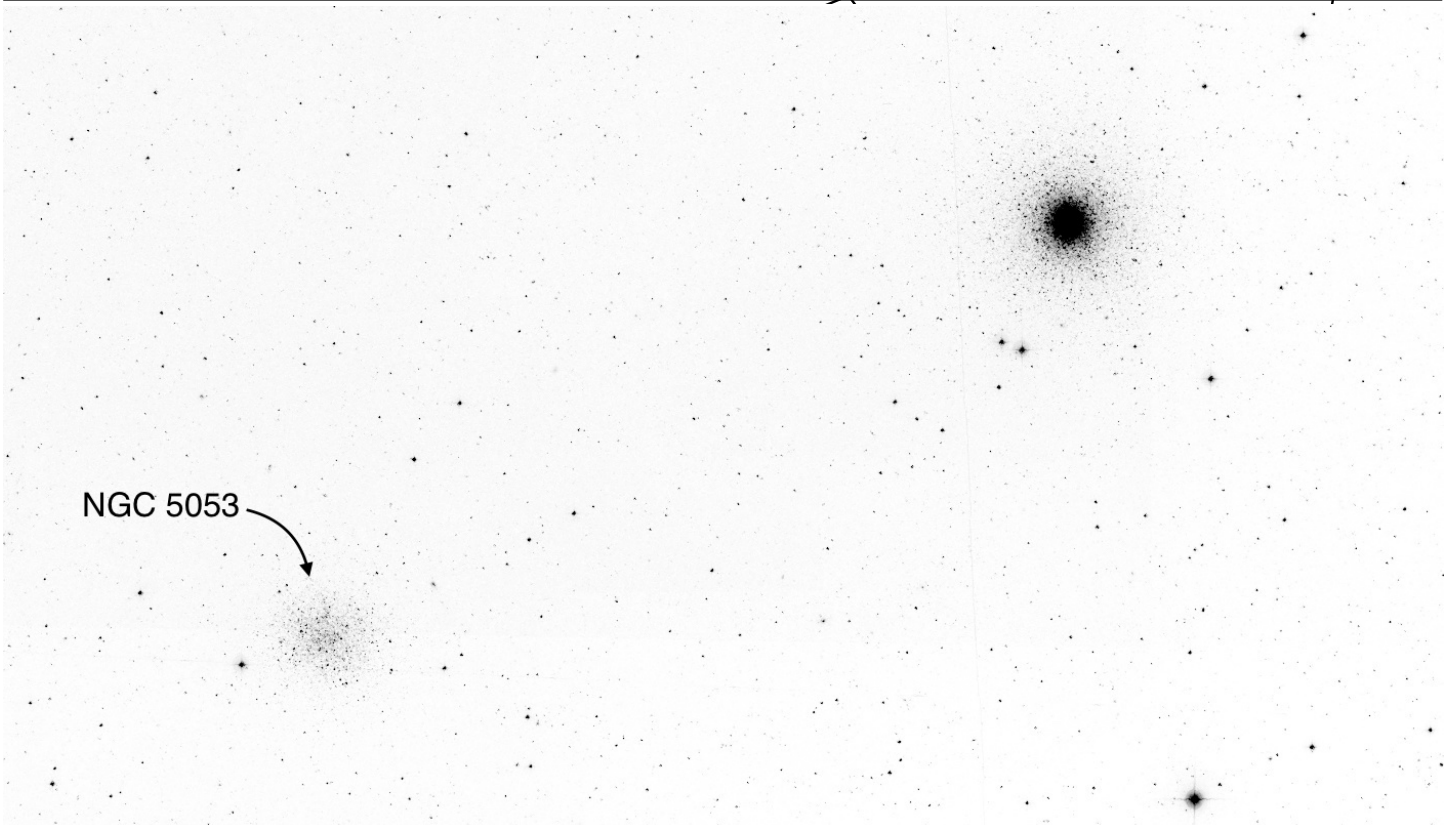
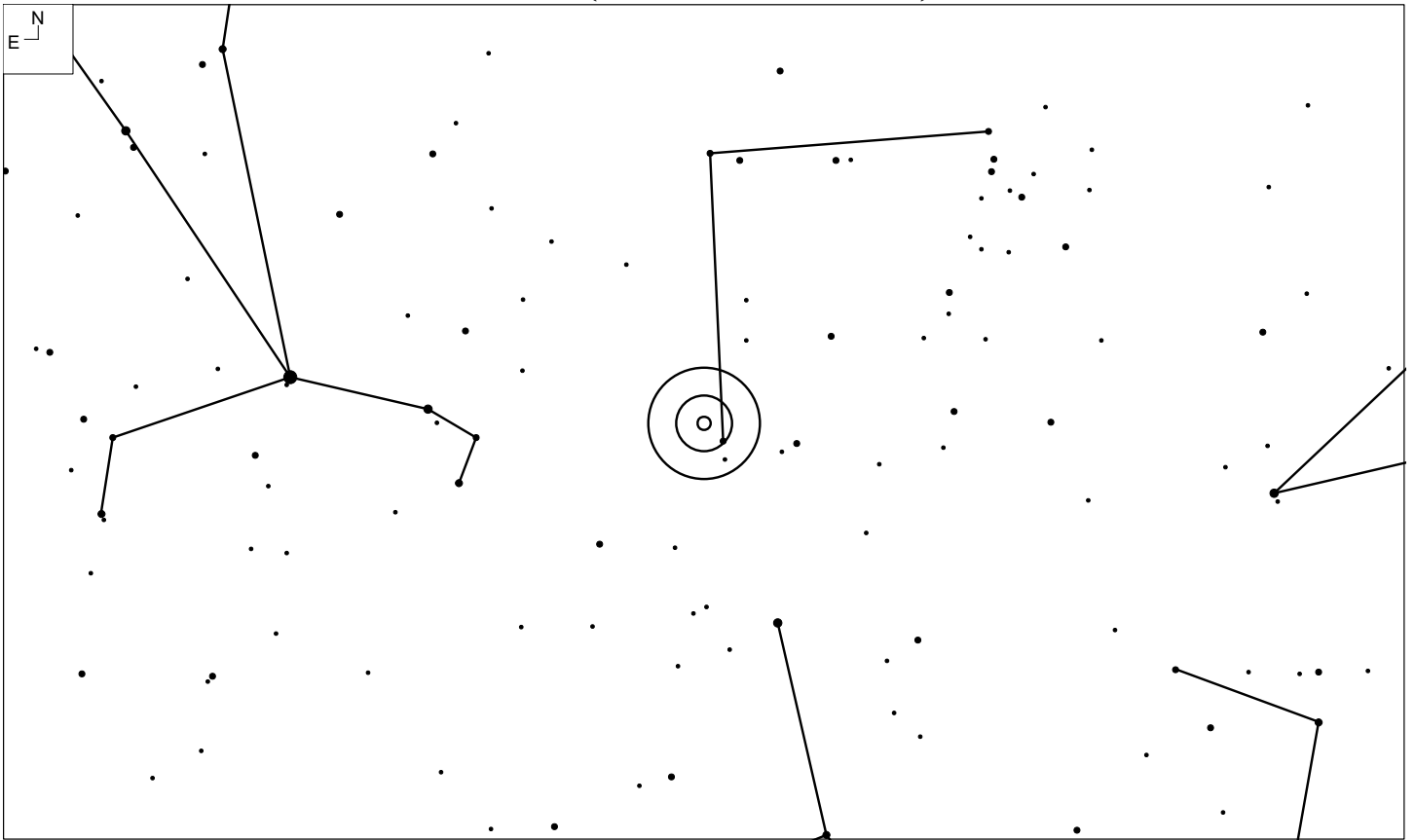
| Object | RA | Dec | Mag | Size | Type |
|----------|------------|-----------|-------|------------|--------|
| NGC 4465 | 12 29 23.5 | +08 01 34 | 15.6 | 0.4 x 0.2' | Galaxy |
| NGC 4467 | 12 29 30.2 | +07 59 34 | 14.8b | 0.5 x 0.5' | Galaxy |
| UGC 7636 | 12 30 00.8 | +07 55 50 | 15.8p | 0.8 x 0.4' | Galaxy |

M51 (Canes Venatici)



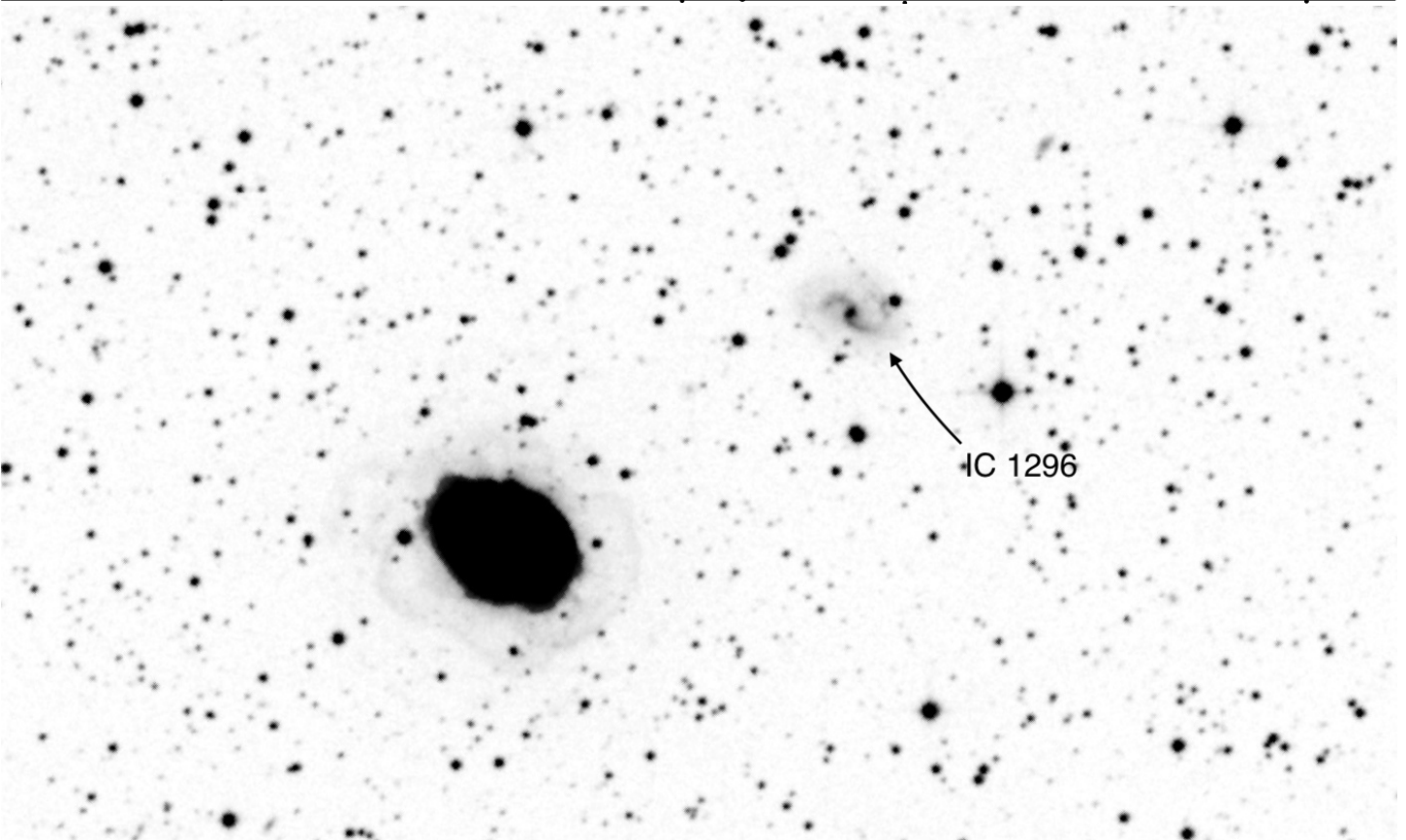
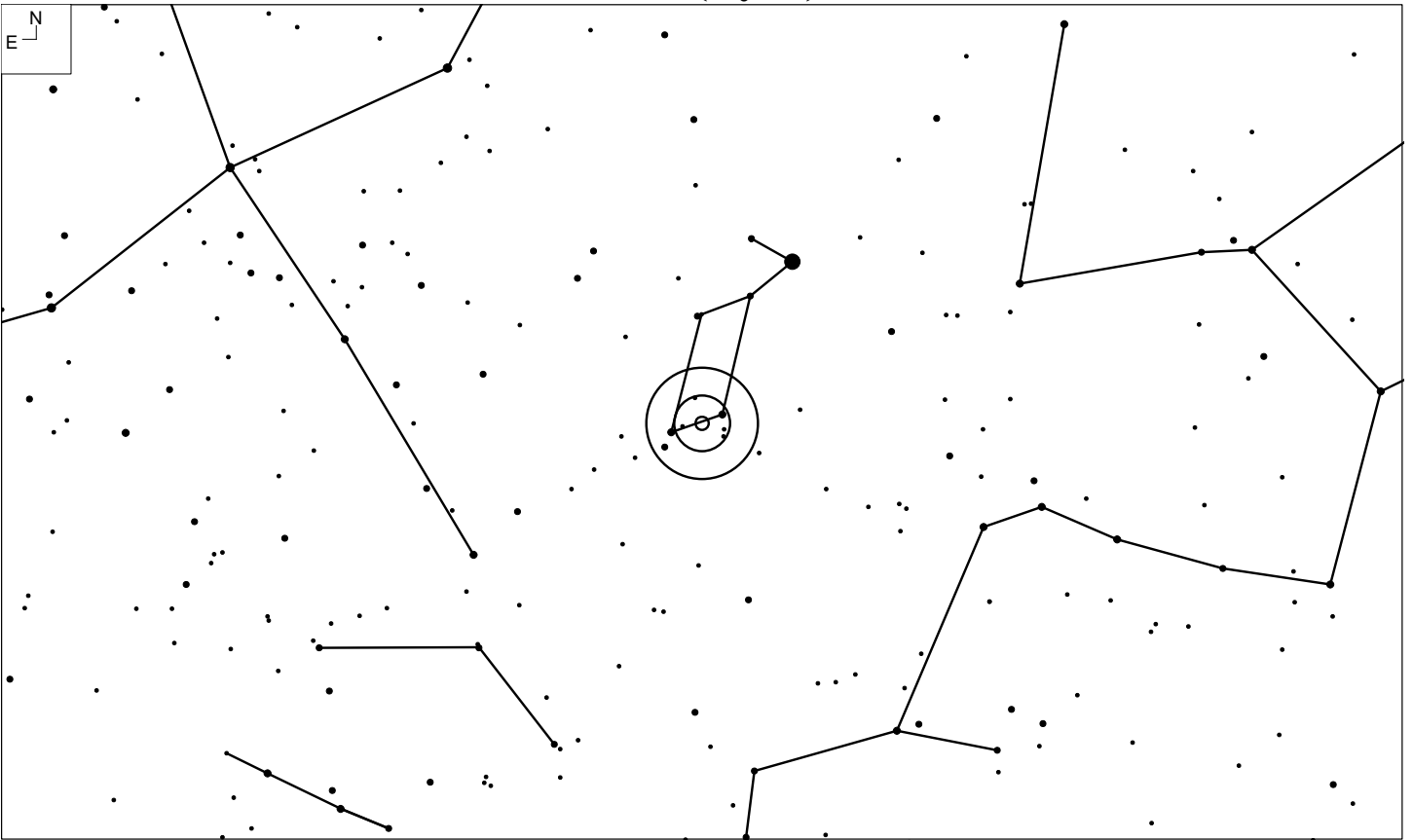
| Object | RA | Dec | Mag | Size | Type |
|---------|------------|-----------|-----|------------|--------|
| IC 4278 | 13 30 27.5 | +47 14 48 | -- | 0.5 x 0.4' | Galaxy |

M53 (Coma Berenices)



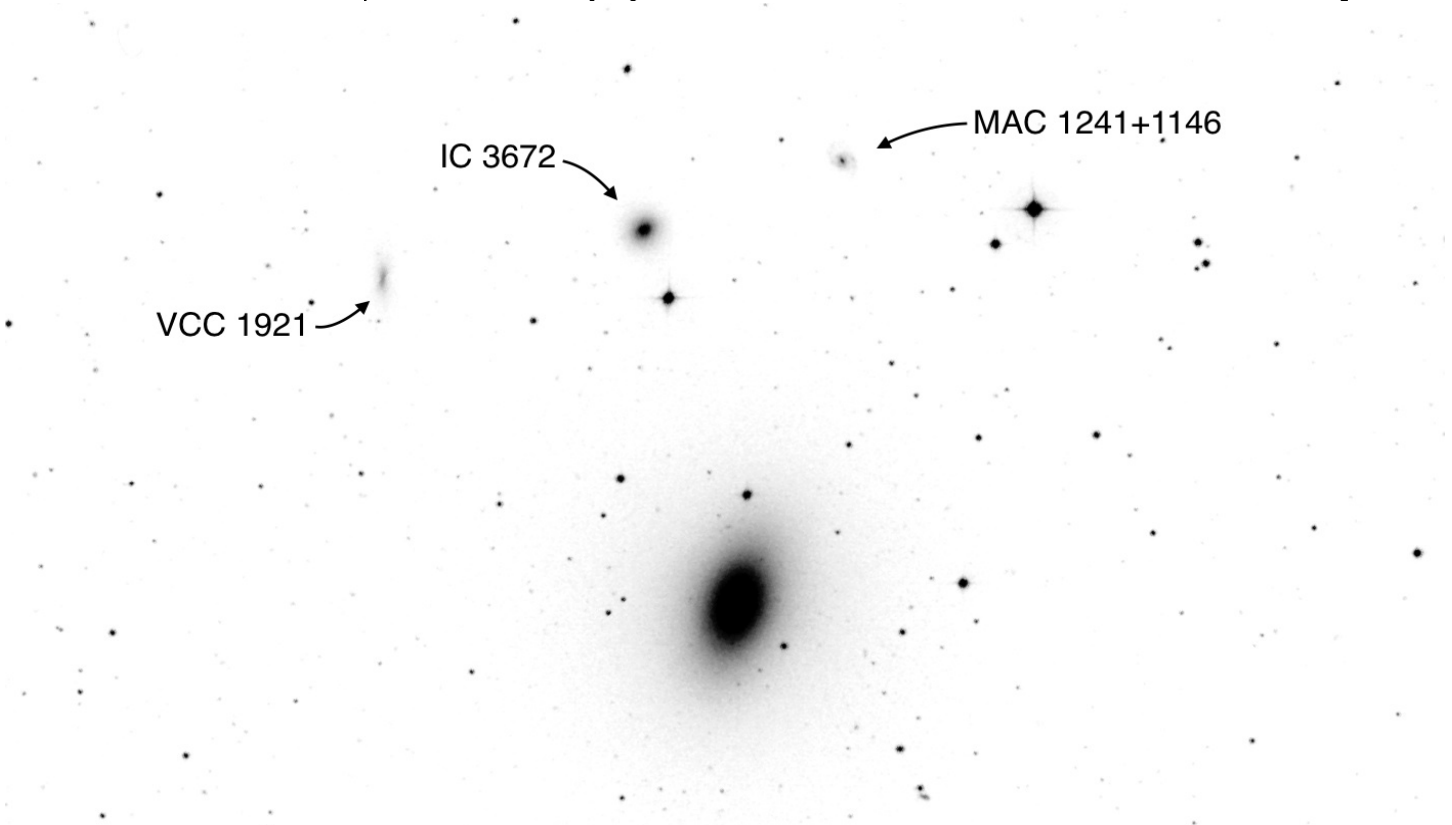
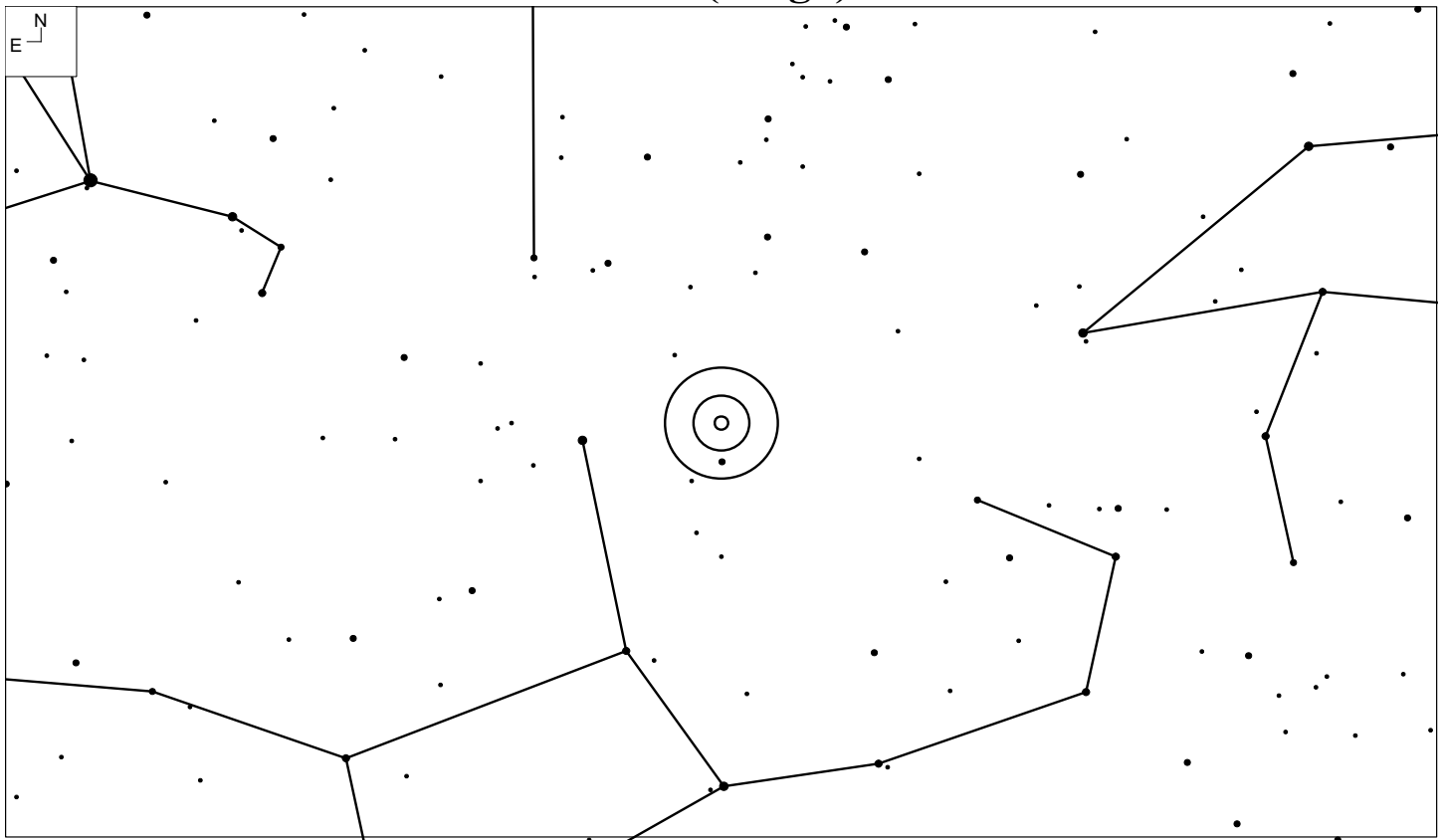
| Object | RA | Dec | Mag | Size | Type |
|----------|------------|-----------|-----|-------|------|
| NGC 5053 | 13 16 27.0 | +17 41 53 | 9.0 | 10.0' | GC |

M57 (Lyra)



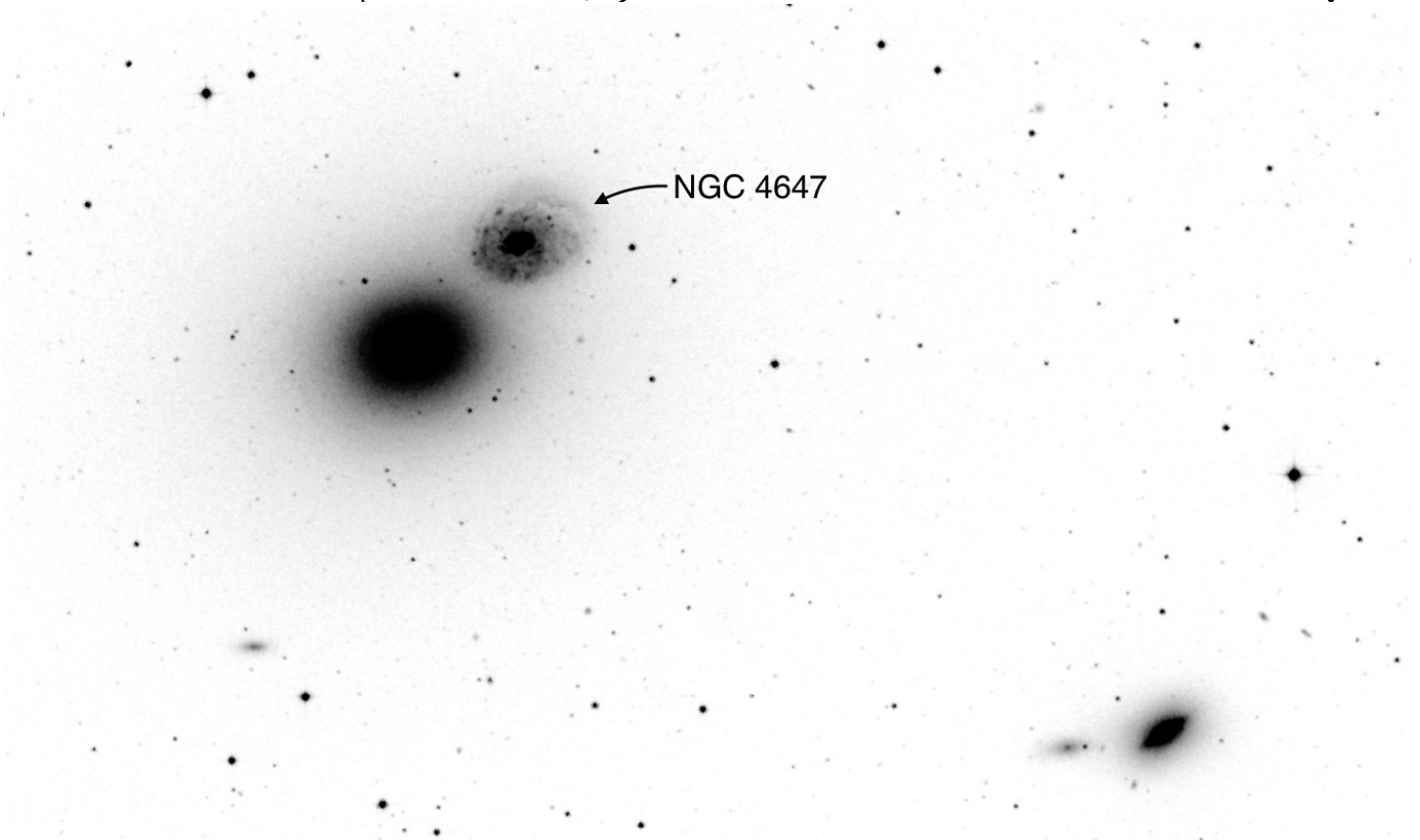
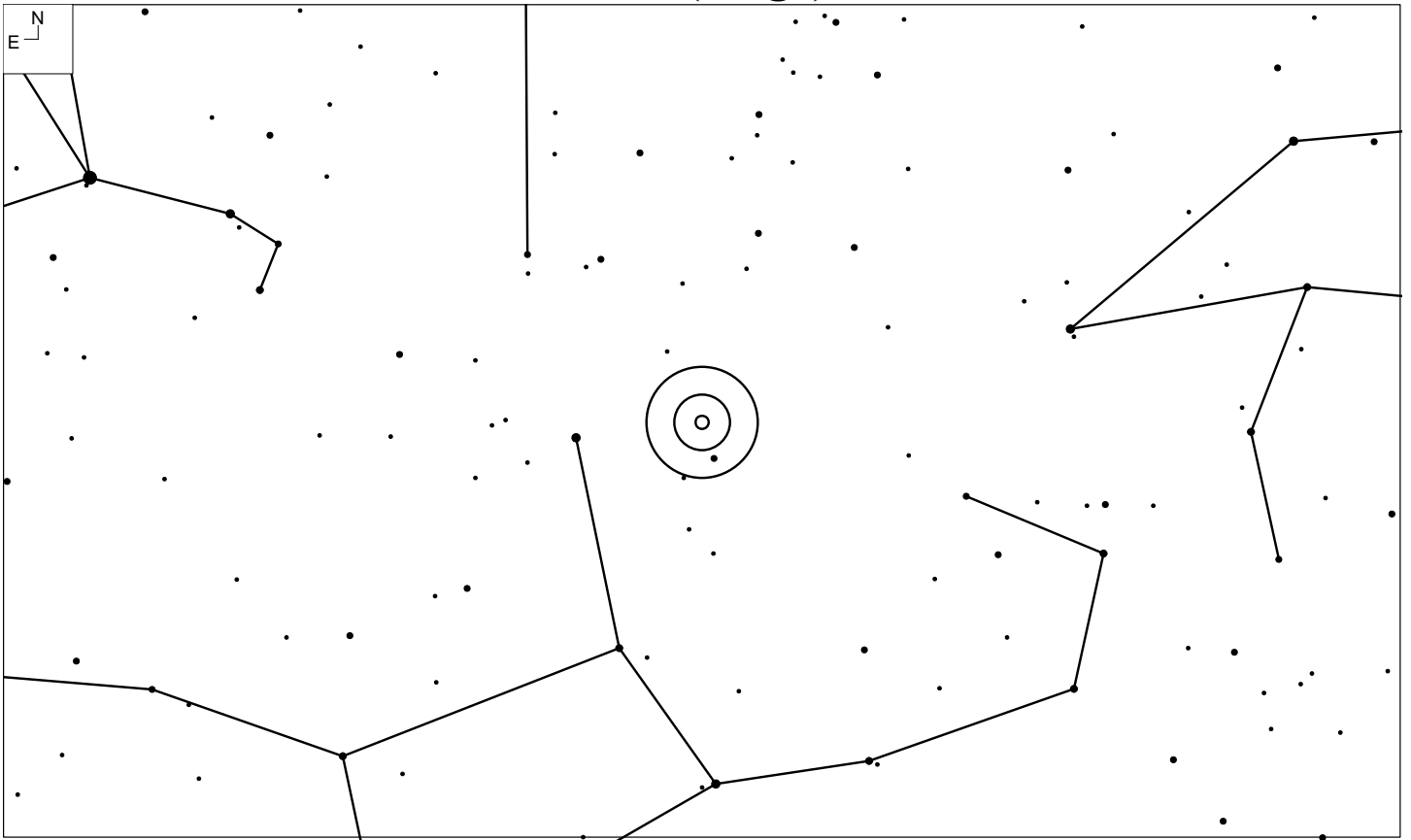
| Object | RA | Dec | Mag | Size | Type |
|---------|------------|-----------|-------|------------|--------|
| IC 1296 | 18 53 18.8 | +33 03 57 | 14.8p | 0.9 x 0.5' | Galaxy |

M59 (Virgo)



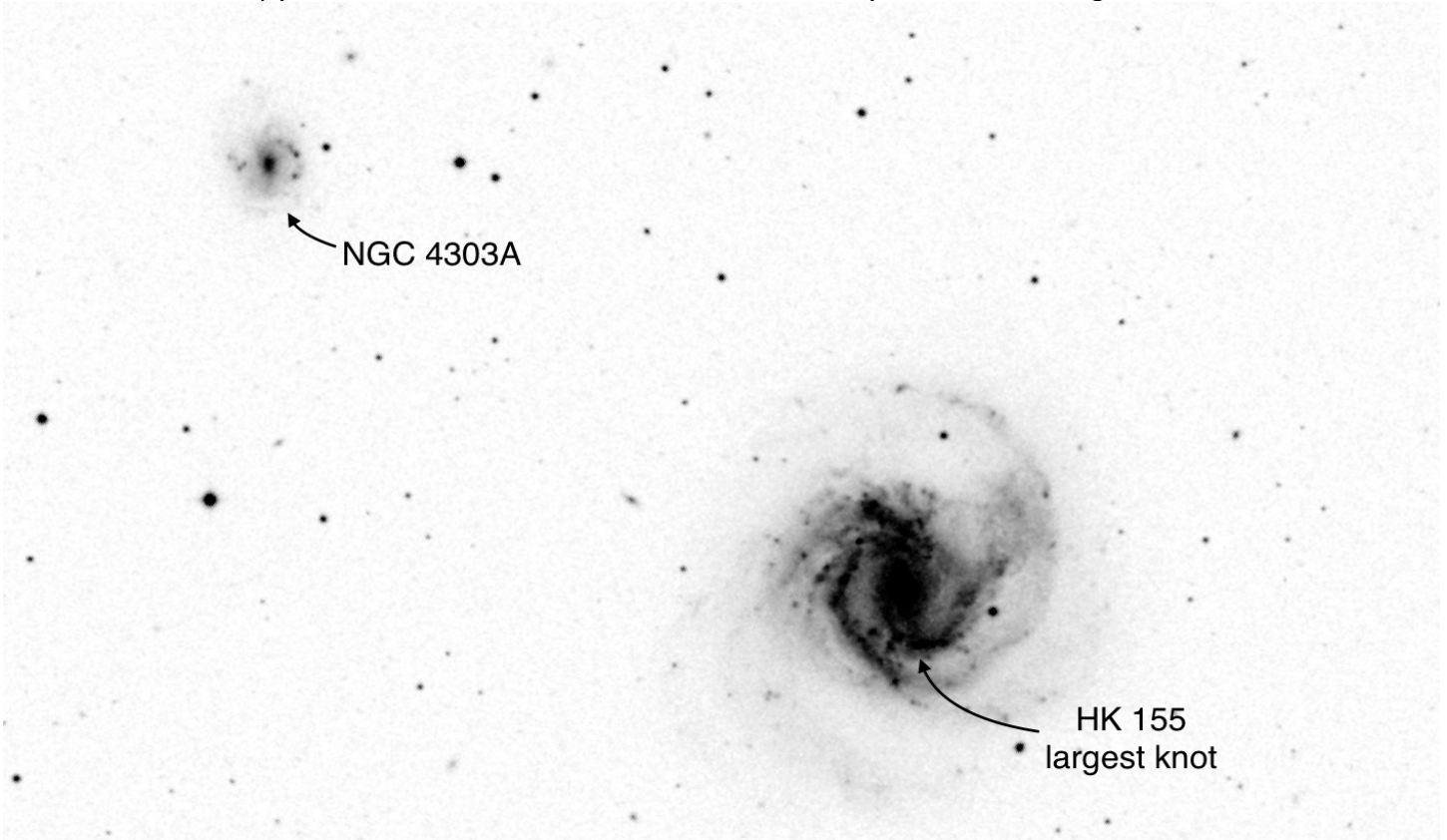
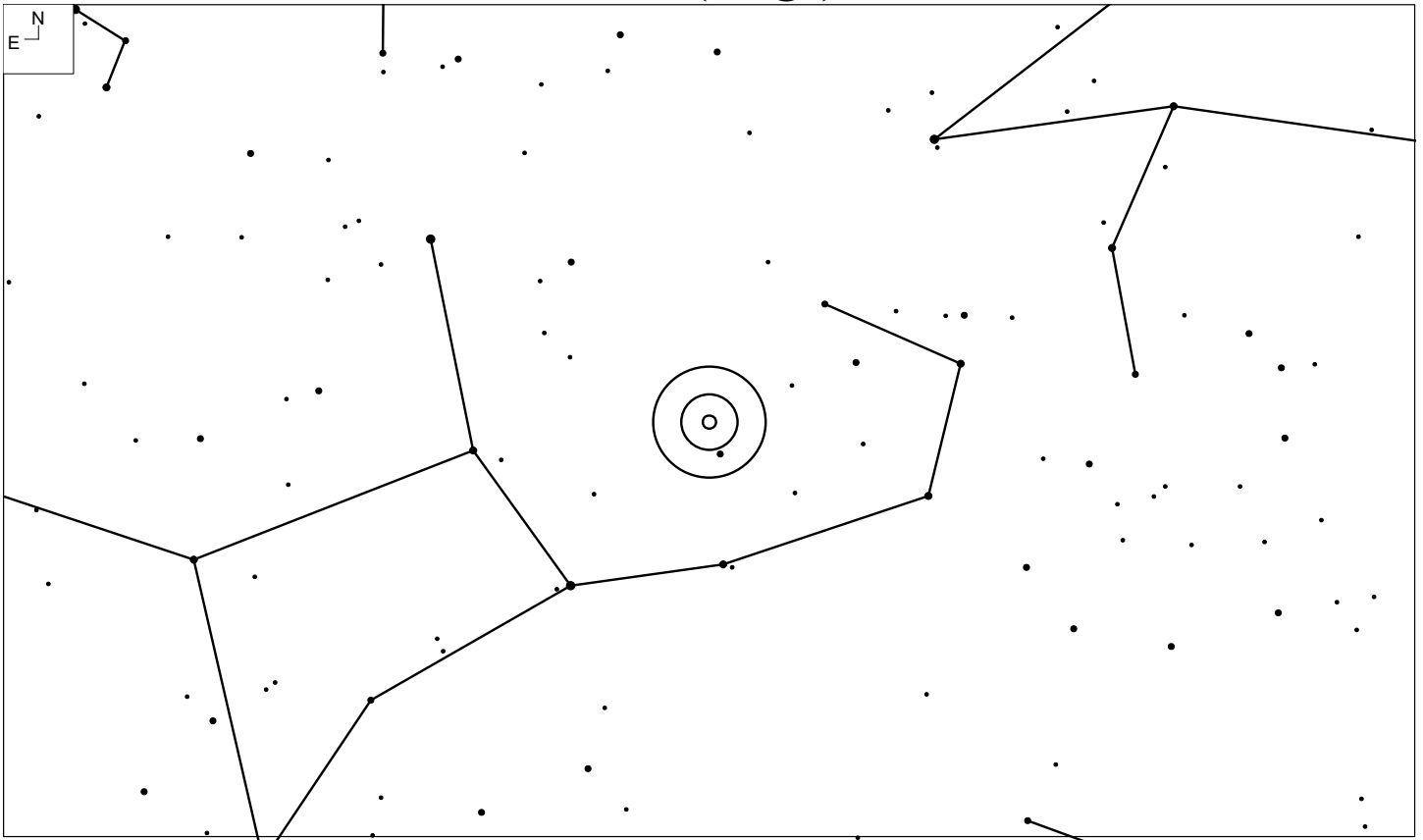
| Object | RA | Dec | Mag | Size | Type |
|-------------------|------------|-----------|-------|------------|--------|
| MAC 1241+1146 | 12 41 55.1 | +11 46 27 | 16.0 | 1.3 x 0.4' | Galaxy |
| IC 3672, UGC 7863 | 12 42 08.7 | +11 45 15 | 14.5p | 0.9 x 0.9' | Galaxy |
| VV 1921 | 12 42 26.3 | +11 44 25 | 15.9 | 1.3 x 0.4' | Galaxy |

M60 (Virgo)



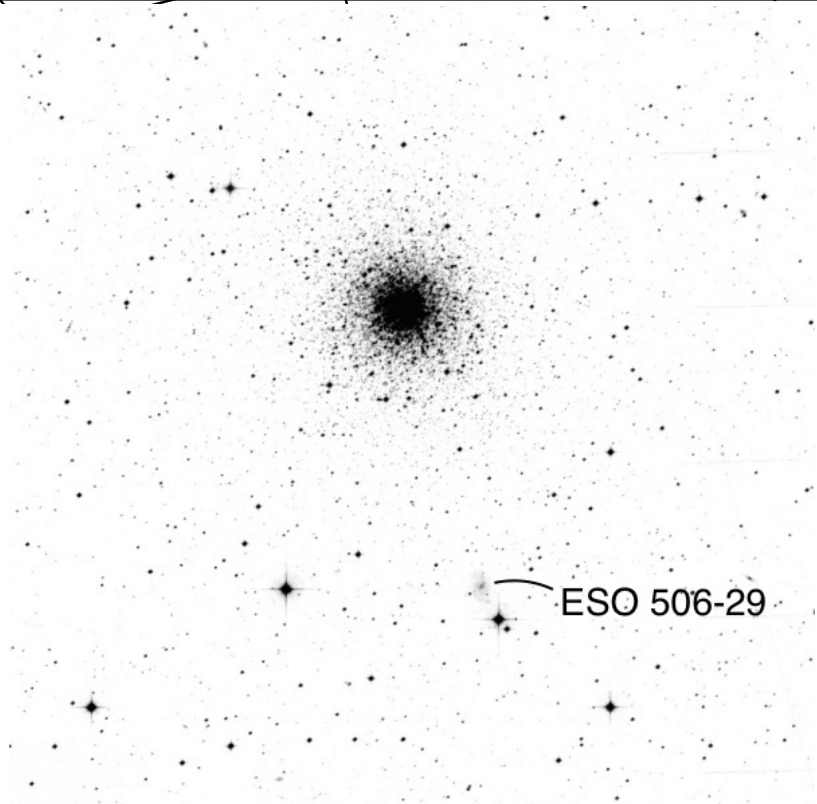
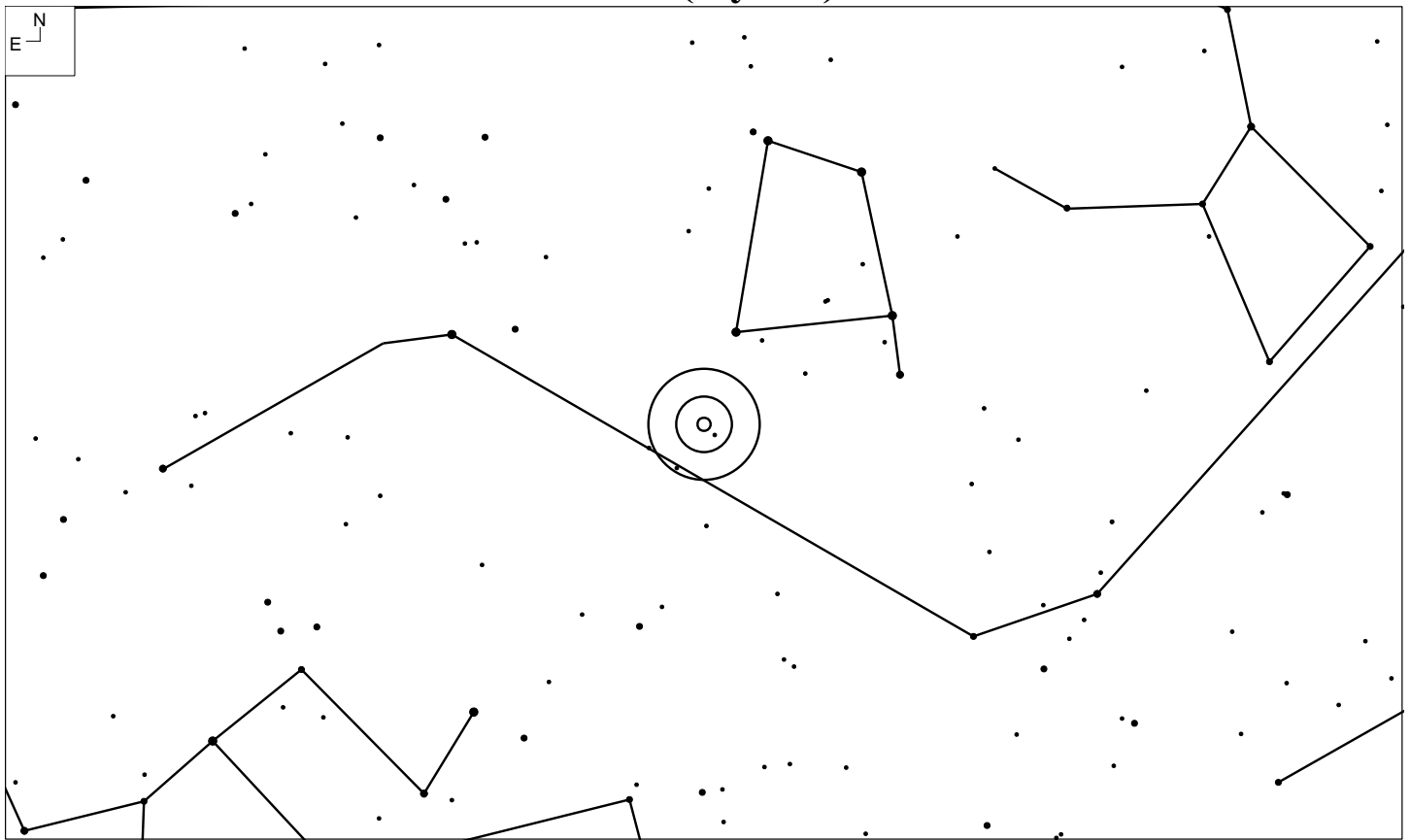
| Object | RA | Dec | Mag | Size | Type |
|----------|------------|------------|-------|------------|--------|
| NGC 4647 | 12 43 32.4 | + 11 34 56 | 11.9b | 2.9 x 2.3' | Galaxy |

M61 (Virgo)



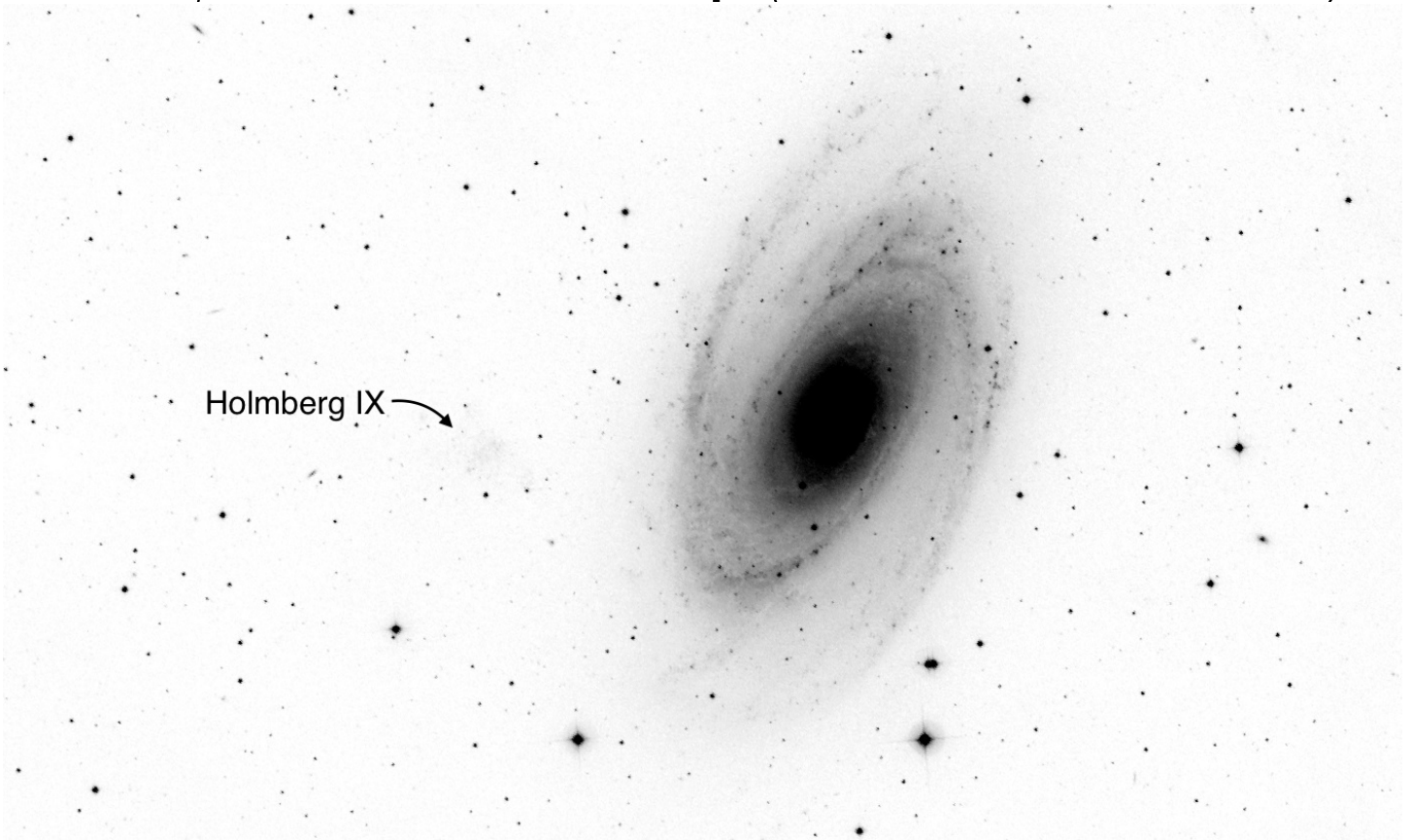
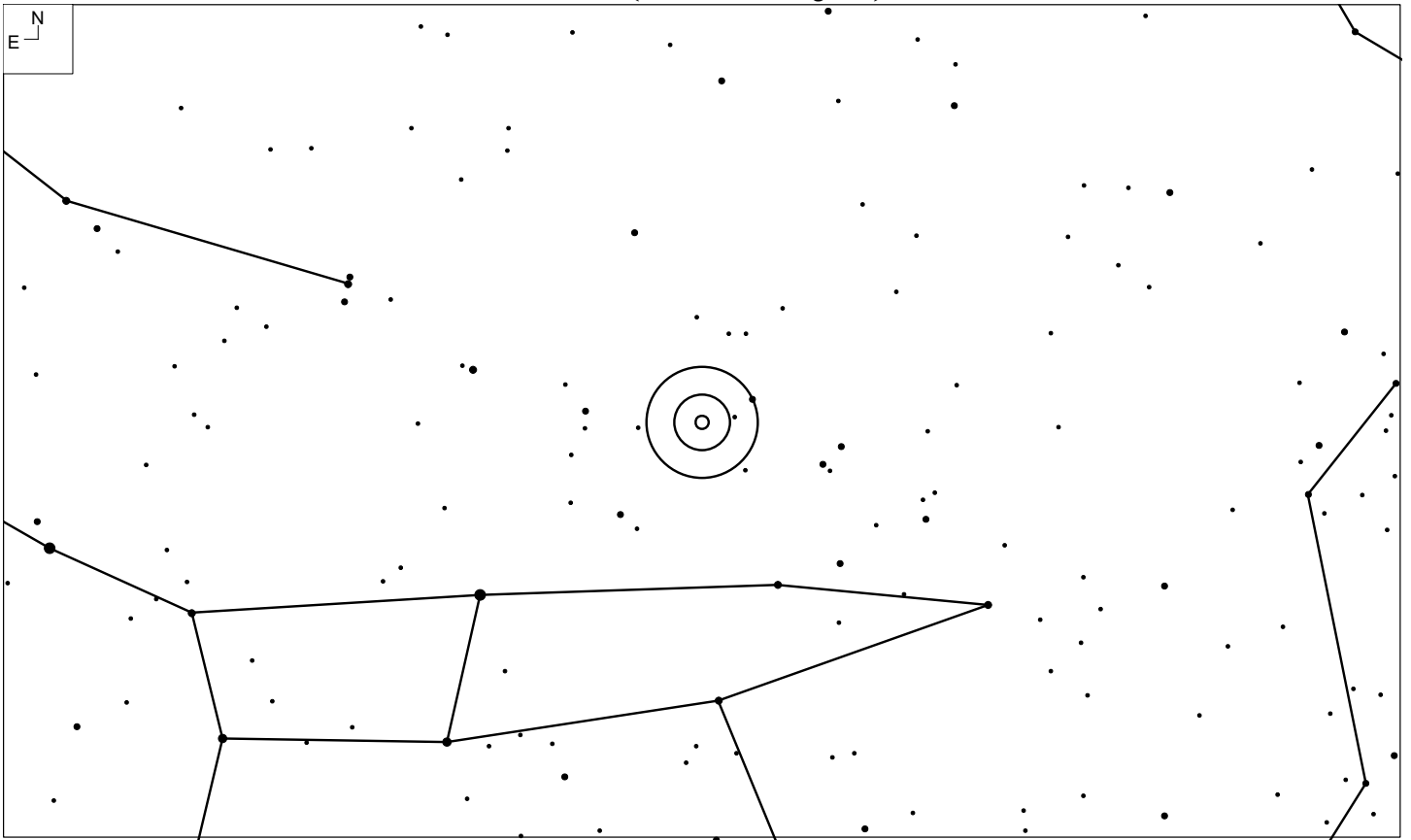
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|-----------|------------|-----------|-------|------------|--------|
| HK 155 | 12 21 53.6 | +04 27 42 | - | | Knot |
| NGC 4303A | 12 22 27.4 | +04 34 01 | 13.4b | 1.5 x 1.2' | Galaxy |

M68 (Hydra)



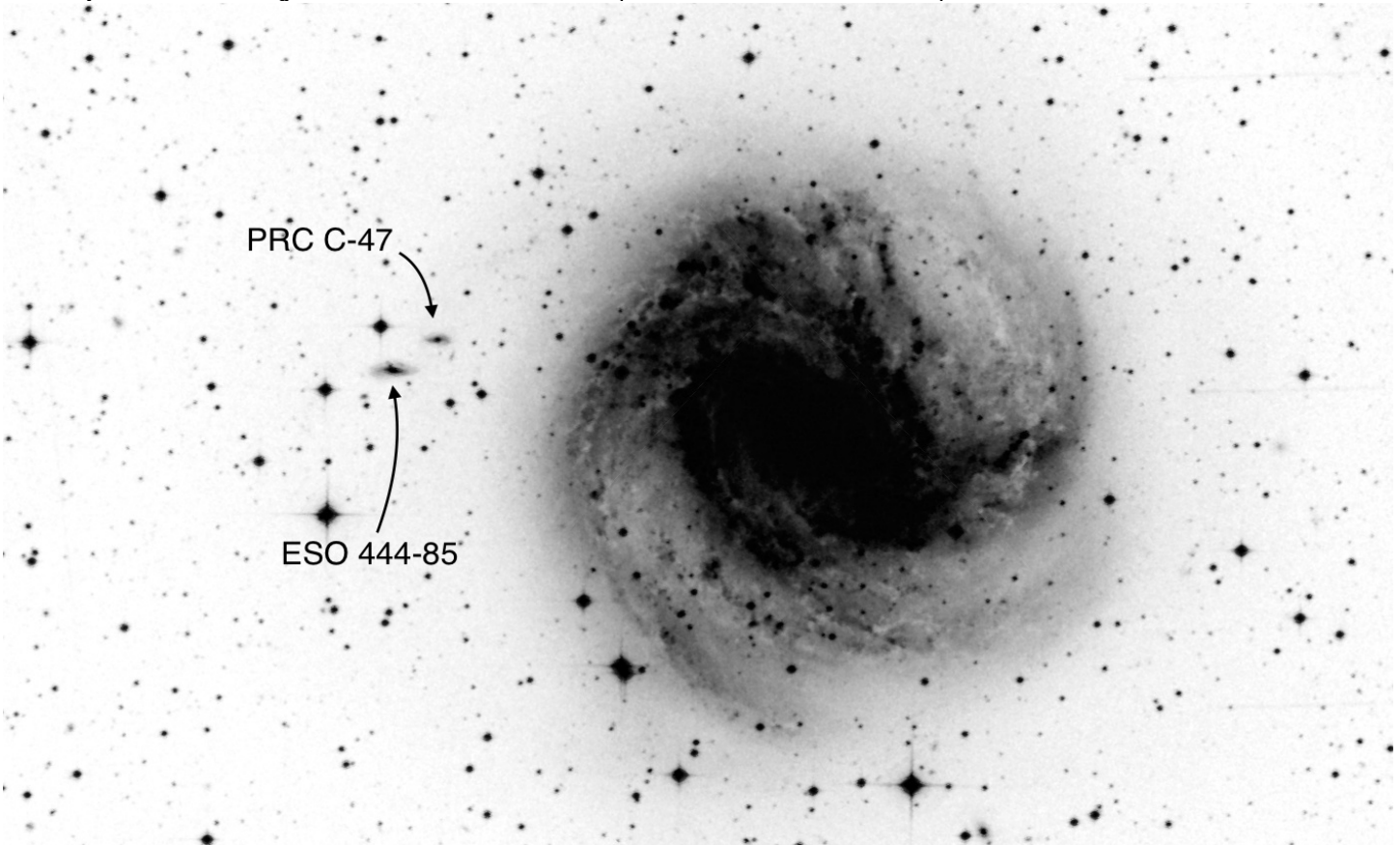
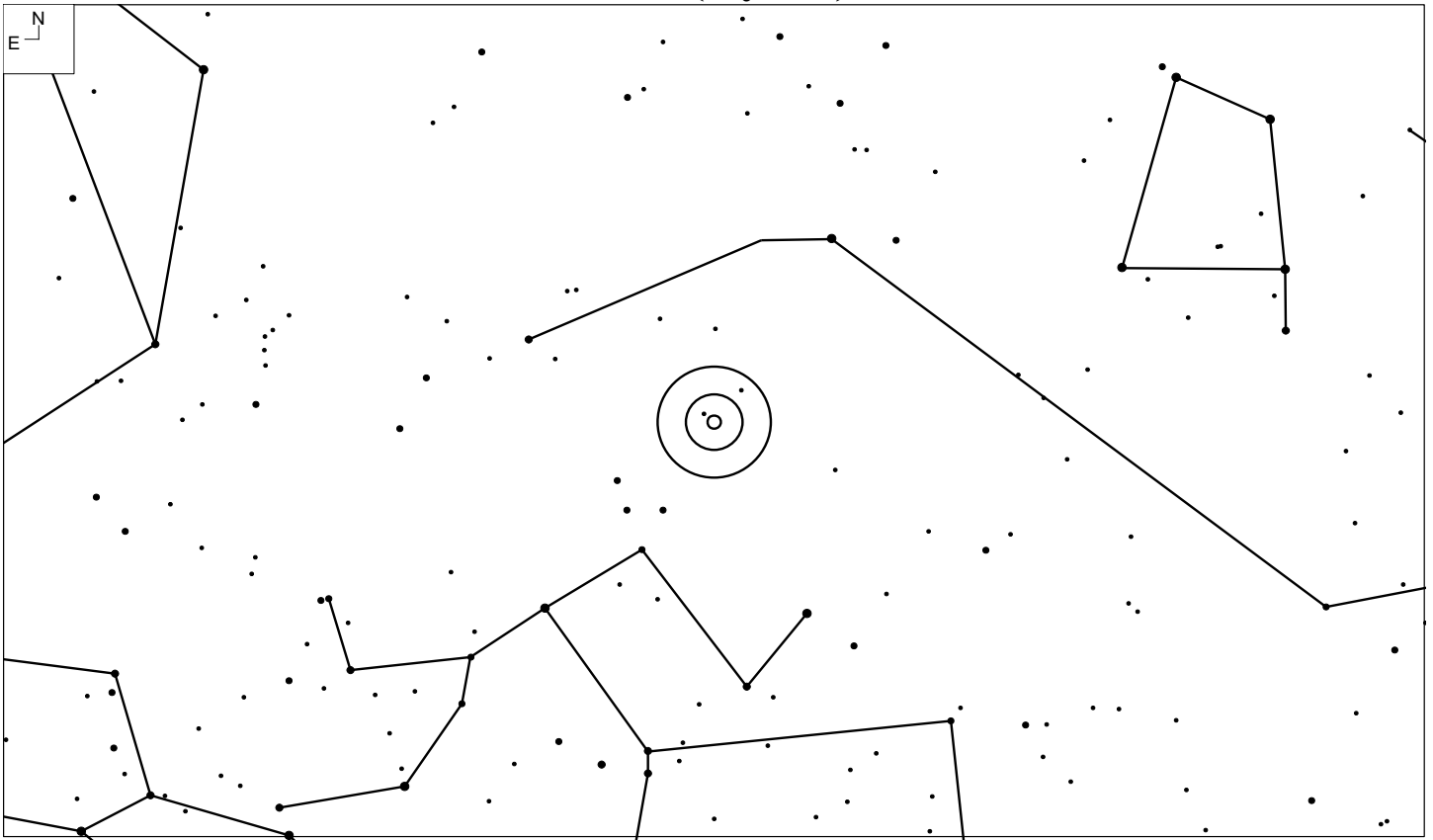
| Object | RA | Dec | Mag | Size | Type |
|------------|------------|-----------|-------|------------|--------|
| ESO 506.29 | 12 39 15.5 | -26 54 37 | 14.2p | 1.2 x 1.0' | Galaxy |

M81 (Ursa Major)



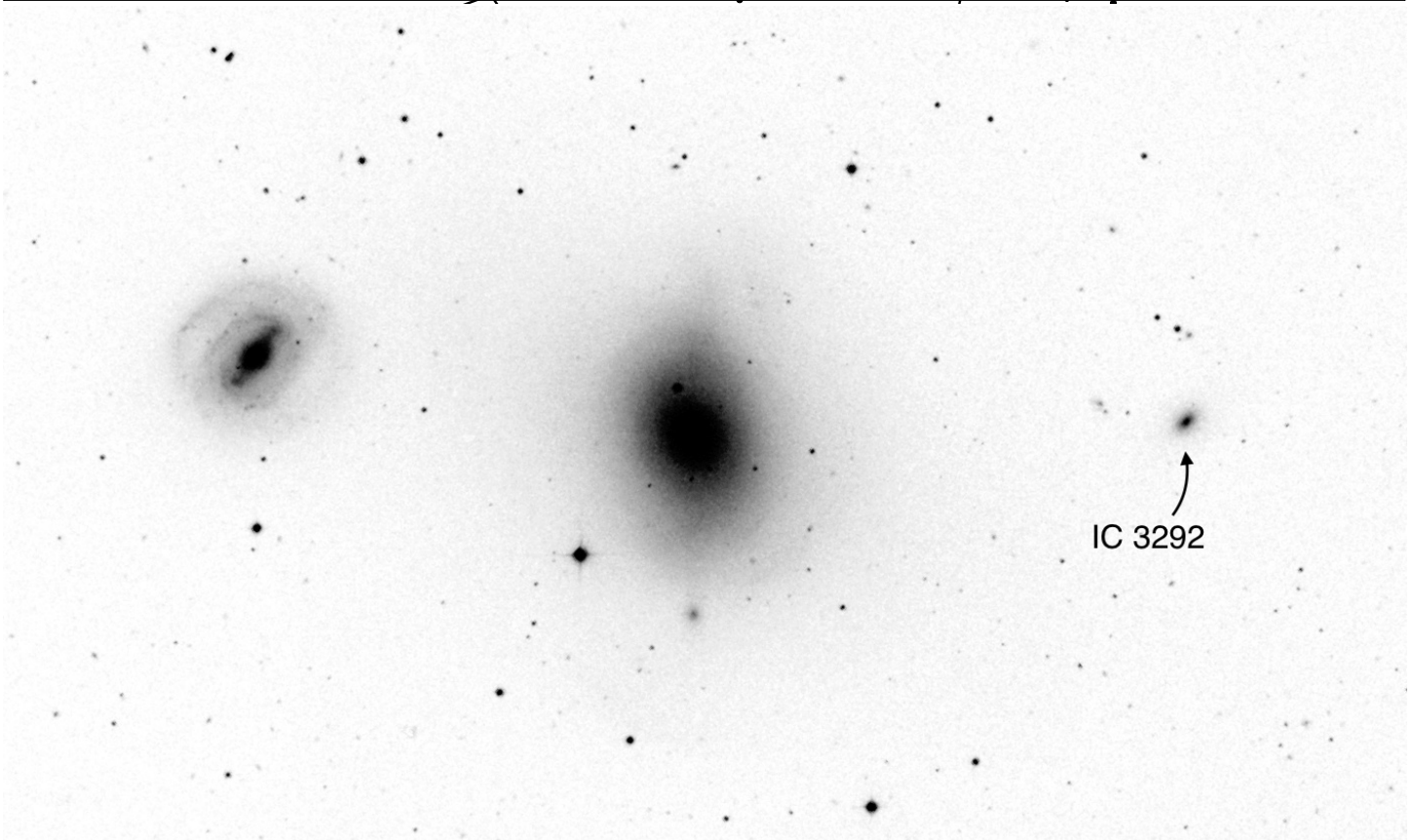
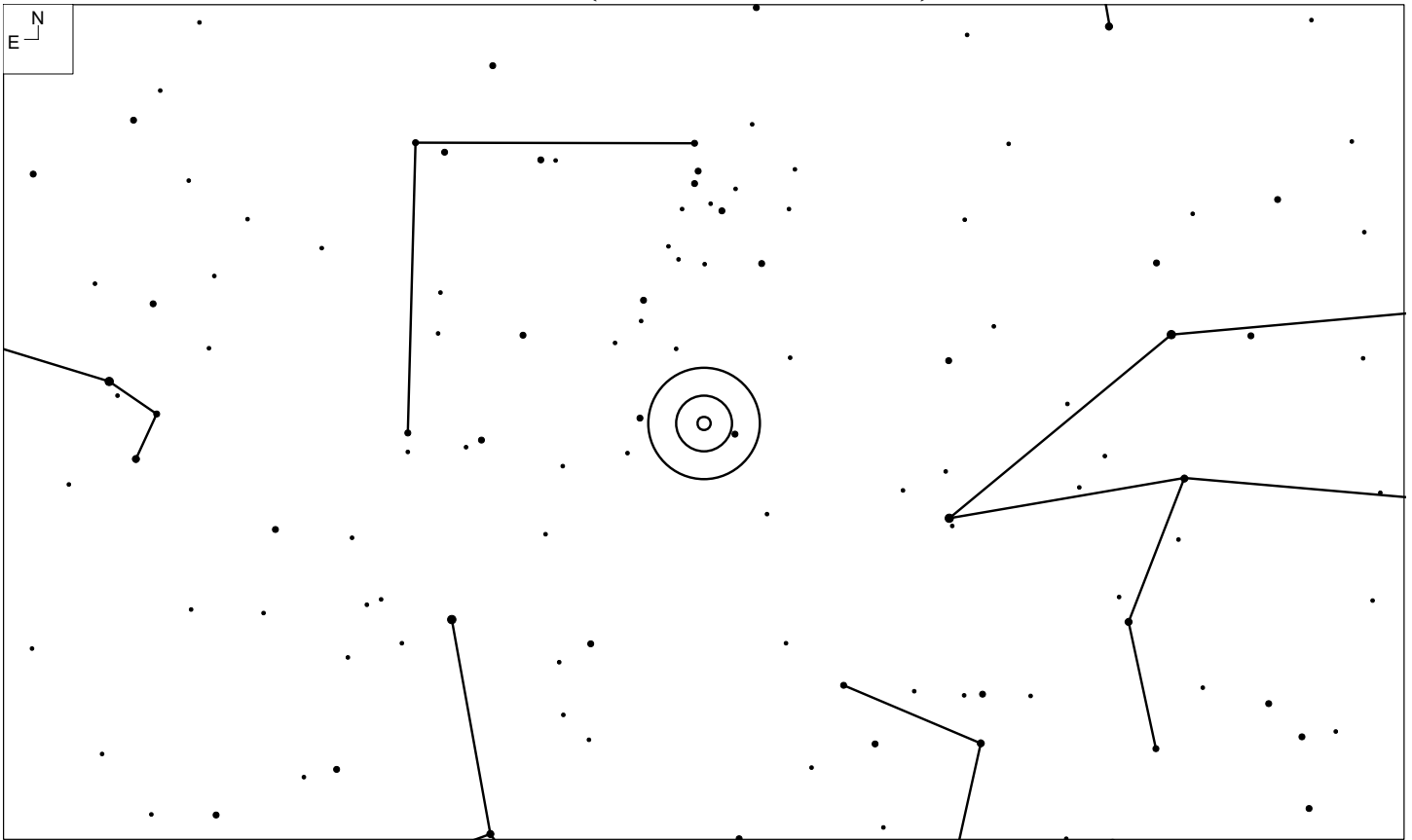
| Object | RA | Dec | Mag | Size | Type |
|-------------|------------|-----------|-------|------------|--------|
| Holmberg IX | 09 57 33.0 | +69 02 35 | 14.0v | 3.0 x 2.5' | Galaxy |

M83 (Hydra)



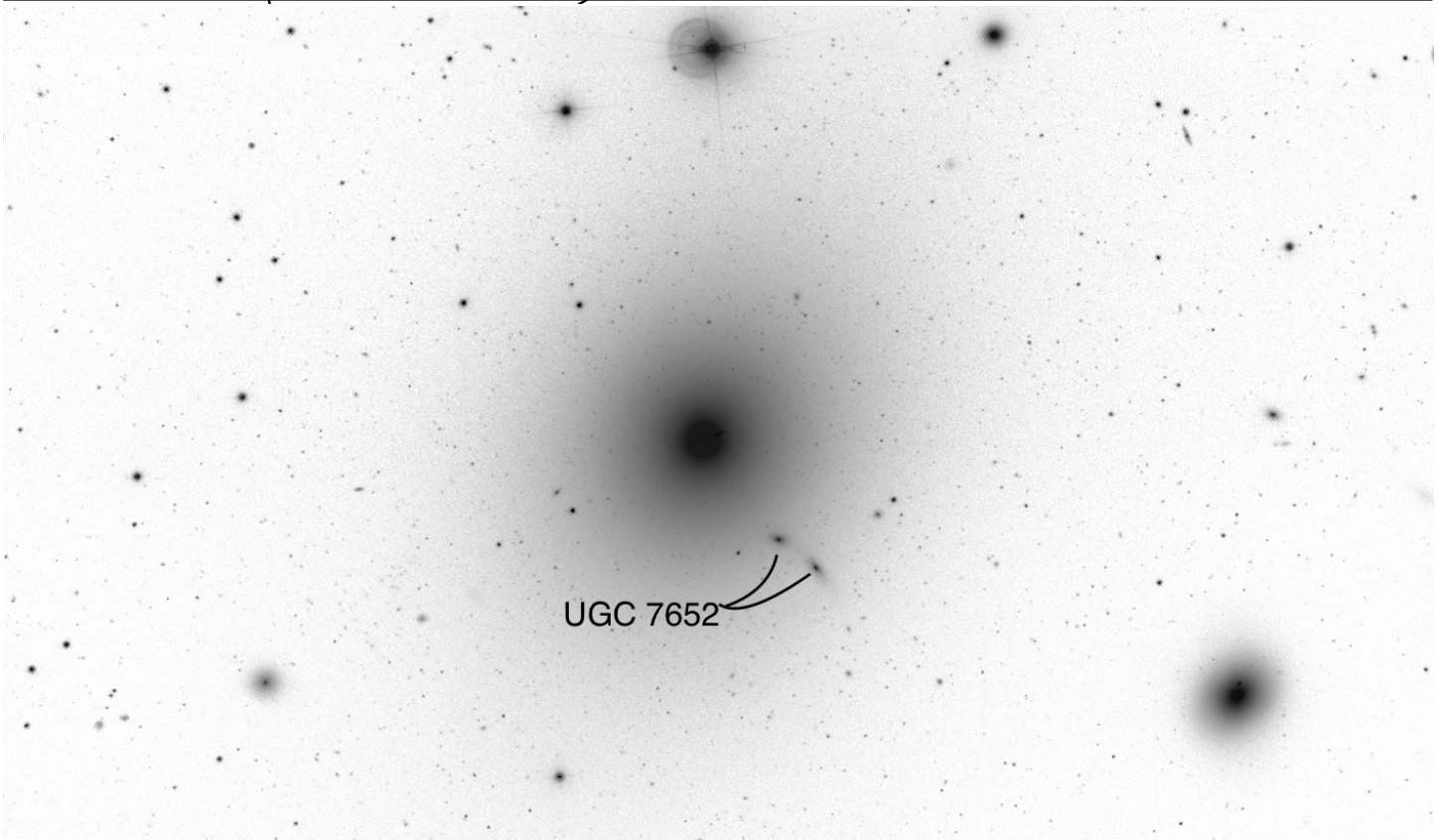
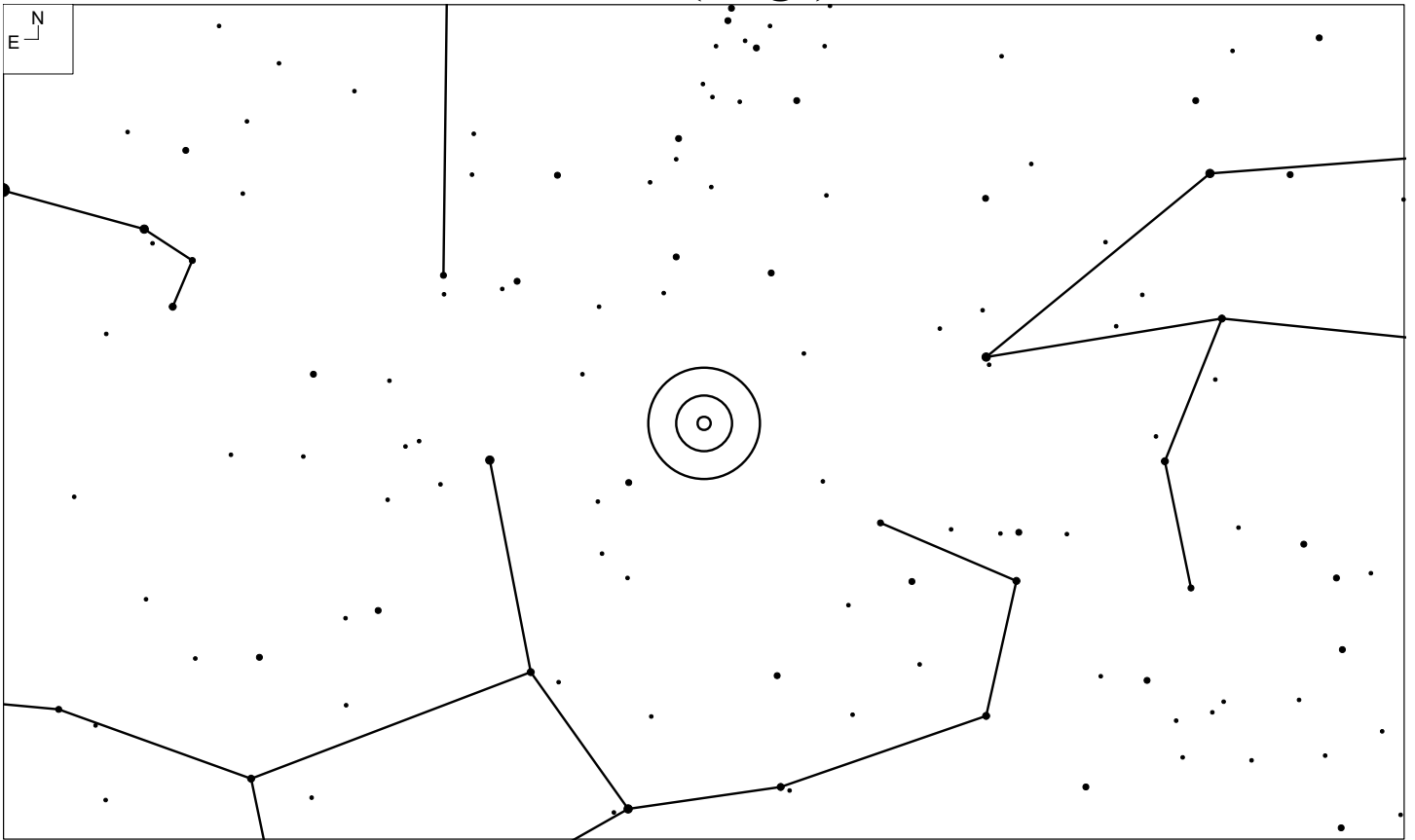
| Object | RA | Dec | Mag | Size | Type |
|------------|------------|-----------|------|------------|--------|
| PRC C-47 | 13 37 29.5 | -29 50 29 | 15.5 | | Galaxy |
| ESO 444-85 | 13 37 33.2 | -29 51 00 | 16.0 | 1.2 x 0.4' | Galaxy |

M85 (Coma Berenices)



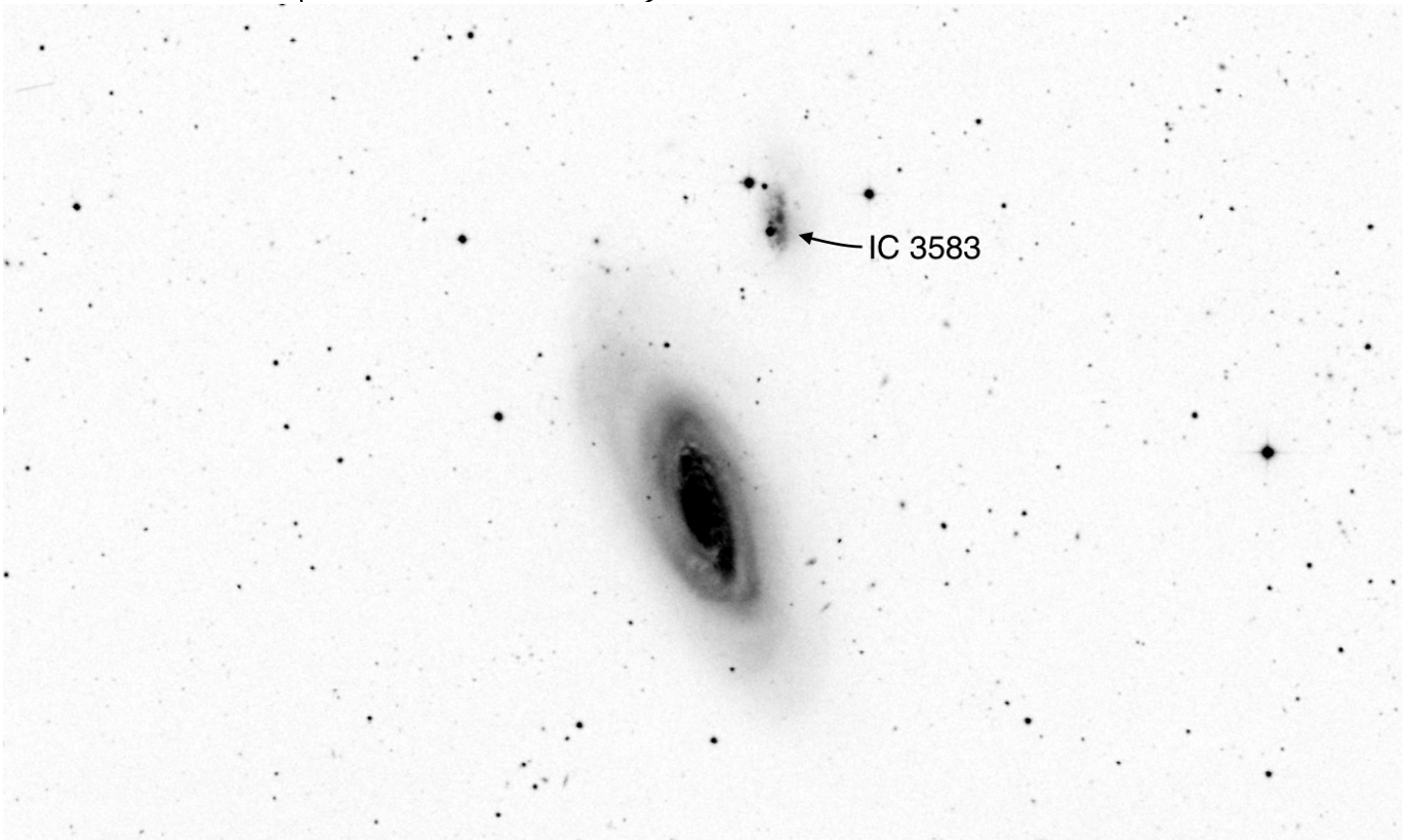
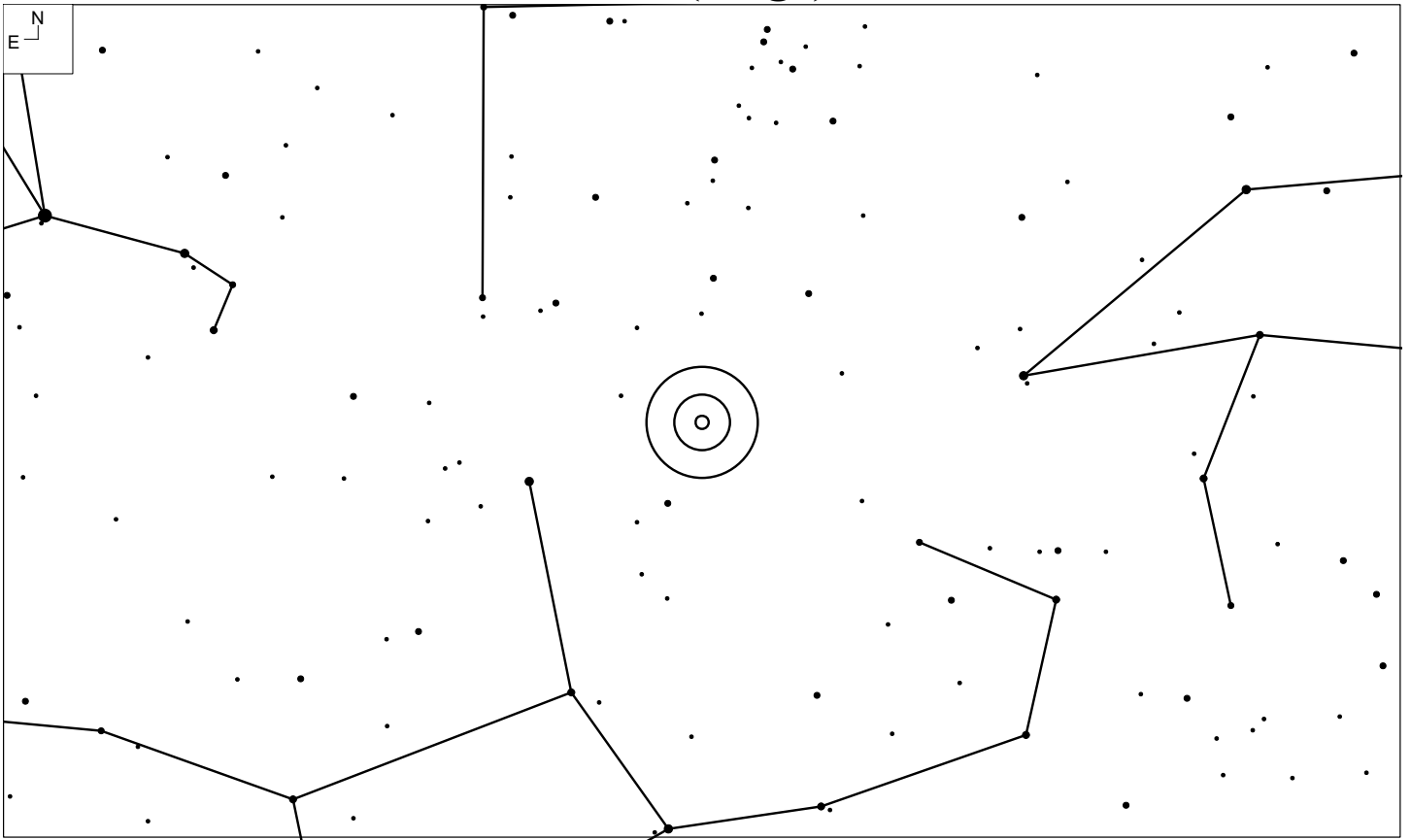
| Object | RA | Dec | Mag | Size | Type |
|---------|------------|-----------|------|------------|--------|
| IC 3292 | 12 24 48.3 | +18 11 42 | 15.5 | 0.8 x 0.4' | Galaxy |

M87 (Virgo)



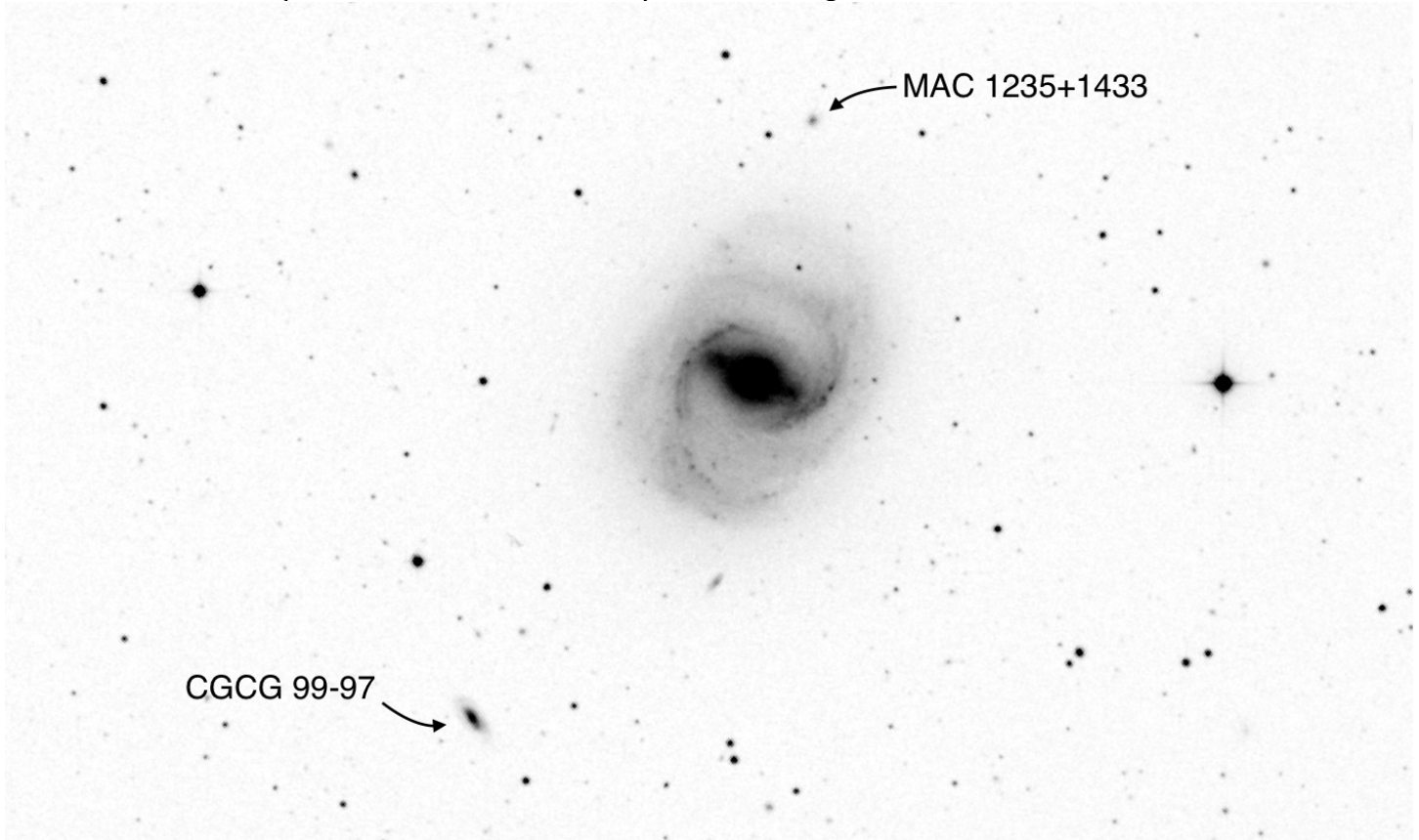
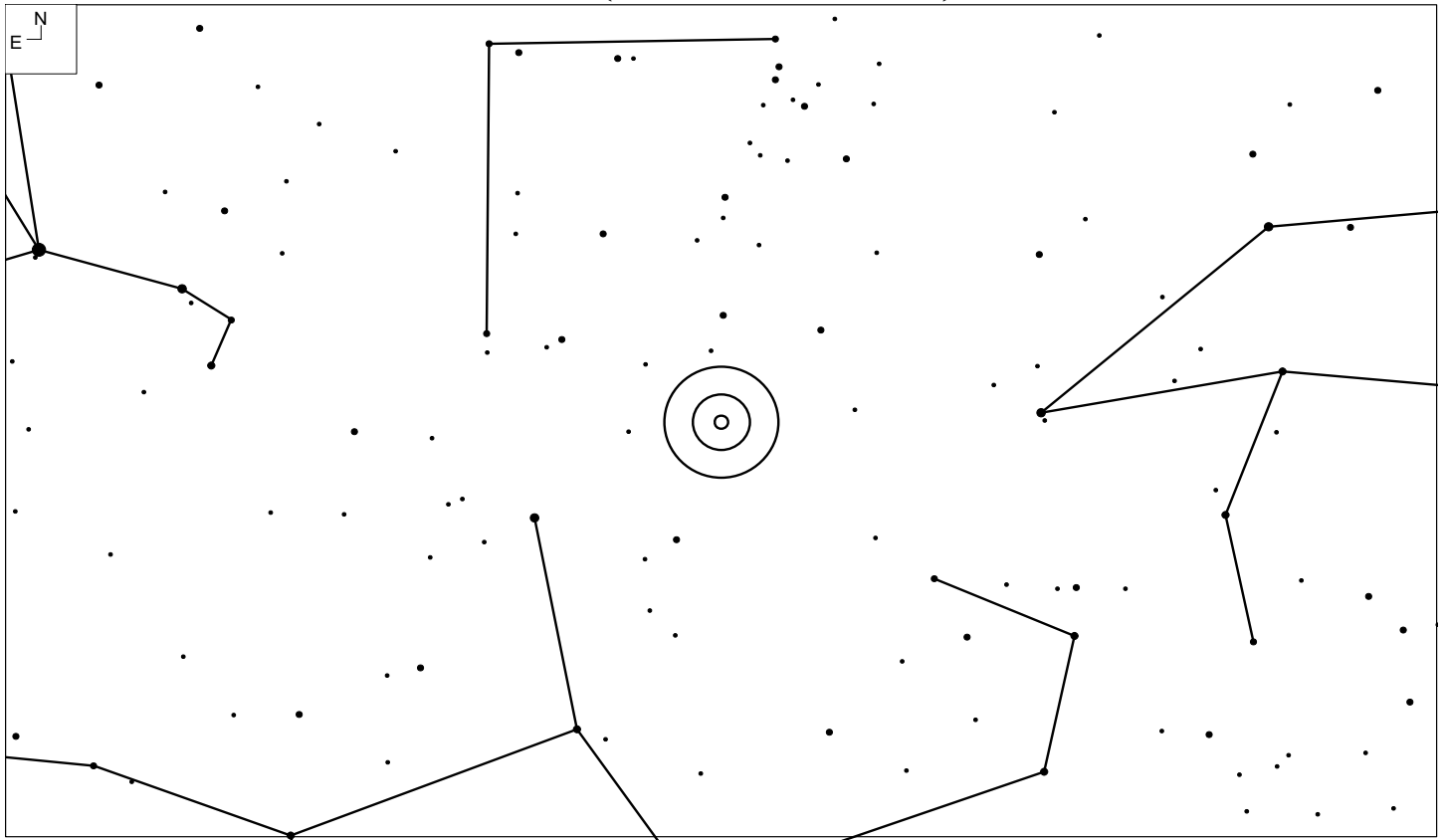
| Object | RA | Dec | Mag | Size | Type |
|---------------|------------|-----------|------|------------|--------|
| UGC7652-1 / 2 | 12 30 44.9 | +12 21 59 | 16.0 | 0.5 x 0.3' | Galaxy |

M90 (Virgo)



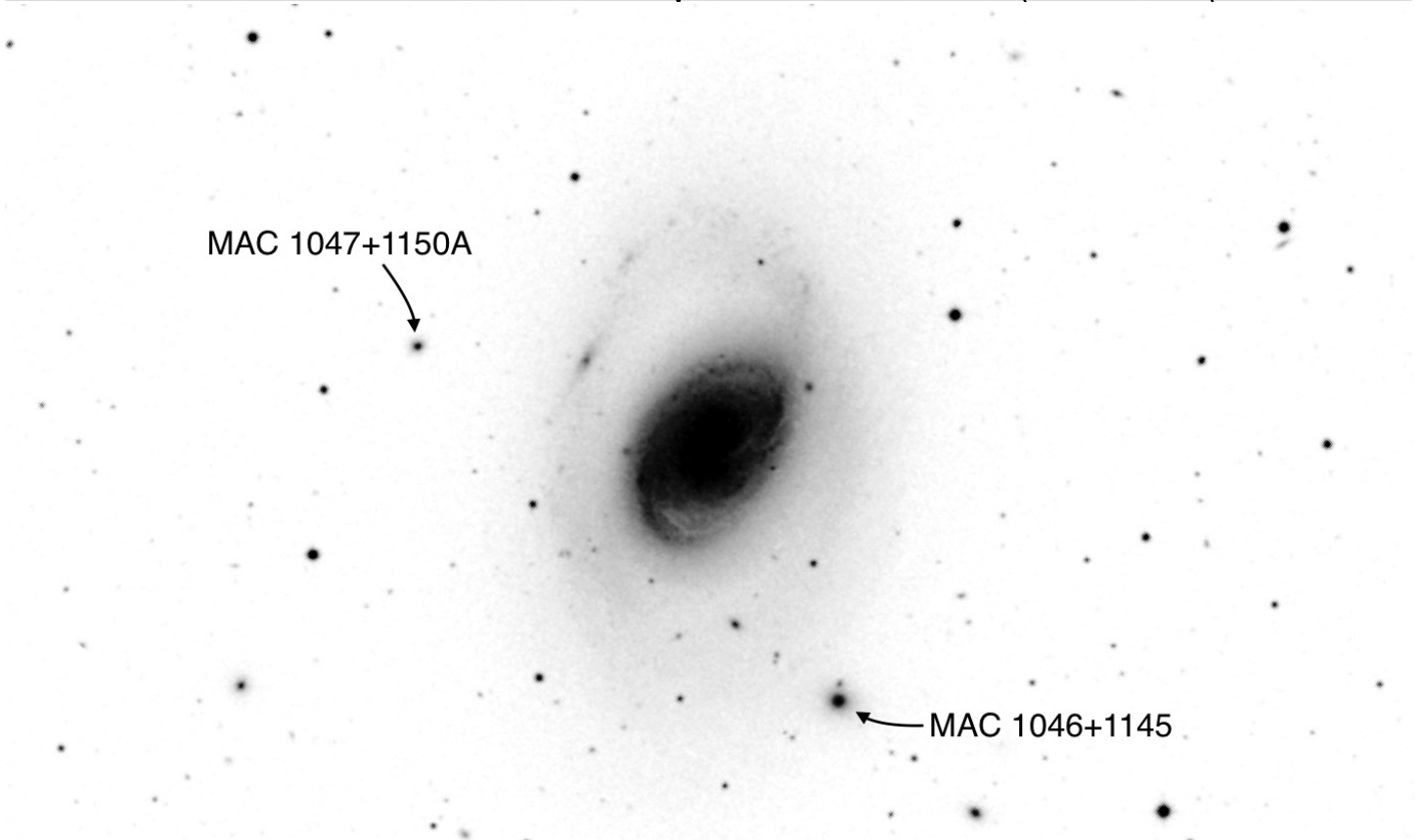
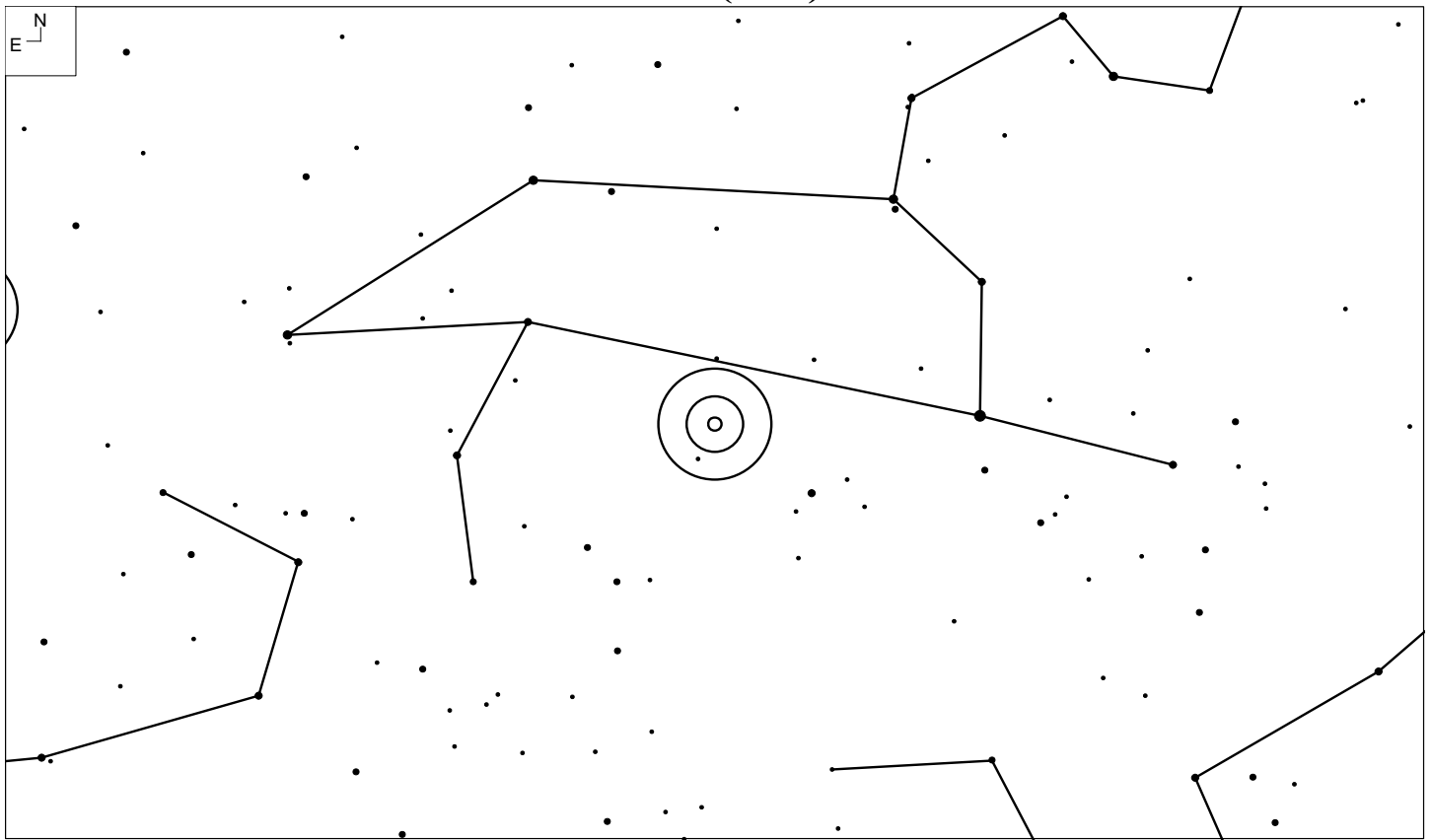
| Object | RA | Dec | Mag | Size | Type |
|---------|------------|-----------|-------|------------|--------|
| IC 3583 | 12 36 43.8 | +13 15 31 | 13.3b | 2.2 x 1.1' | Galaxy |

M91 (Coma Berenices)



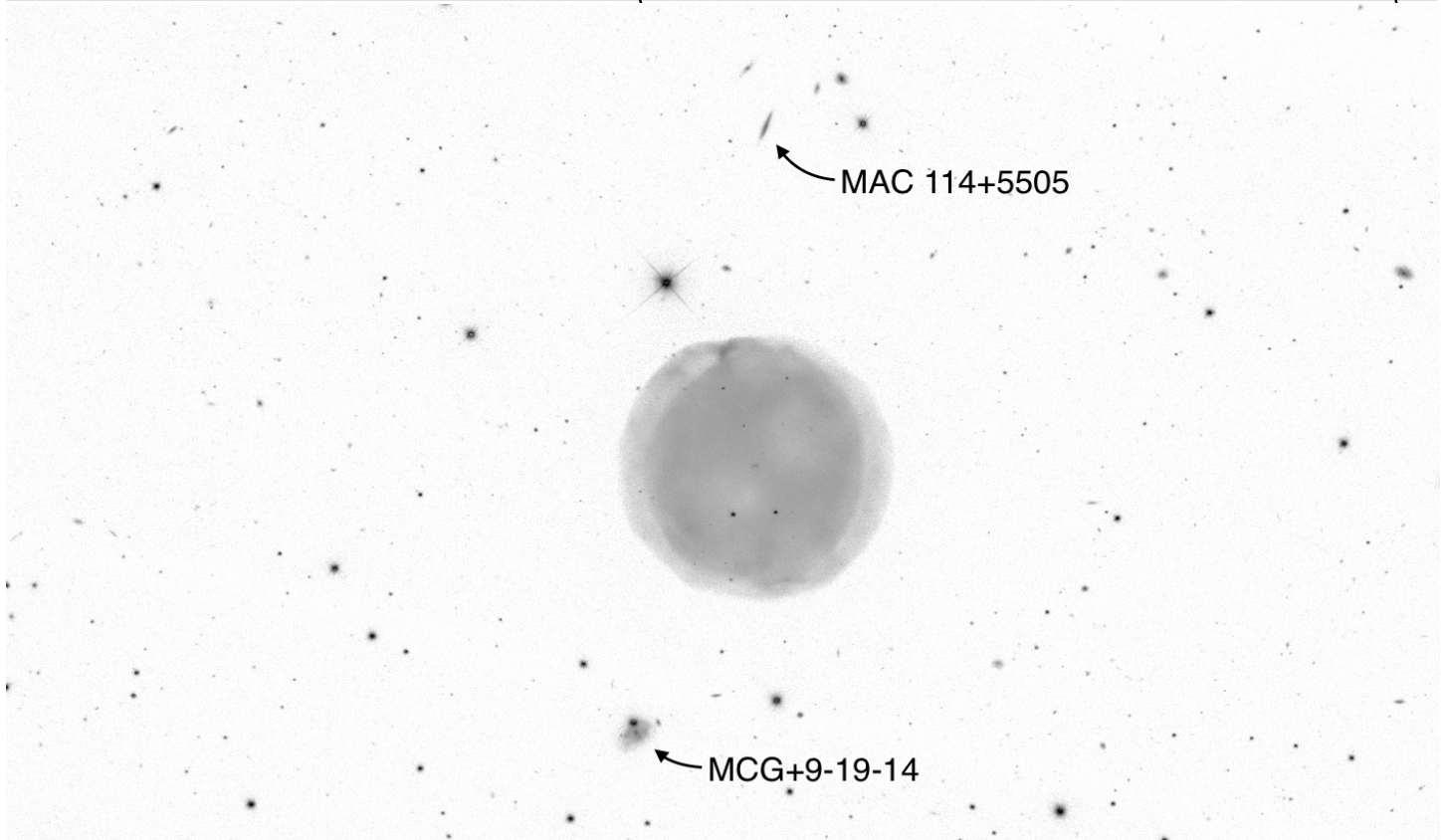
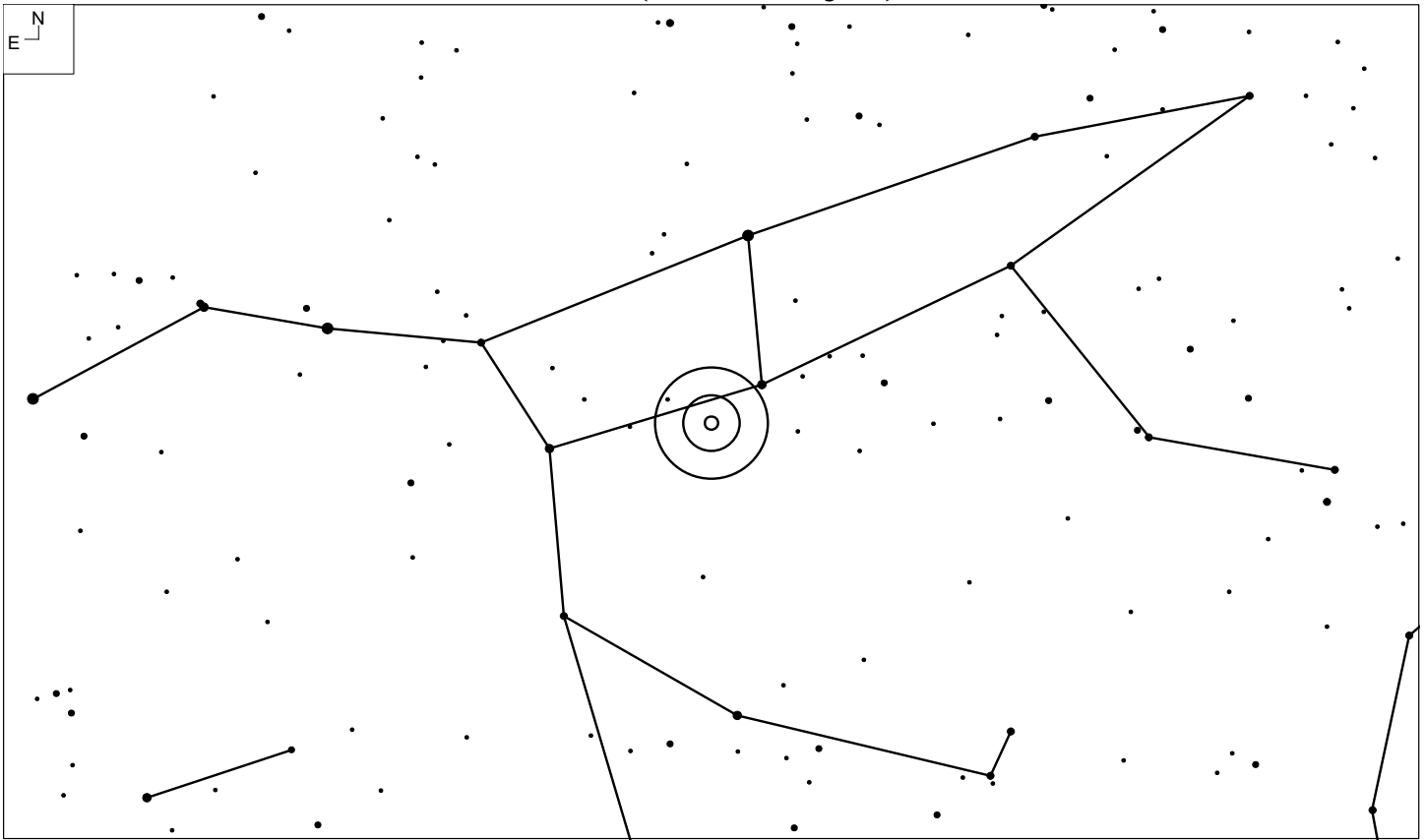
| Object | RA | Dec | Mag | Size | Type |
|---------------|------------|-----------|------|------------|--------|
| CGCG 99-97 | 12 35 43.8 | +14 24 43 | 15.6 | 0.8 X 0.4' | Galaxy |
| MAC 1235+1433 | 12 35 22.9 | +14 33 38 | 16.5 | 0.3 x 0.3' | Galaxy |

M96 (Leo)



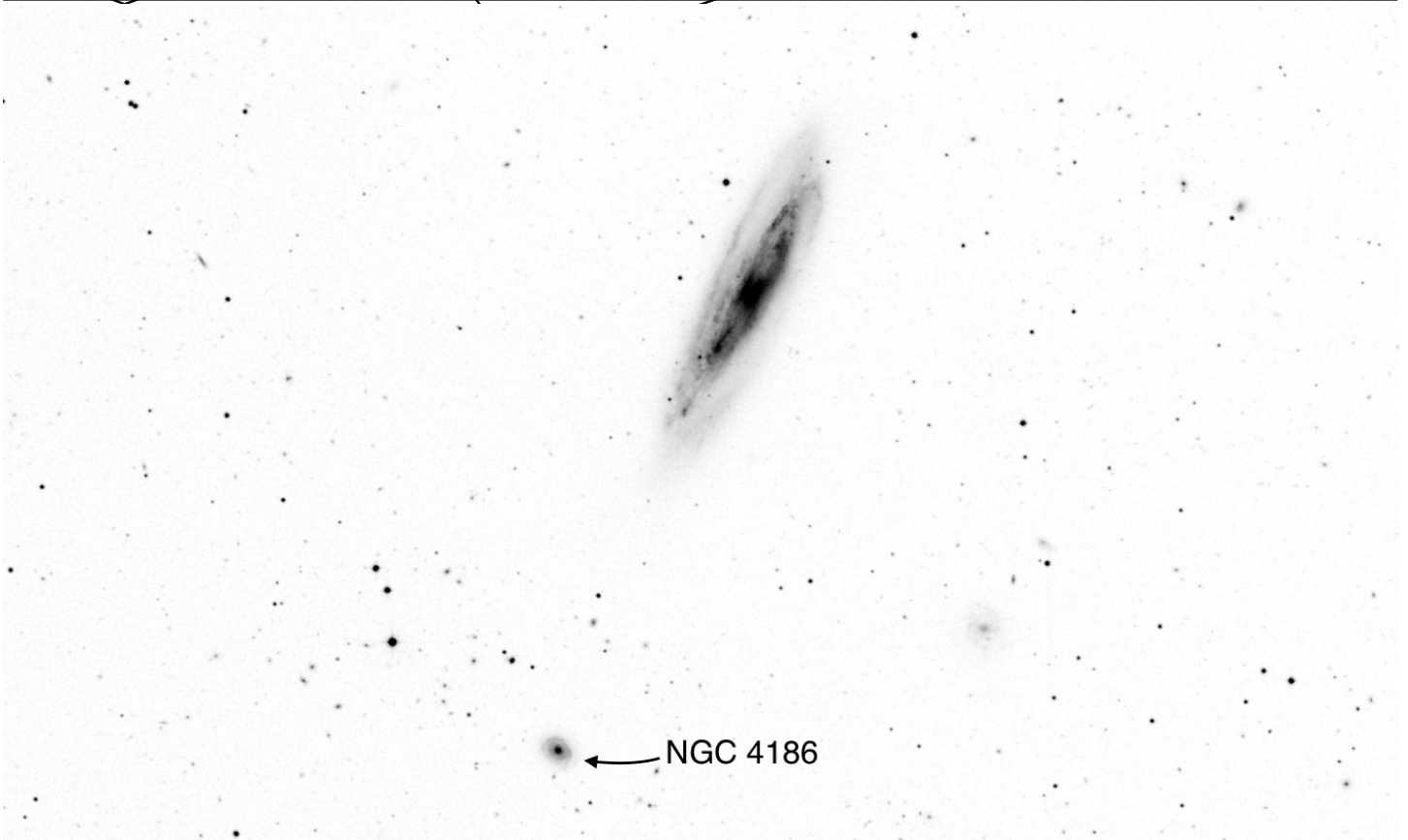
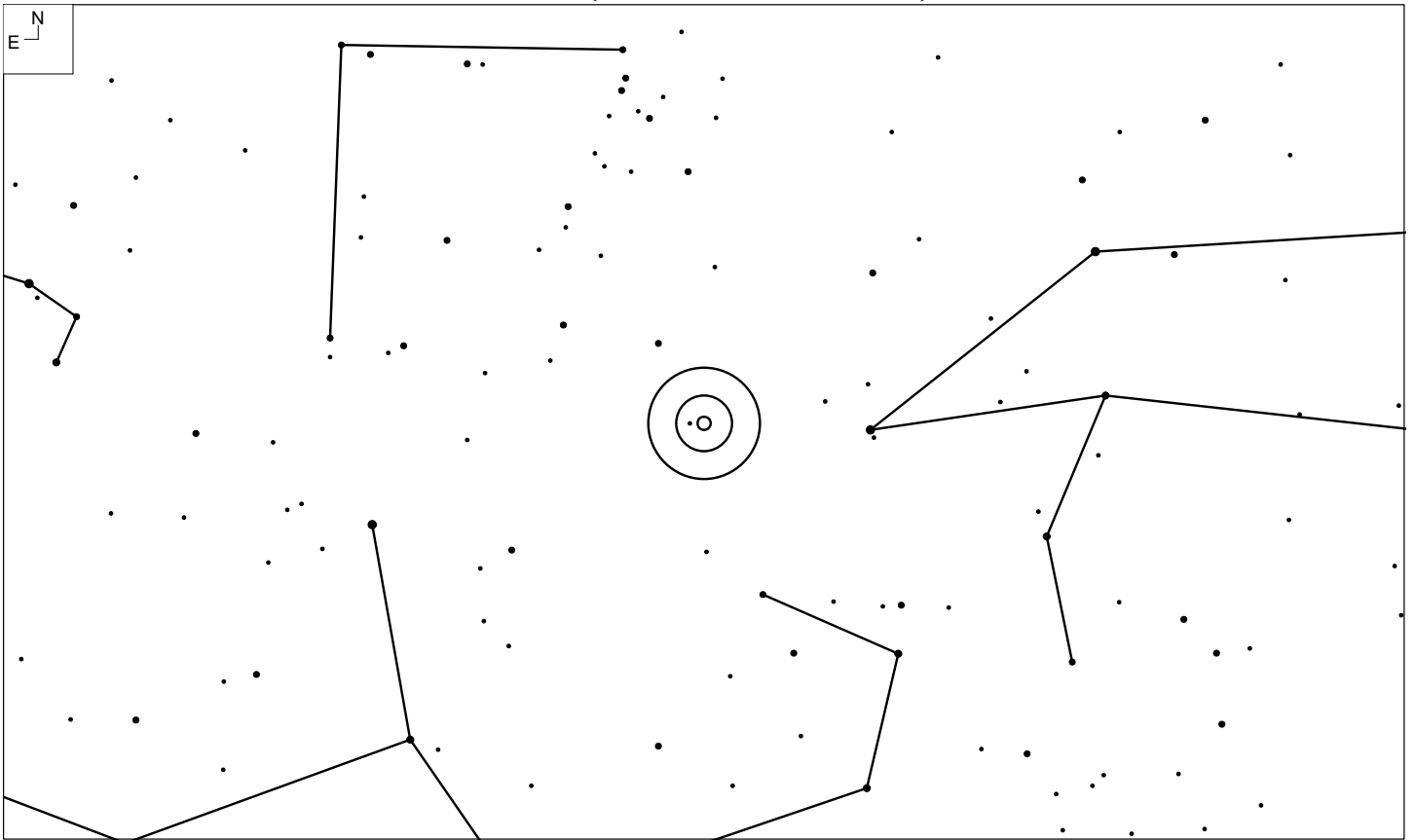
| Object | RA | Dec | Mag | Size | Type |
|----------------|------------|-----------|------|------------|--------|
| MAC 1046+1145 | 10 46 38.9 | +11 45 54 | 14.5 | 0.5 x 0.5' | Galaxy |
| MAC 1047+1150A | 10 47 01.3 | +11 50 32 | 15.0 | 0.3 x 0.3 | Galaxy |

M97 (Ursa Major)



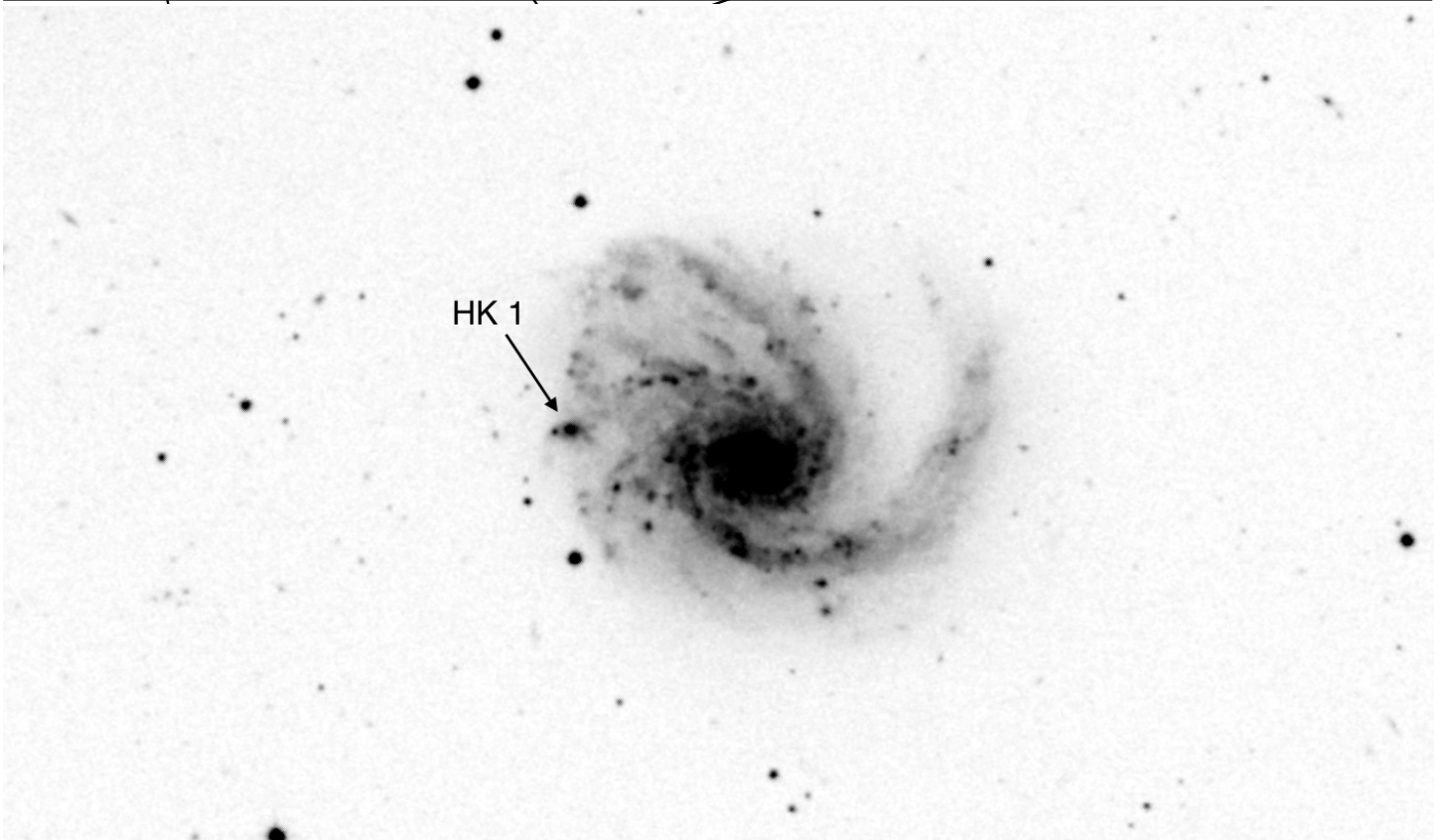
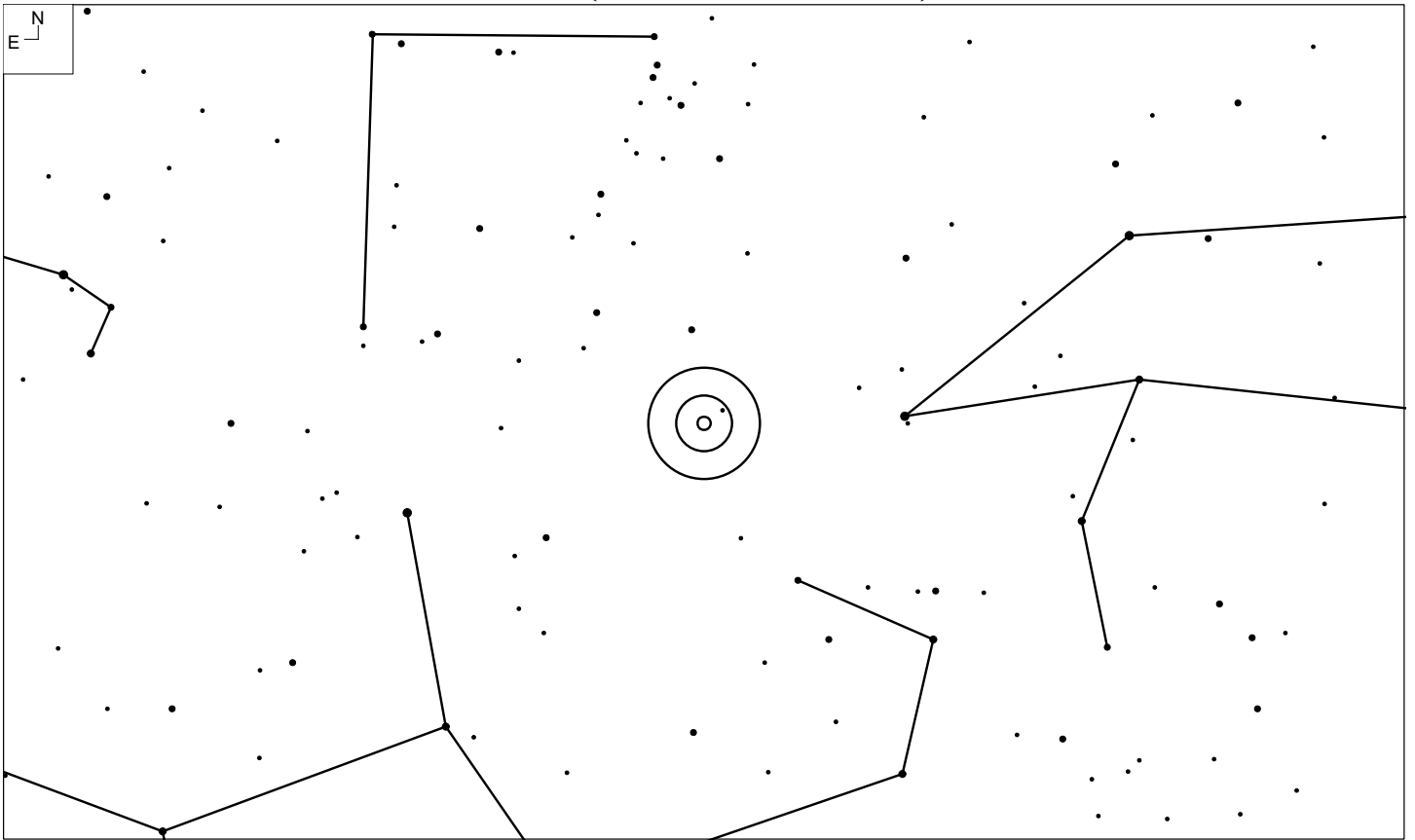
| Object | RA | Dec | Mag | Size | Type |
|--------------|------------|-----------|------|------------|--------|
| MAC 114+5505 | 11 14 46.8 | +55 05 32 | 16.0 | 0.4 x 0.1' | Galaxy |
| MCG+9-9-14 | 11 15 58.3 | +54 57 37 | 16.1 | 0.8 x 0.3' | Galaxy |

M98 (Coma Berenices)



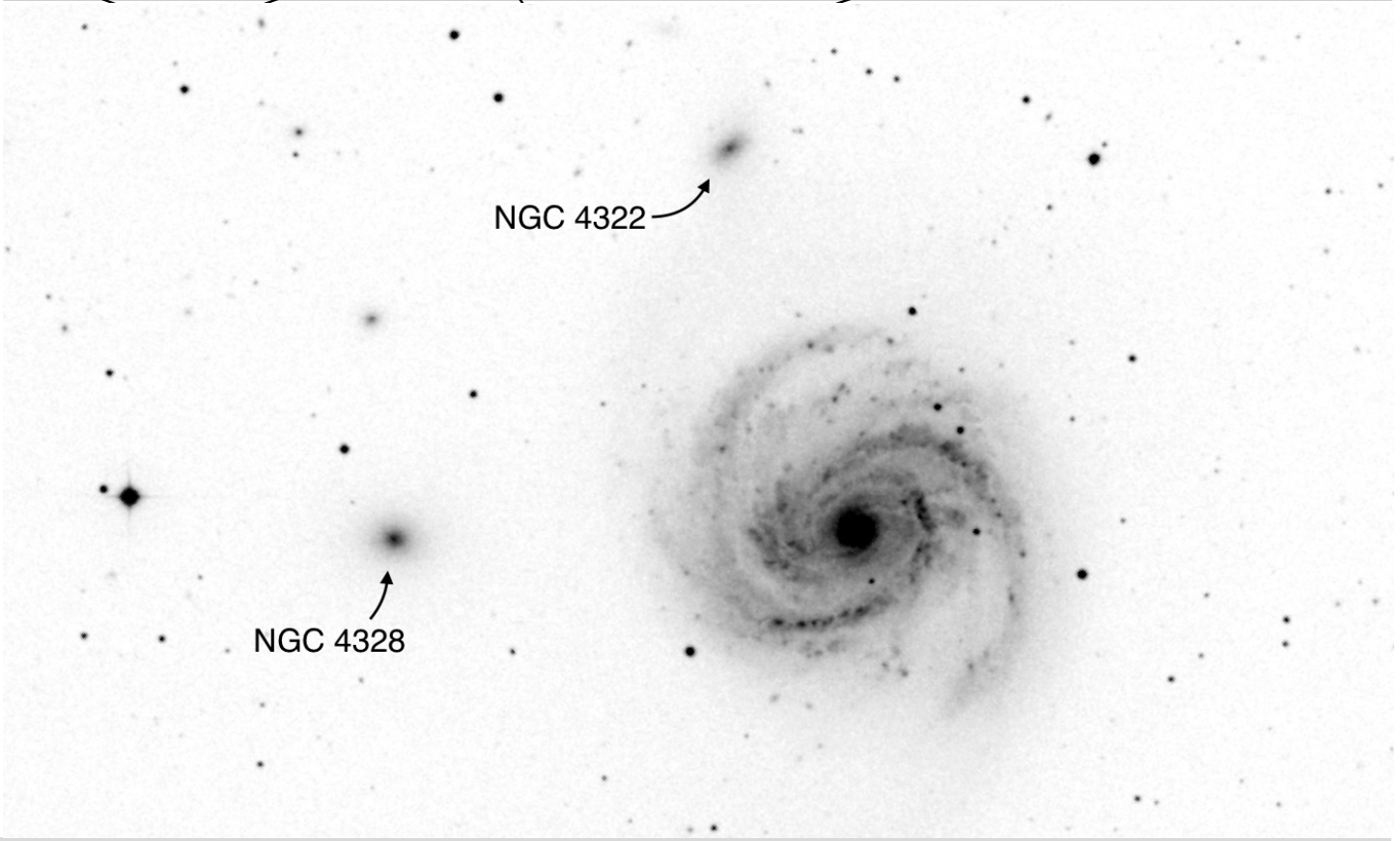
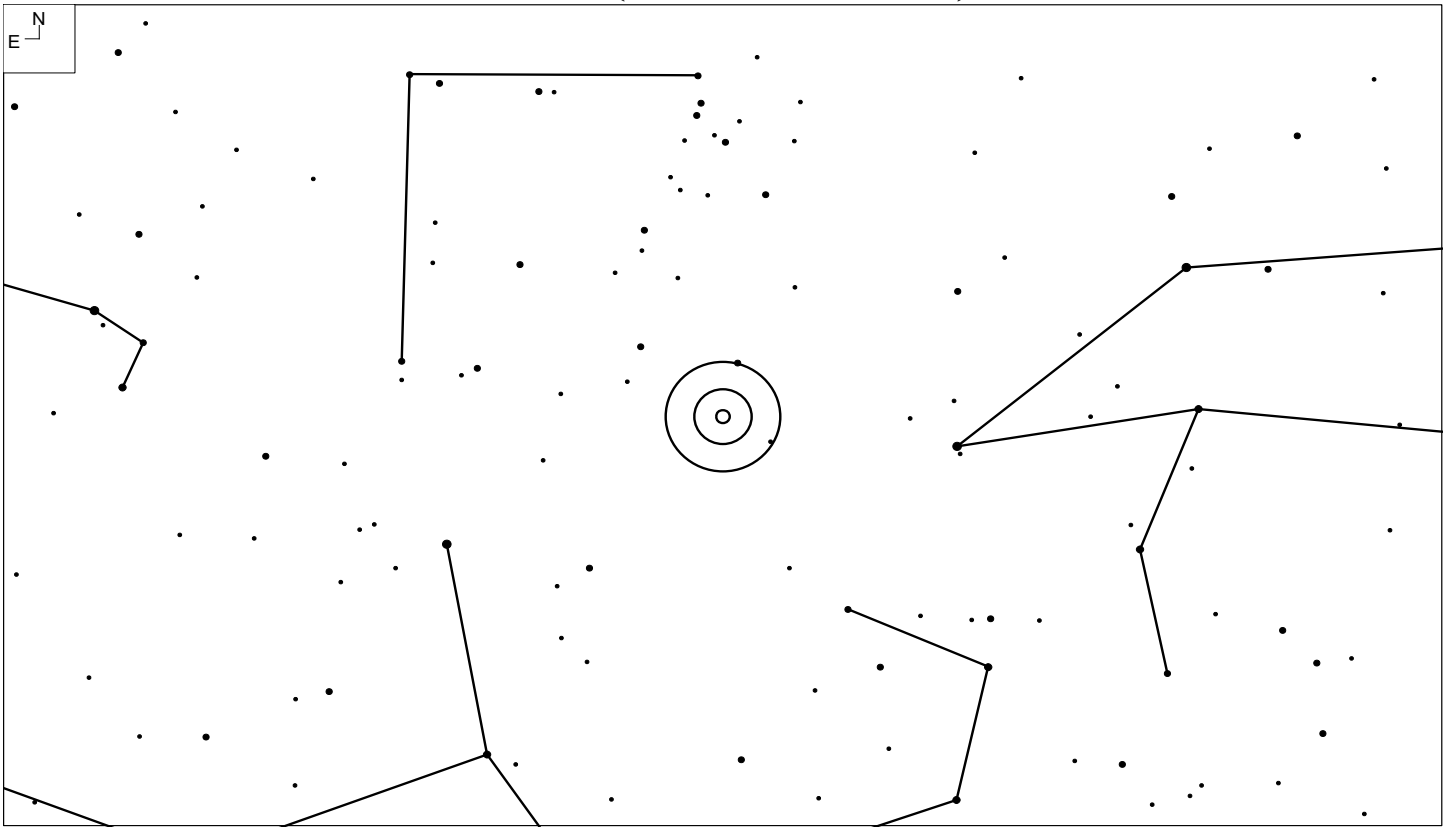
| Object | RA | Dec | Mag | Size | Type |
|----------|------------|-----------|-------|------------|--------|
| NGC 4186 | 12 14 06.5 | +14 33 33 | 14.6p | 1.0 x 0.8' | Galaxy |

M99 (Coma Berenices)



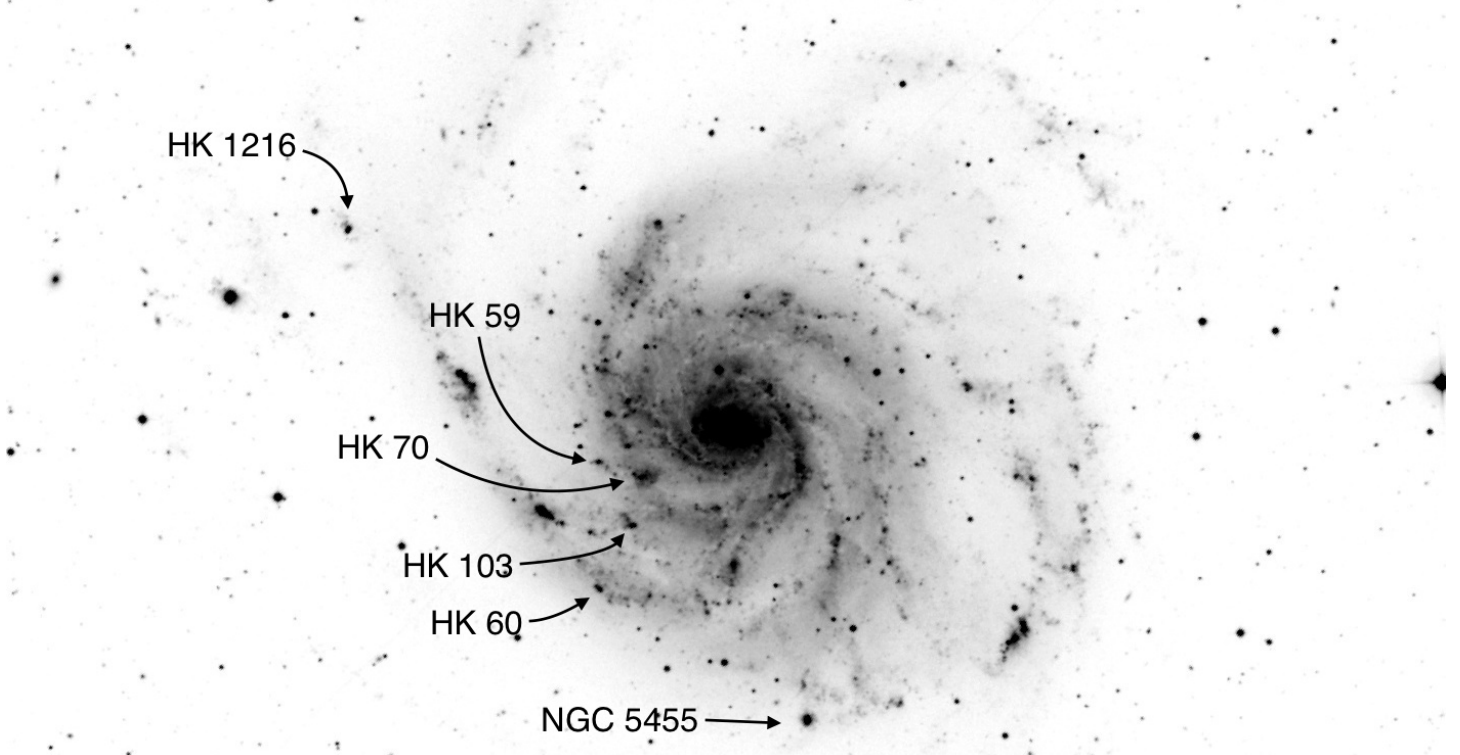
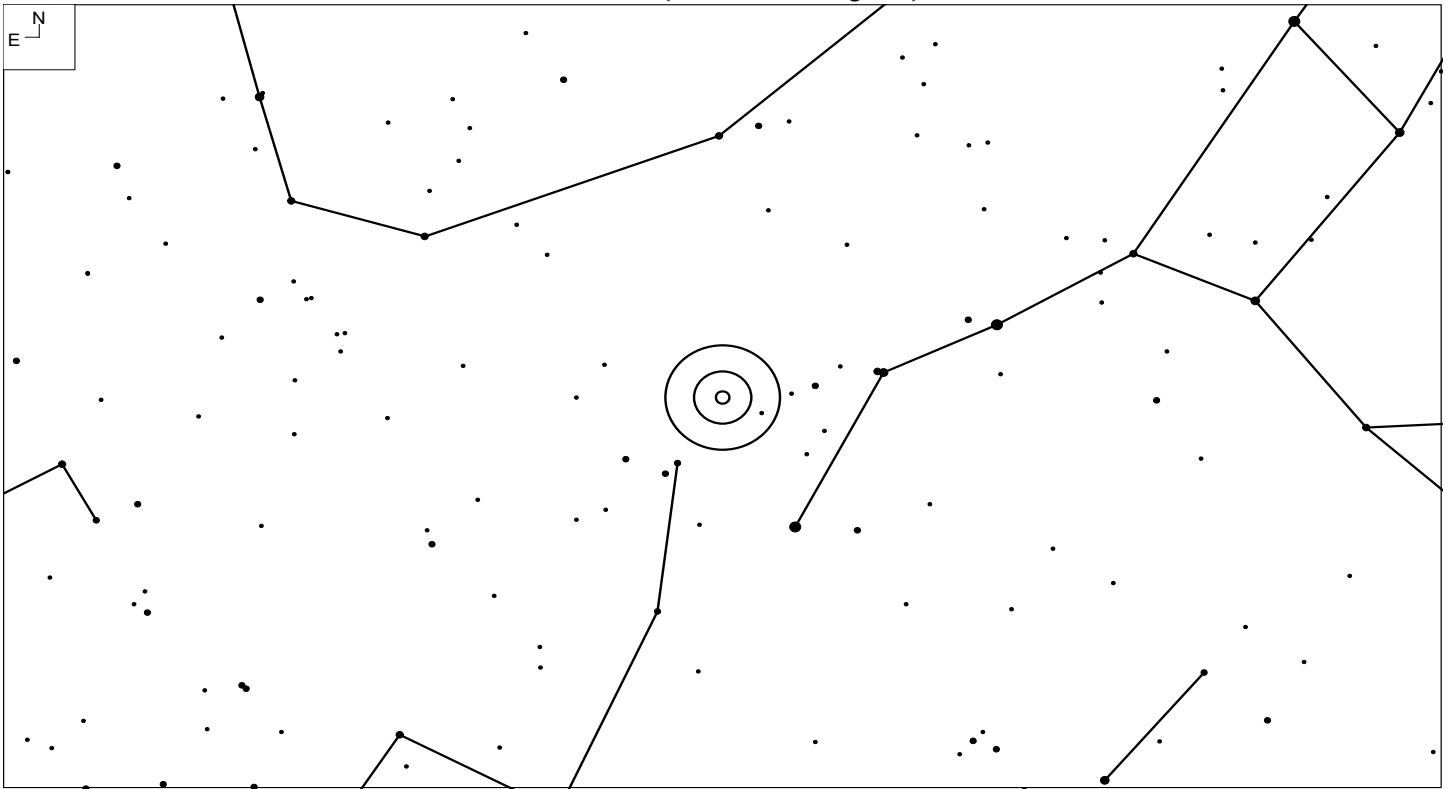
| Object | RA | Dec | Mag | Size | Type |
|--------|------------|-----------|-----|------|------|
| HK 1 | 12 18 56.9 | +14 25 22 | - | - | HII |

M100 (Coma Berenices)



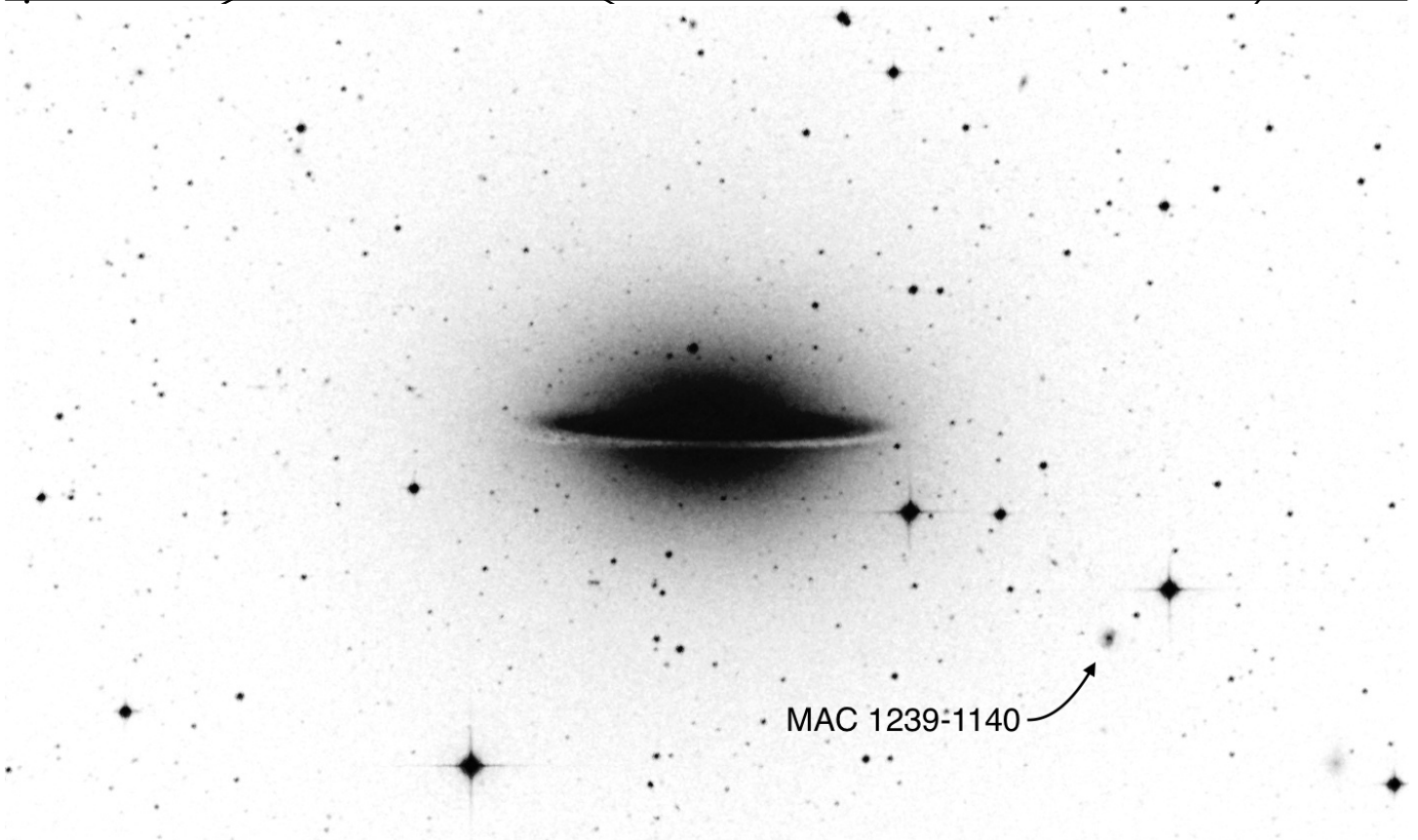
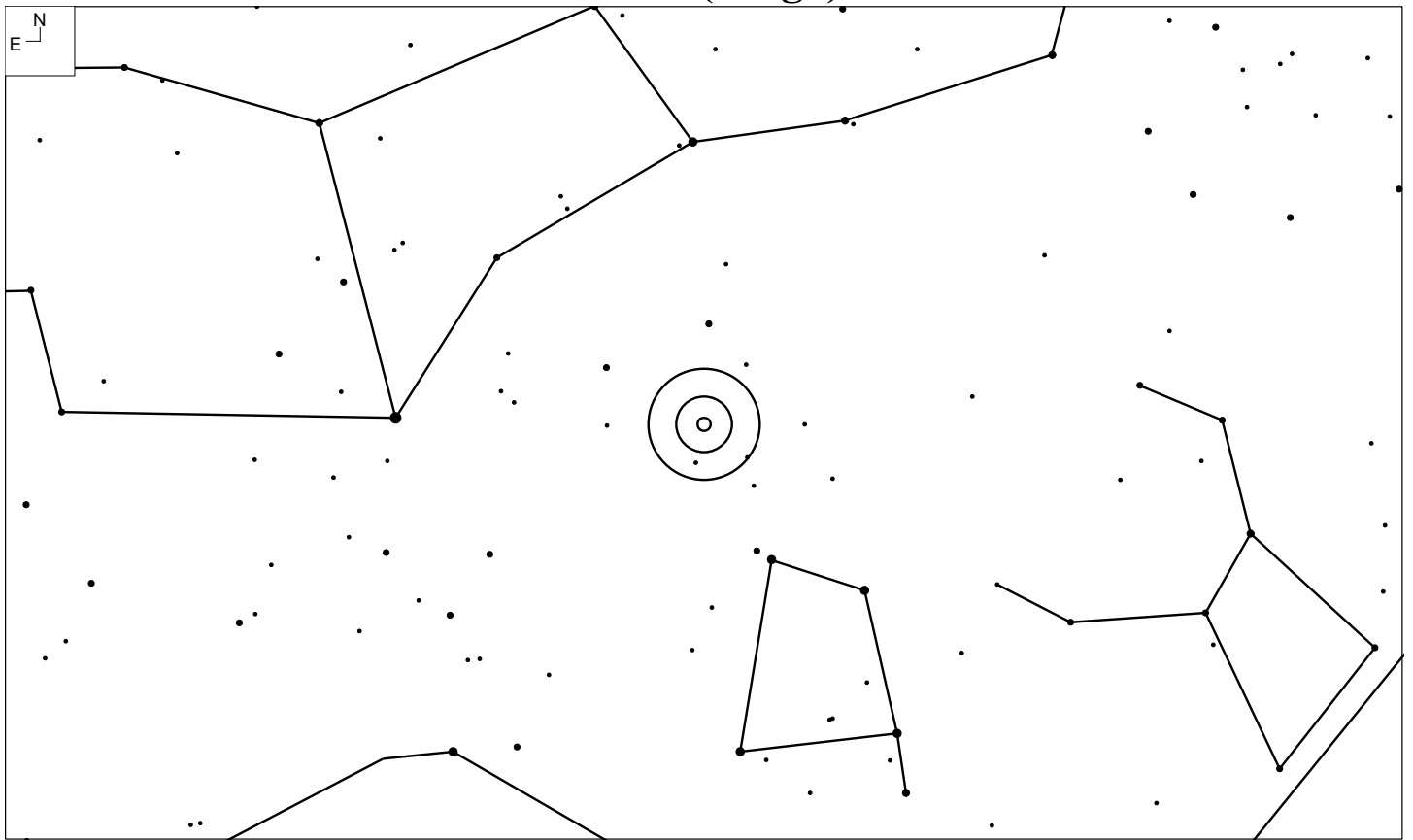
| Object | RA | Dec | Mag | Size | Type |
|----------|------------|-----------|-------|------------|--------|
| NGC 4322 | 12 23 01.7 | +15 54 21 | 14.0v | 1.2 x 0.8' | Galaxy |
| NGC 4328 | 12 23 20.0 | +15 49 11 | 14.0b | 1.3 x 0.9' | Galaxy |

M101 (Ursa Major)



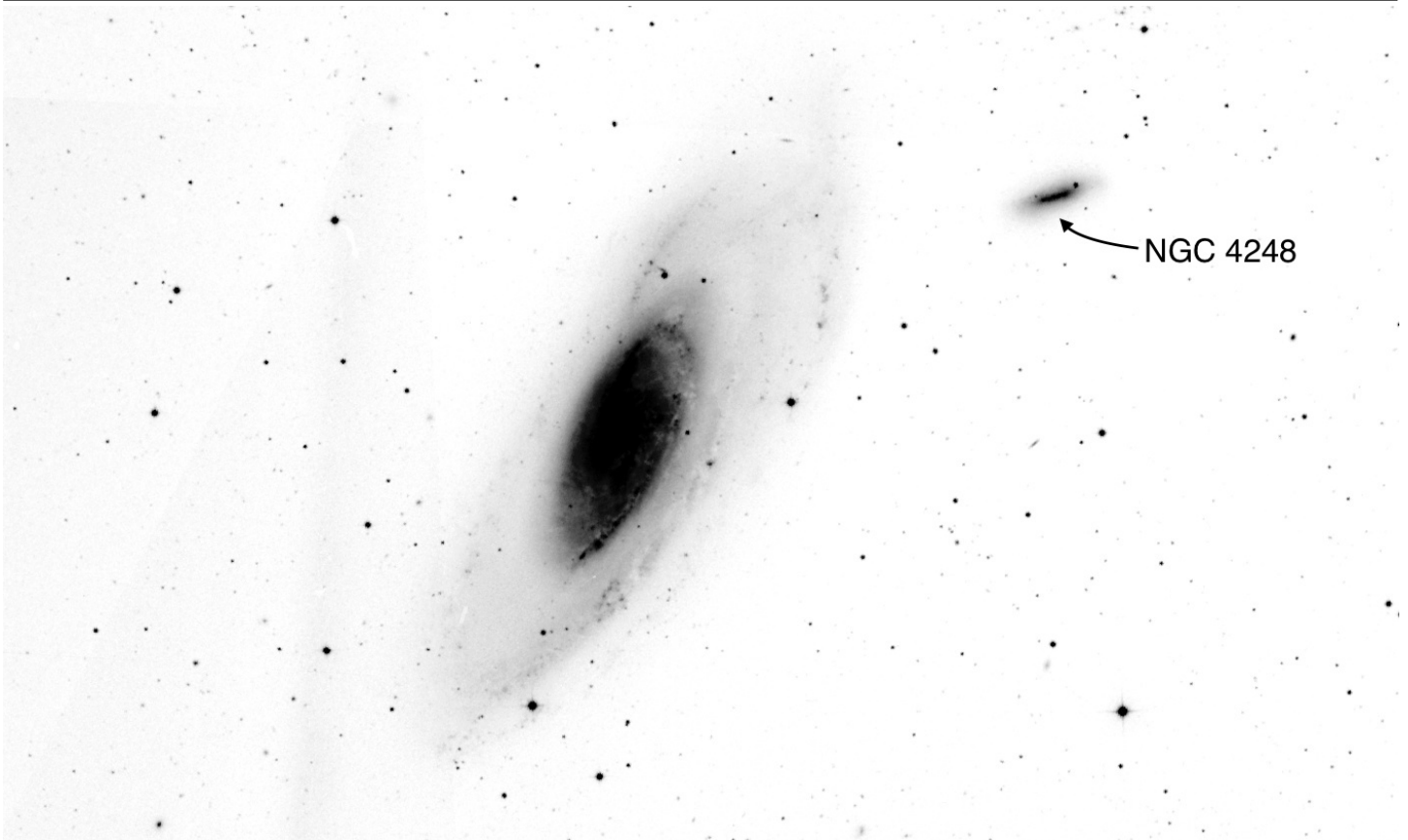
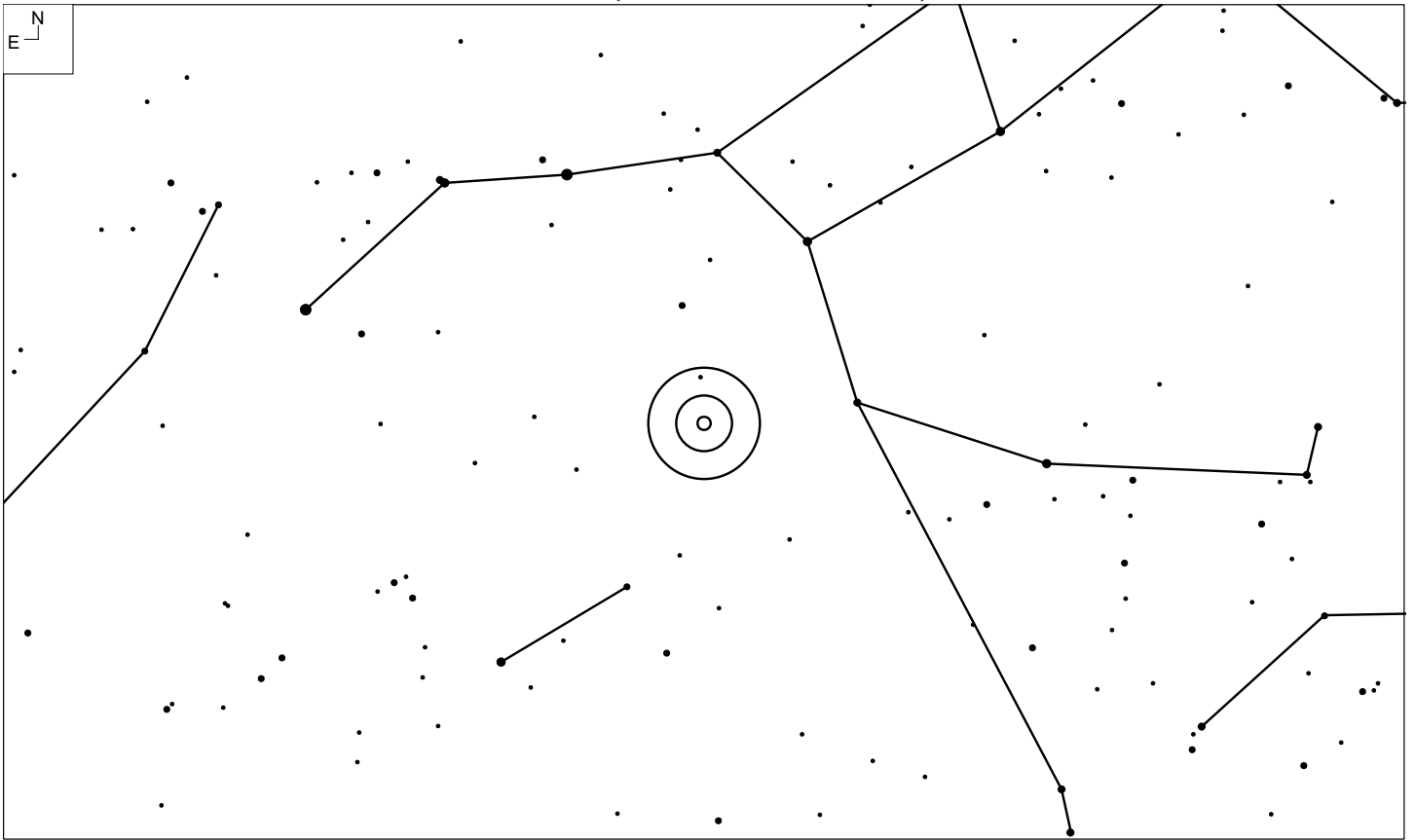
| Object | RA | Dec | Mag | Size | Type |
|-------------|------------|-----------|------|------------|--------|
| CGCG 272-18 | 14 01 16.0 | +54 25 07 | 14.9 | 1.0 X 0.5' | Galaxy |
| NGC 5455 | 14 03 01.4 | +54 14 25 | 15.3 | | III |
| HK 371 | 14 02 54.7 | +54 16 29 | 13.8 | | III |
| HK 70 | 14 03 26.1 | +54 19 51 | | | III |
| HK 103 | 14 03 27.6 | +54 18 46 | | | III |
| HK 60 | 14 03 32.6 | +54 17 23 | | | III |
| HK 59 | 14 03 32.7 | +54 20 10 | | | III |
| H 1216 | 14 04 11.2 | +54 25 21 | | | III |

M104 (Virgo)



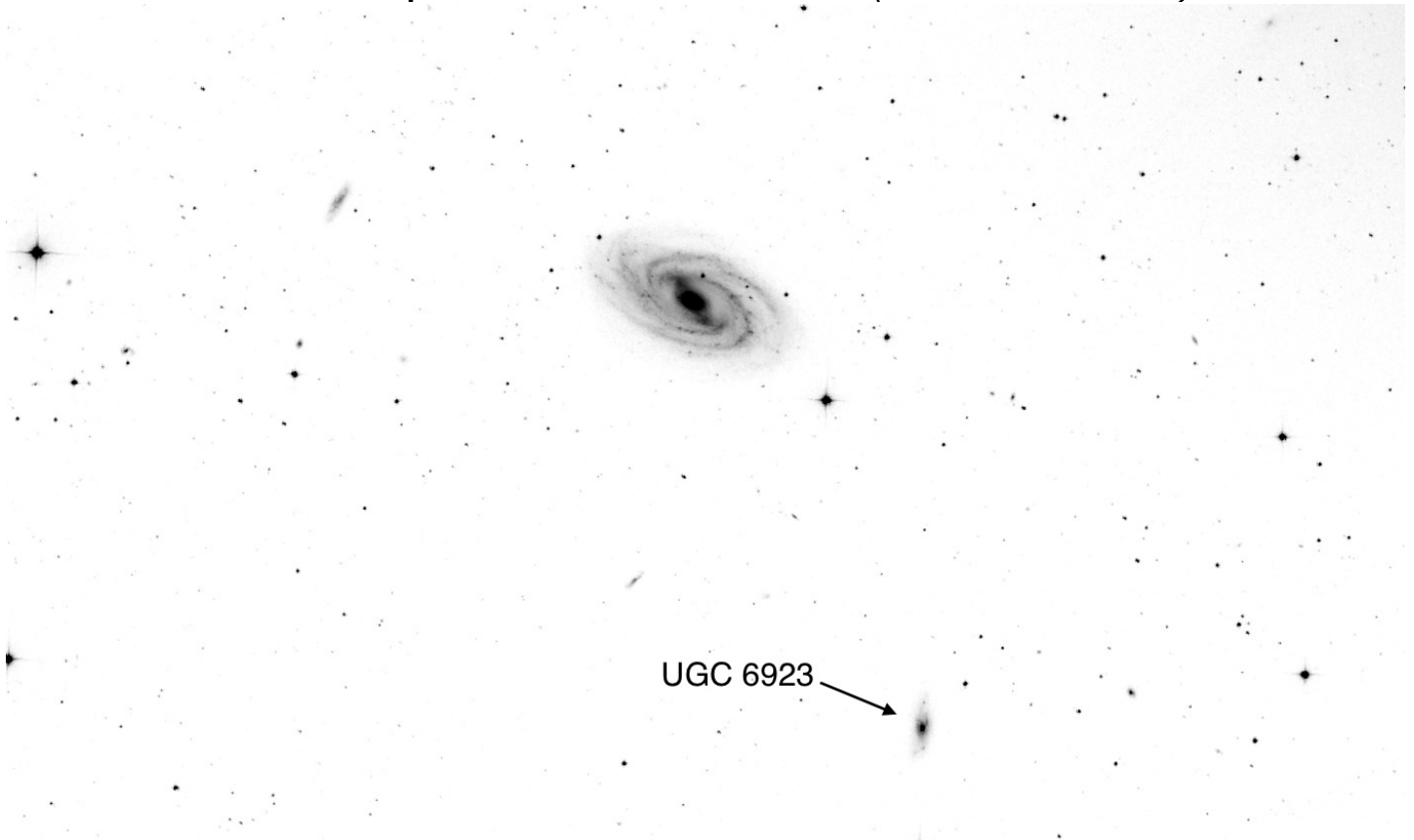
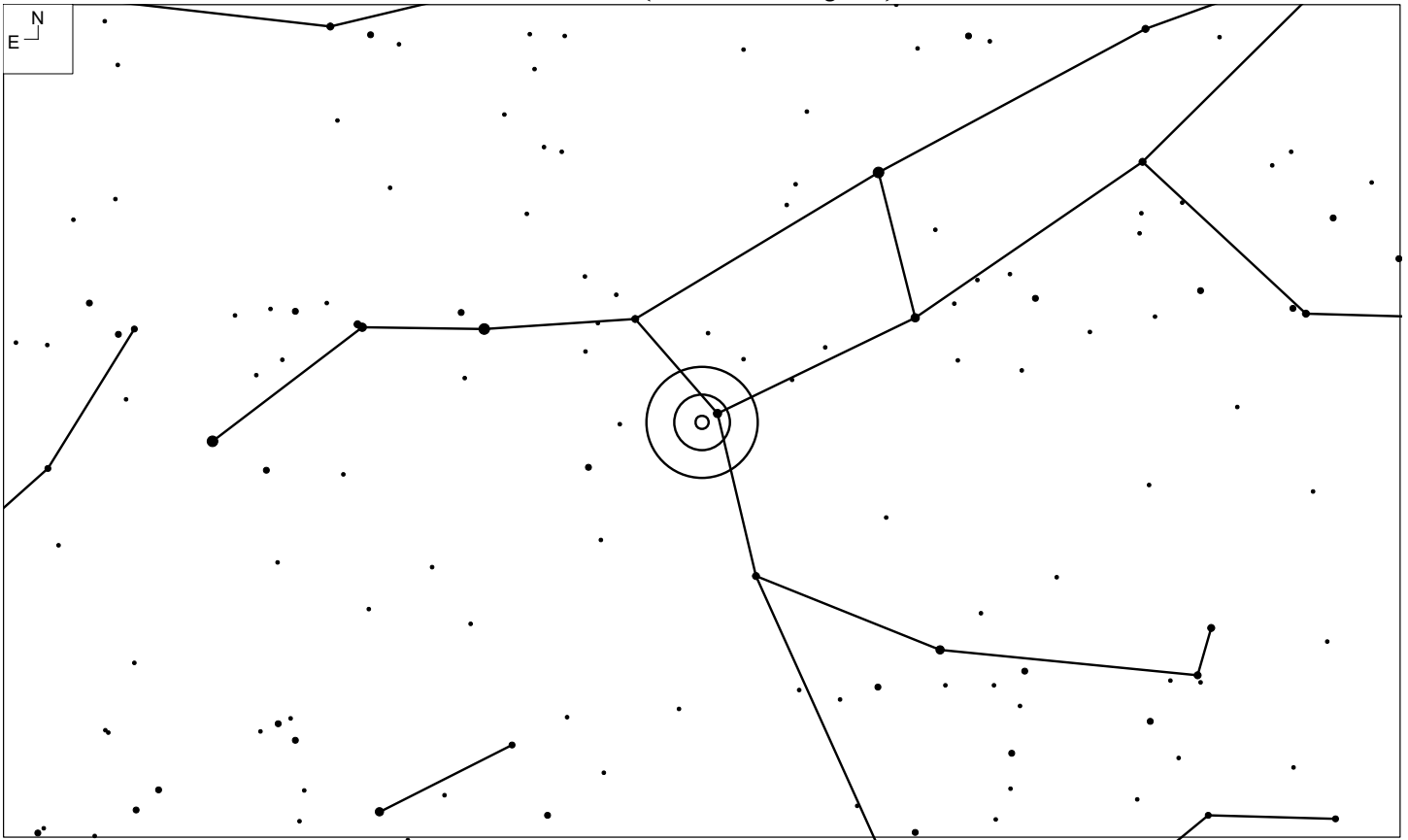
| Object | RA | Dec | Mag | Size | Type |
|---------------|------------|-----------|------|------------|--------|
| MAC 1239-1140 | 12 39 31.1 | -11 40 58 | 16.0 | 0.4 x 0.3' | Galaxy |

M106 (Canes Venatici)



| Object | RA | Dec | Mag | Size | Type |
|----------|------------|-----------|-------|------------|--------|
| NGC 4248 | 12 17 50.5 | +47 24 36 | 12.5v | 3.2 x 1.1' | Galaxy |

M109 (Ursa Major)



| Object | RA | Dec | Mag | Size | Type |
|----------|------------|-----------|-------|------------|--------|
| UGC 6923 | 11 56 49.7 | +53 09 36 | 13.9b | 2.7 x 0.9' | Galaxy |

2012: Anything Abell

Advanced Observing – The Texas Star Party - 2012

“Anything Abell”

(Observe any 20 of the following objects)

Abell Planetary Nebula:

| <u>Name:</u> | <u>RA – Dec.:</u> | <u>Const.</u> | <u>Mag.</u> | <u>Size</u> | <u>Class</u> | <u>Mag. C. Star</u> | <u>Urano 1</u> |
|--------------|-----------------------|---------------|-------------|-------------|--------------|---------------------|----------------|
| Abell 22 | 07 36 08.2 + 02 42 24 | CMi | 15.4 (P) | 2.1 x 1.4' | 3 | 19.5 | 229 |
| Abell 24 | 07 51 39.3 + 03 00 29 | CMi | 13.5 (V) | 6.0 x 5.5' | 4 + 3 | 17.1 | 230 |
| Abell 31 | 08 54 13.2 + 08 53 59 | Cnc | 12.0 (V) | 16.2' | 3a | 15.5 | 187 |
| Abell 33 | 09 39 09.1 – 02 48 32 | Hya | 12.6 (V) | 4.5' | 2b | 15.5 | 233 |
| Abell 35 | 12 53 41.4 – 22 51 42 | Hya | 12.7 (V) | 12.8' | 3a | 9.6 | 329 |
| Abell 36 | 13 40 41.3 – 19 52 57 | Vir | 13.0 (P) | 6.0 x 5.0' | 3b + 3a | 11.5 | 331 |
| Abell 37 | 14 04 25.9 – 17 13 40 | Vir | 13.9 (V) | 54" | 2c | 17.9 | 331 |
| Abell 43 | 17 53 32.2 + 10 37 25 | Oph | 14.6 (V) | 78" x 72" | 2c | 14.7 | 204 |
| Abell 46 | 18 31 18.6 + 26 56 11 | Lyr | 14.3 (V) | 60.0" | 3b + 2 | 14.9 | 160 |
| Abell 50 | 18 59 19.9 + 48 27 53 | Dra | 13.4 (V) | 36" x 30" | 2c | 20.0 | 83 |
| Abell 53 | 19 06 46.1 + 06 23 50 | Aql | 15.5 (V) | 31.0" | 4 | 20.9 | 206 |
| Abell 55 | 19 10 25.8 – 02 20 25 | Aql | 15.4 (P) | 50.0" | 3 | 20.5 | 251 |
| Abell 63 | 19 42 10.4 + 17 05 11 | Sge | 17.1 (P) | 34" | 2 | 14.6 | 190 |
| Abell 65 | 19 46 34.3 – 23 08 14 | Sgr | 13.2 (V) | 2.3' | 2a | 15.9 | 342 |
| Abell 66 | 19 57 31.8 – 21 36 37 | Sgr | 14.9 (P) | 4.5' | 3b | 17.3 | 342 |
| Abell 72 | 20 50 02.1 + 13 33 29 | Del | 13.8 (V) | 2.0 x 1.8' | 3b | 16.1 | 209 |

Abell Galaxy Clusters & Galaxy:

| <u>Name:</u> | <u>R.A. – Dec.:</u> | <u>Const.</u> | <u>Mag.–10th</u> | <u>Size</u> | <u>Class</u> | <u>#Galaxies</u> | <u>z</u> | <u>M.LYrs</u> | <u>Urano 1</u> |
|--------------|-----------------------|---------------|-----------------------------|-------------|--------------|------------------|----------|---------------|----------------|
| AGC 779 | 09 19 48.0 + 33 46 00 | Lyn | 13.8 | 50.4' | O 1 I-II | 32 | .0230 | 316.1 | 103 |
| AGC 1016 | 10 27 00.0 + 10 58 00 | Leo | 15.4 | 22.4' | O 3 | 37 | .0322 | 433.3 | 190 |
| AGC 1142 | 11 00 54.0 + 10 32 00 | Leo | 15.4 | 16.8' | O 3 II-III | 35 | .0360 | 484.7 | 191 |
| AGC 1228 | 11 21 30.0 + 34 19 00 | Uma | 13.8 | 50.4' | 1 1 II-III | 50 | .0365 | 491.2 | 106 |
| AGC 1314 | 11 34 48.0 + 49 02 00 | Uma | 13.9 | 28.0' | O 1 III | 44 | .0338 | 459.1 | 73 |
| AGC 1318 | 11 36 24.0 + 54 57 00 | Uma | 15.0 | 25.8' | 1 3 II | 56 | .0340 | 459.1 | 47 |
| AGC 1367 | 11 44 30.0 + 19 50 00 | Leo | 13.5 | 100.8' | 2 1 II-III | 117 | .0214 | 289.7 | 147 |
| NGC4235 | 12 17 09.9 + 07 11 28 | Vir | 12.6 (B) | 4.1' x 0.8' | SA()a sp | 1 | | | 193 |
| AGC 1631 | 12 52 48.0 – 15 26 00 | Crv | 15.4 | 33.6' | O 3 I | 34 | .0466 | 624.2 | 284 |
| AGC 1736 | 13 26 54.0 – 27 06 00 | Hya | 14.8 | 39.2' | O 2 III | 41 | .0461 | 617.9 | 330 |
| AGC 3565 | 13 36 42.0 – 33 58 00 | Cen | 13.7 (V) | 56.0' | 1 1 I | 64 | -- | | 370 |
| AGC 1809 | 13 53 18.0 + 05 09 00 | Vir | 15.8 | 16.8' | 1 4 II | 78 | .0790 | 1043.2 | 196 |
| AGC 1836 | 14 01 42.0 – 11 36 00 | Vir | 15.7 | 14.6' | O 4 II | 41 | .0367 | 497.5 | 286 |
| AGC 2052 | 15 16 48.0 + 07 00 00 | Ser | 15.0 | 22.4' | O 3 I-II | 41 | .0353 | 487.2 | 199 |
| AGC 2063 | 15 23 00.0 + 08 38 00 | Ser | 15.1 | 22.4' | 1 3 II | 63 | .0355 | 478.2 | 199 |
| AGC 2152 | 16 05 24.0 + 16 26 00 | Her | 13.8 | 37.0' | 1 1 III | 60 | .0370 | 497.5 | 200 |
| AGC 2162 | 16 12 30.0 + 29 32 00 | CrB | 13.7 | 56.0' | O 1 II-III | 37 | .0318 | 433.3 | 113 |
| AGC 2199 | 16 28 36.0 + 39 31 00 | Her | 13.9 | 89.6' | 2 1 I | 88 | .0299 | 417.2 | 80 |
| AGC 2249 | 17 09 42.0 + 34 27 00 | Her | 15.4 | 16.8' | O 3 III | 39 | .0802 | 1060.8 | 115 |

Good Luck –

($z = H_0 = 71 \text{ km/s/Mpc}$)

Charts Source: “MegaStar 5”

Larry Mitchell - Houston Astronomical Society

Planetary Nebula – Alvin Huey / Steven Hynes

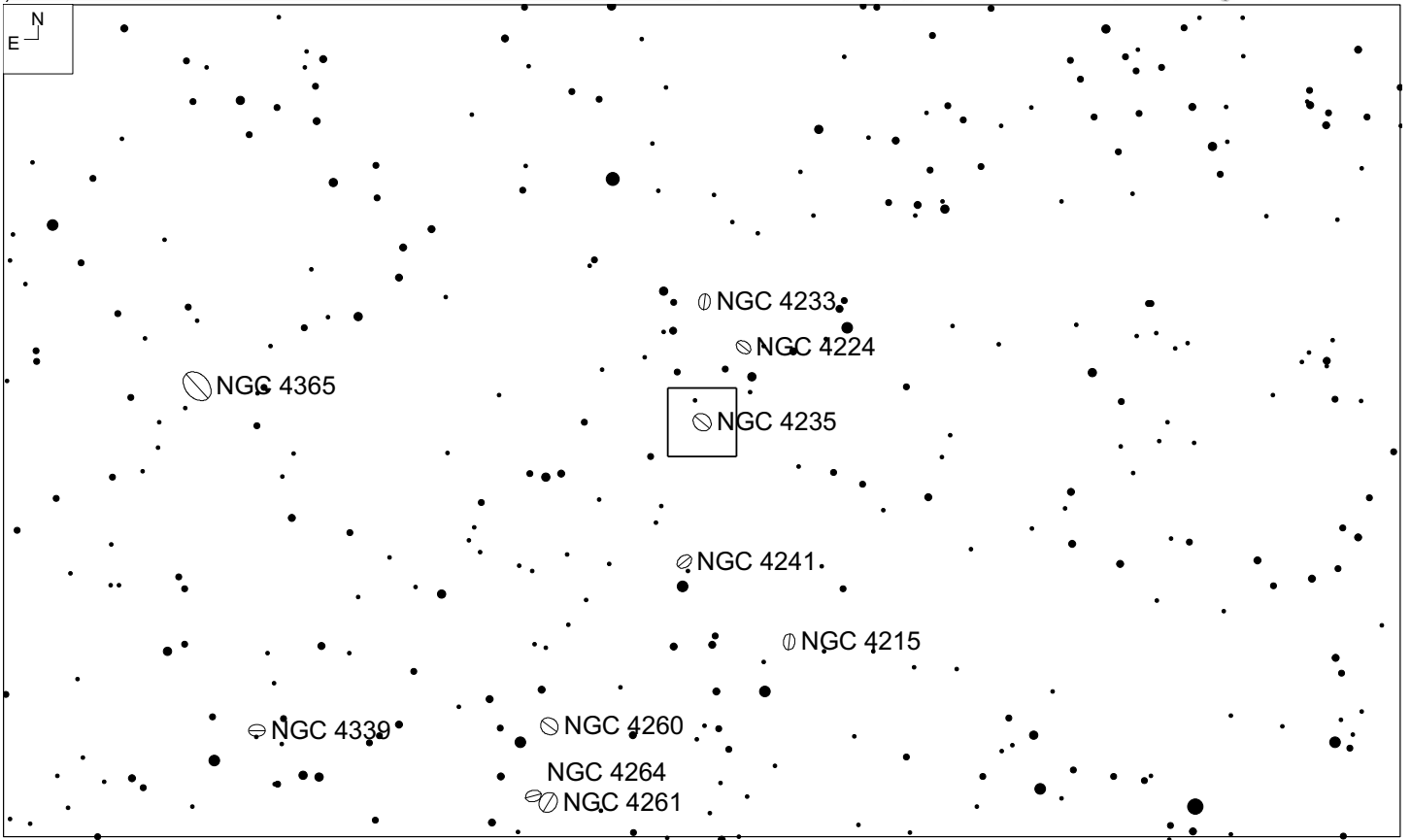
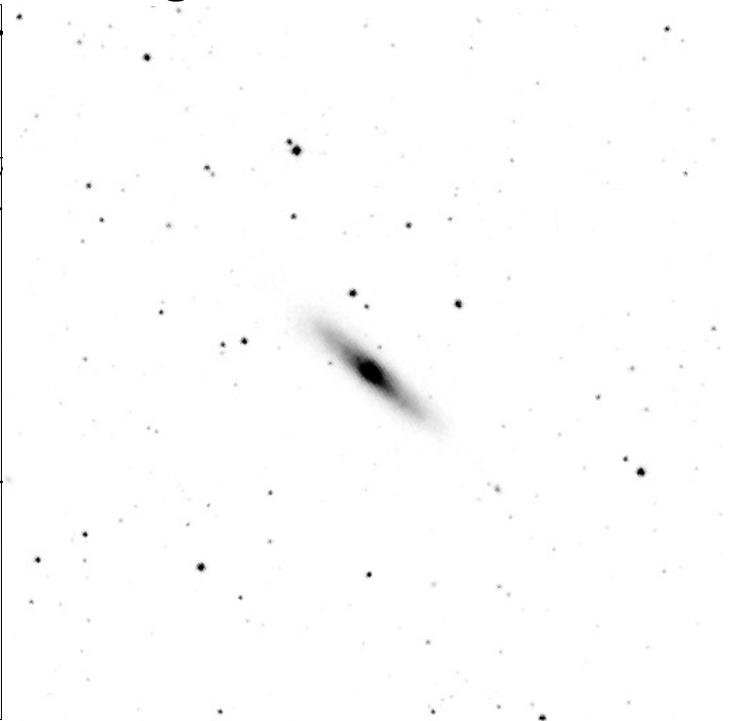
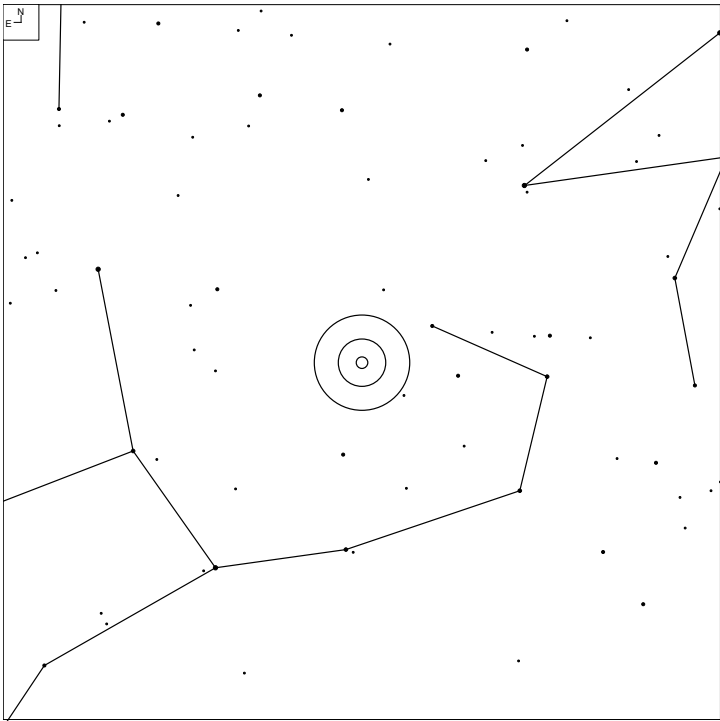
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|-------------|-----------------|
| 72 | Abell 22 |
| 74 | Abell 24 |
| 66 | Abell 31 |
| 120 | Abell 33 |
| 124 | Abell 35 |
| 192 | Abell 36 |
| 194 | Abell 37 |
| 144 | Abell 43 |
| 134 | Abell 46 |
| 112 | Abell 50 |
| 44 | Abell 53 |
| 46 | Abell 55 |
| 178 | Abell 63 |
| 186 | Abell 65 |
| 188 | Abell 66 |
| 110 | Abell 72 |
| 170 | AGC 779 |
| 180 | AGC 1016 |
| 188 | AGC 1142 |
| 240 | AGC 1228 |
| 248 | AGC 1314 |
| 252 | AGC 1318 |
| 192 | AGC 1367 |
| See below | NGC 4235 |
| 260 | AGC 1631 |
| 220 | AGC 1736 |
| 308 | AGC 3565 |
| See below | AGC 1809 |
| See below | AGC 1836 |
| 324 | AGC 2052 |
| 328 | AGC 2063 |
| 356 | AGC 2152 |
| 344 | AGC 2162 |
| 364 | AGC 2199 |
| See below | AGC 2249 |

See the corresponding page number for Abell Planetary Nebula Observing Guide and Abell Galaxy Clusters

Abell = Abell Planetary Nebulae: <https://www.faintfuzzies.com/AbellGuide2.html>

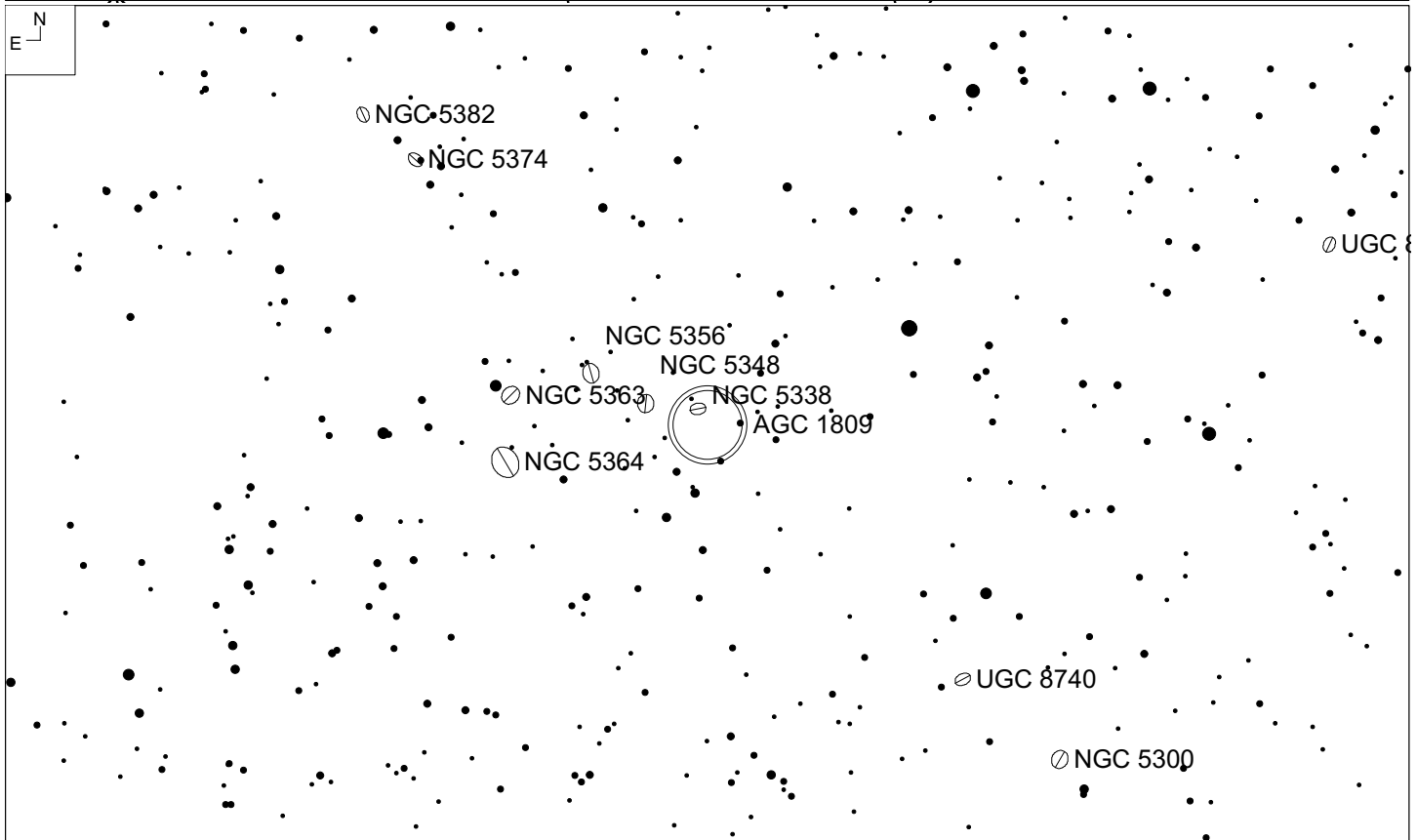
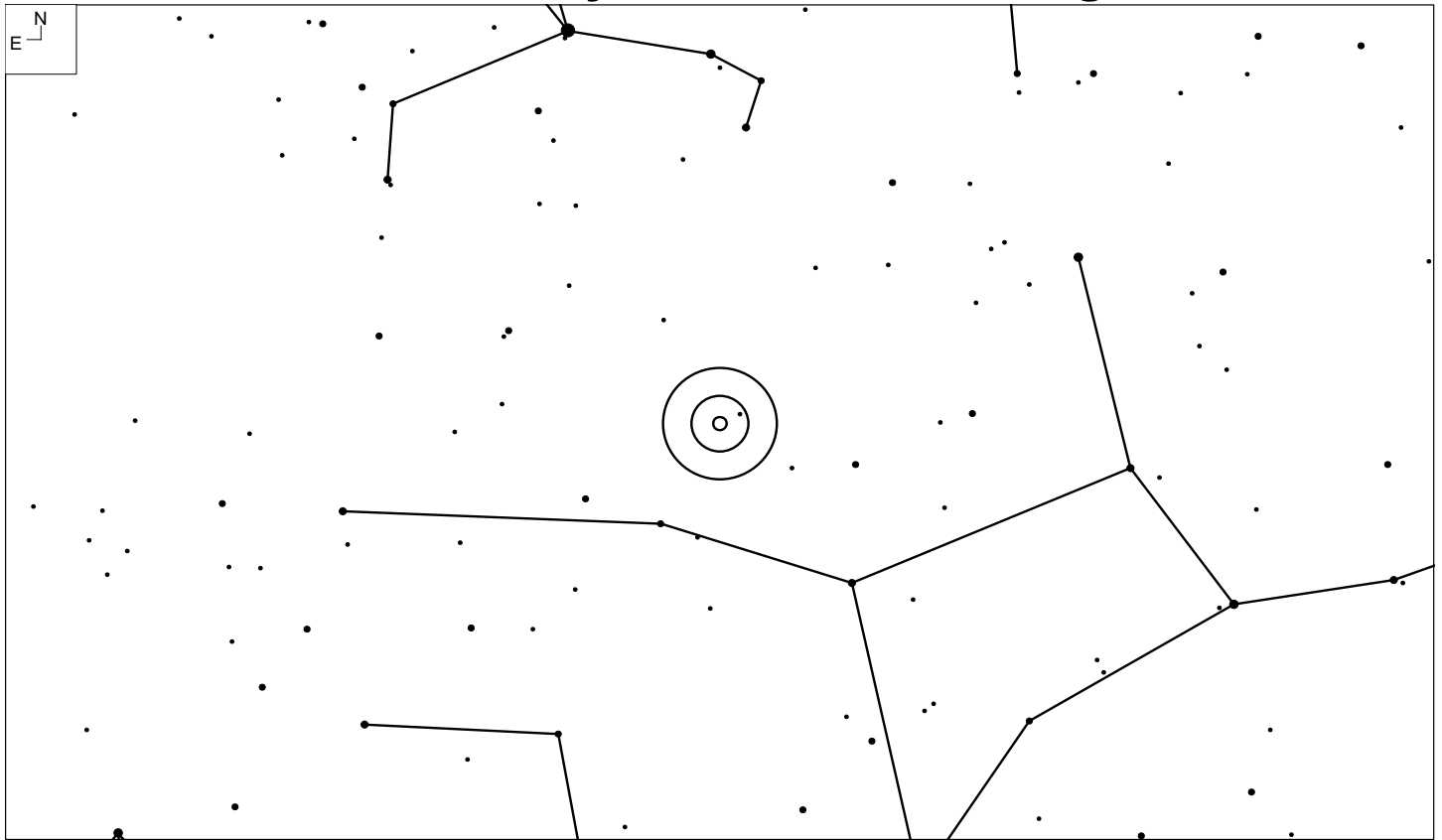
AGC = Abell Galaxy Clusters: <https://www.faintfuzzies.com/Files/AbellGalaxyClusters%20v2.pdf>

NGC 4235 – Virgo



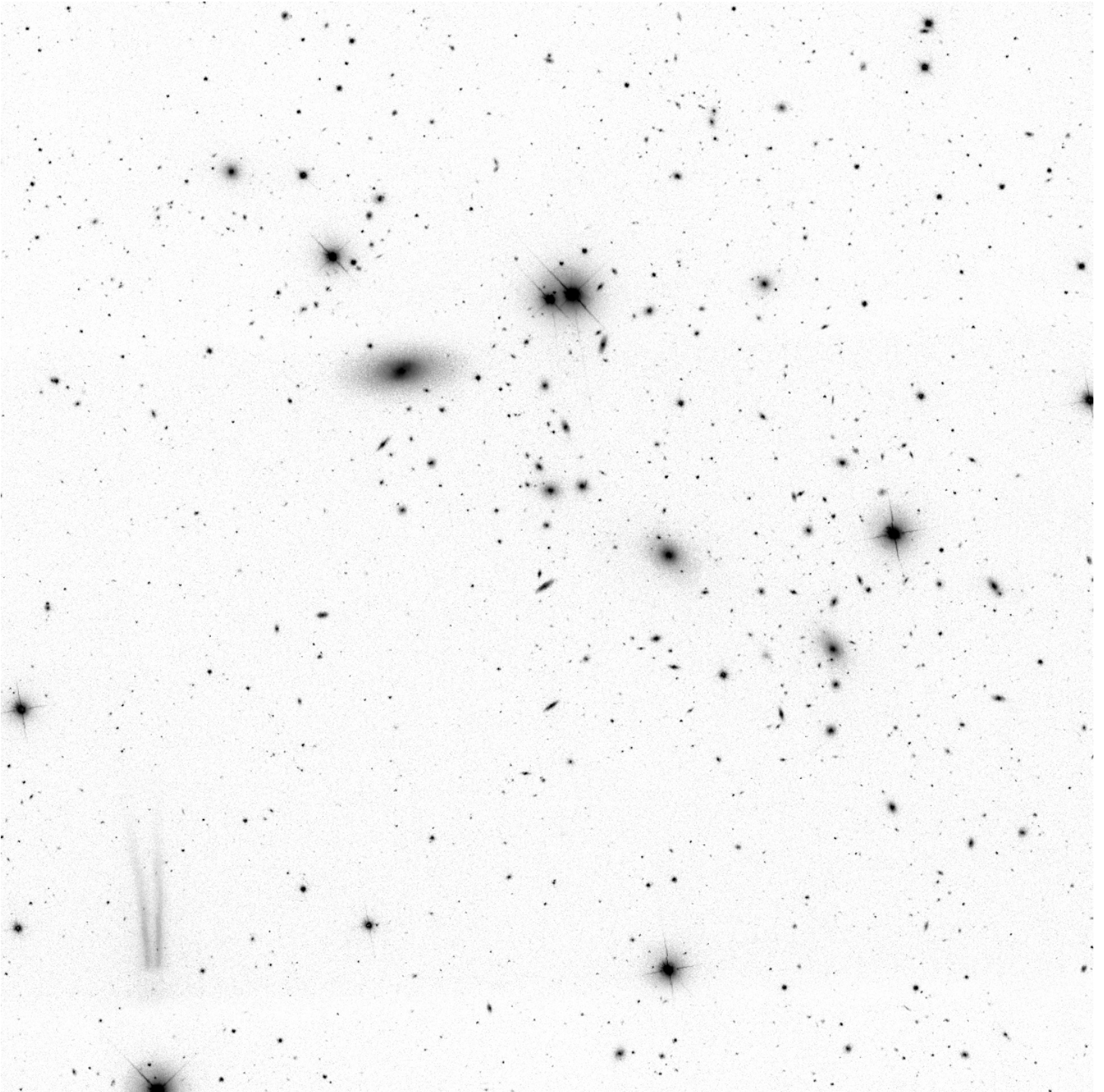
| RA | Dec | Mag ₁₀ | Size | Urano 2 | iDSA |
|------------|-----------|-------------------|------------|---------|------|
| 12 17 09.9 | +07 11 28 | 12.6b | 4.1 x 0.8' | 91 | 57 |

Abell Galaxy Cluster 1809 – Virgo

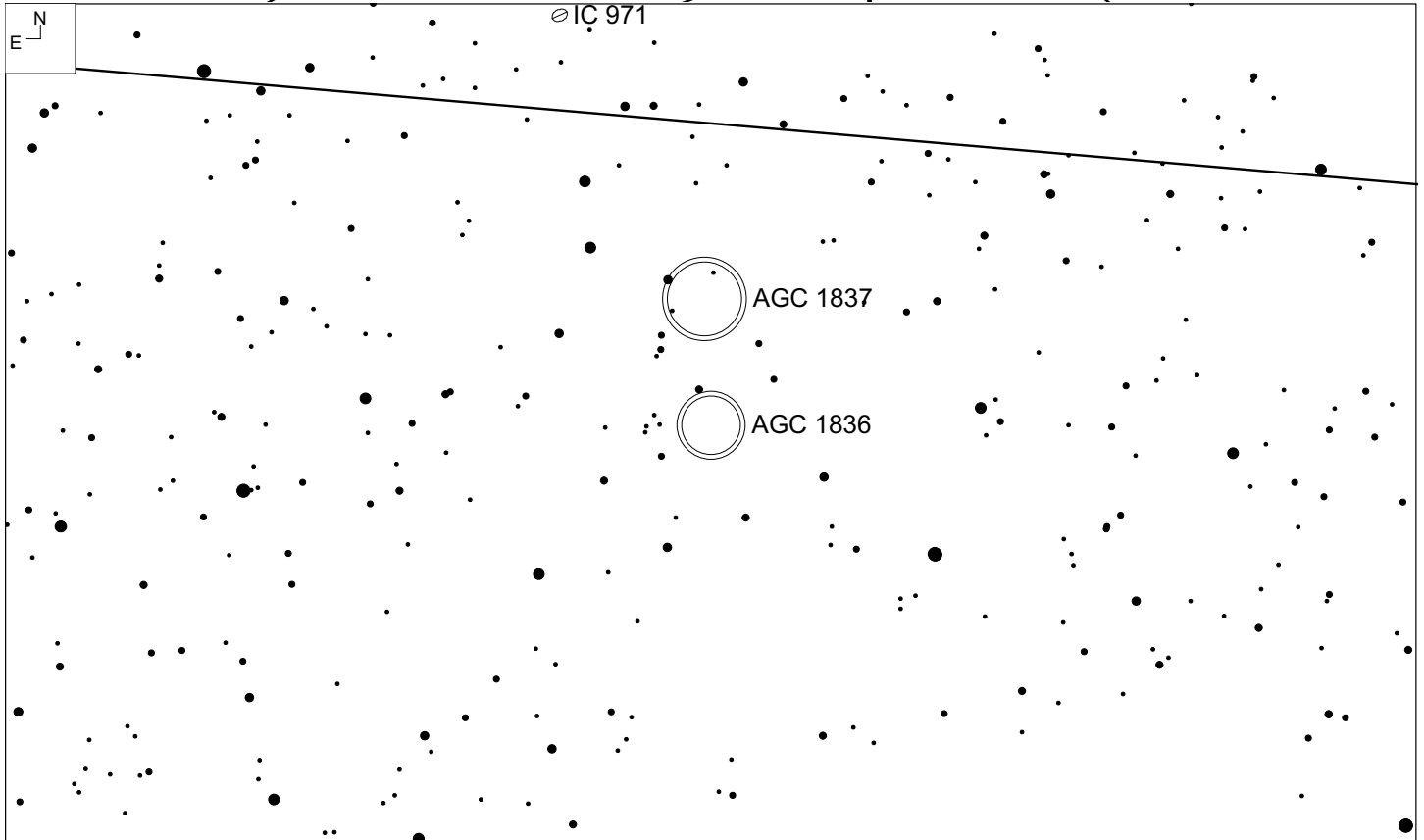
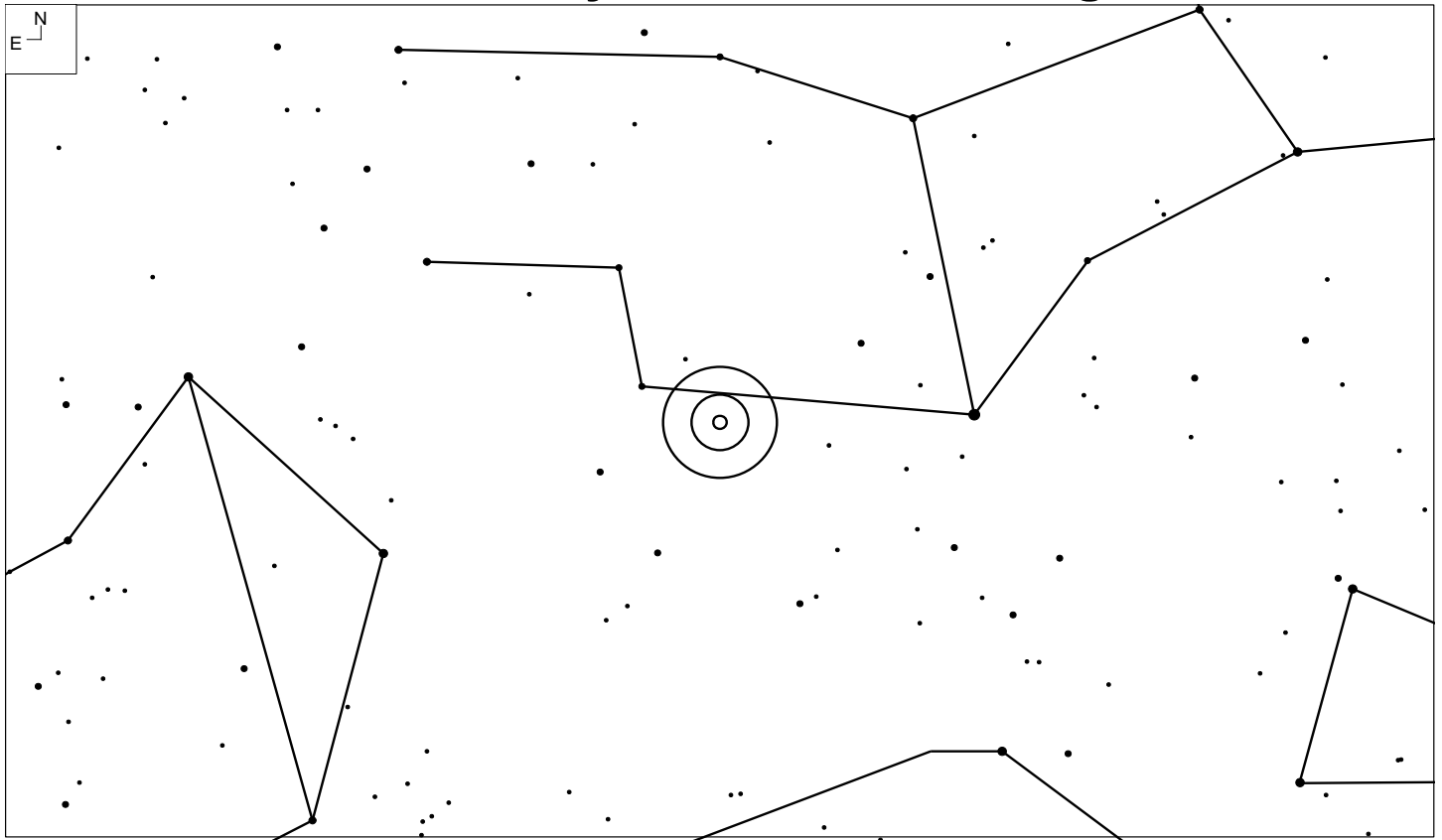


| RA | Dec | Mag ₁₀ | # of galaxies | Size | Class | Urano 2 | iDSA |
|------------|-----------|-------------------|---------------|-------|--------|---------|------|
| 13 53 18.0 | +05 09 00 | 15.8 | 78 | 16.8' | 1 4 II | 109 | 57 |

Abell Galaxy Cluster 1809 – Virgo

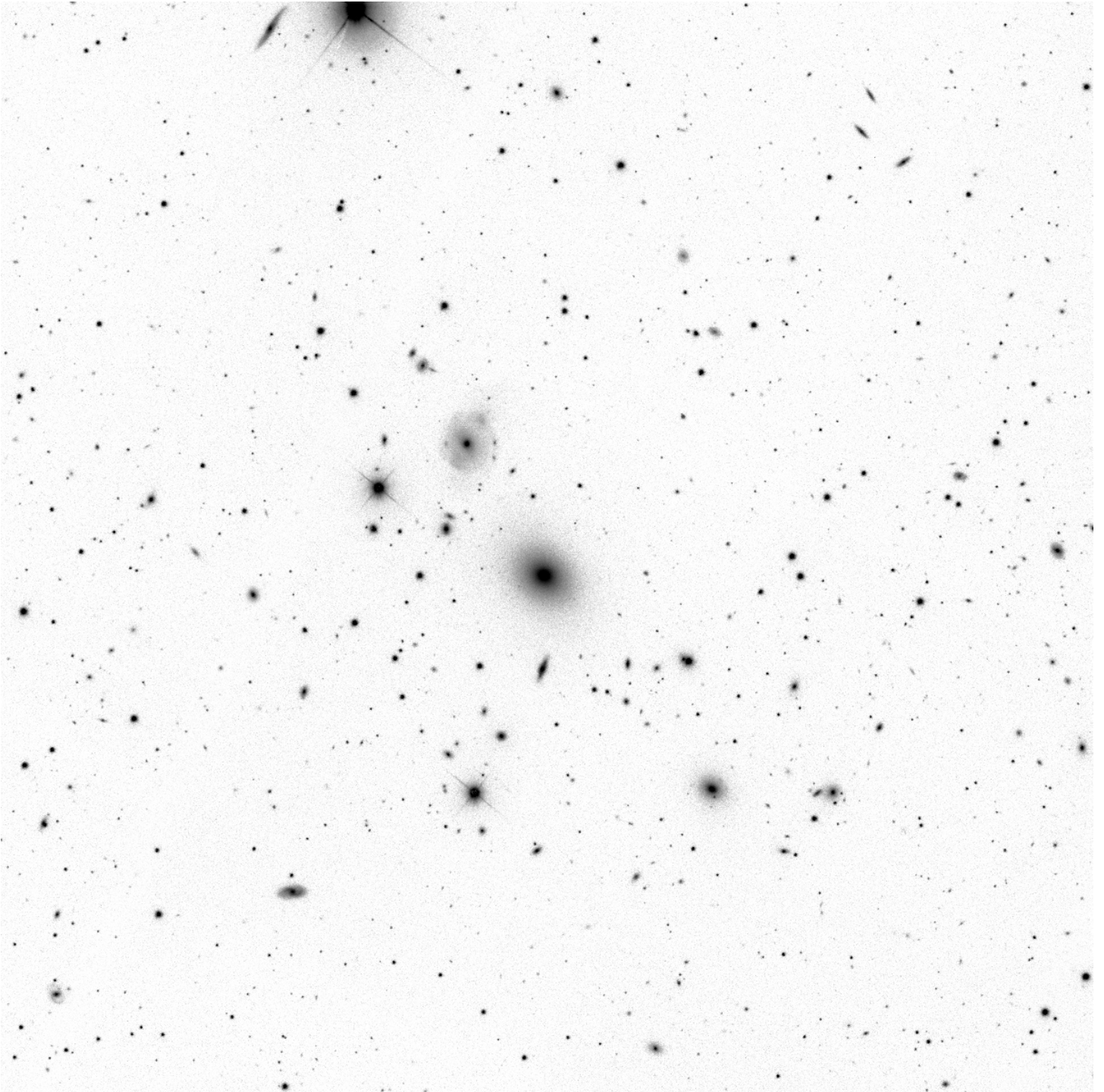


Abell Galaxy Cluster 1836 – Virgo

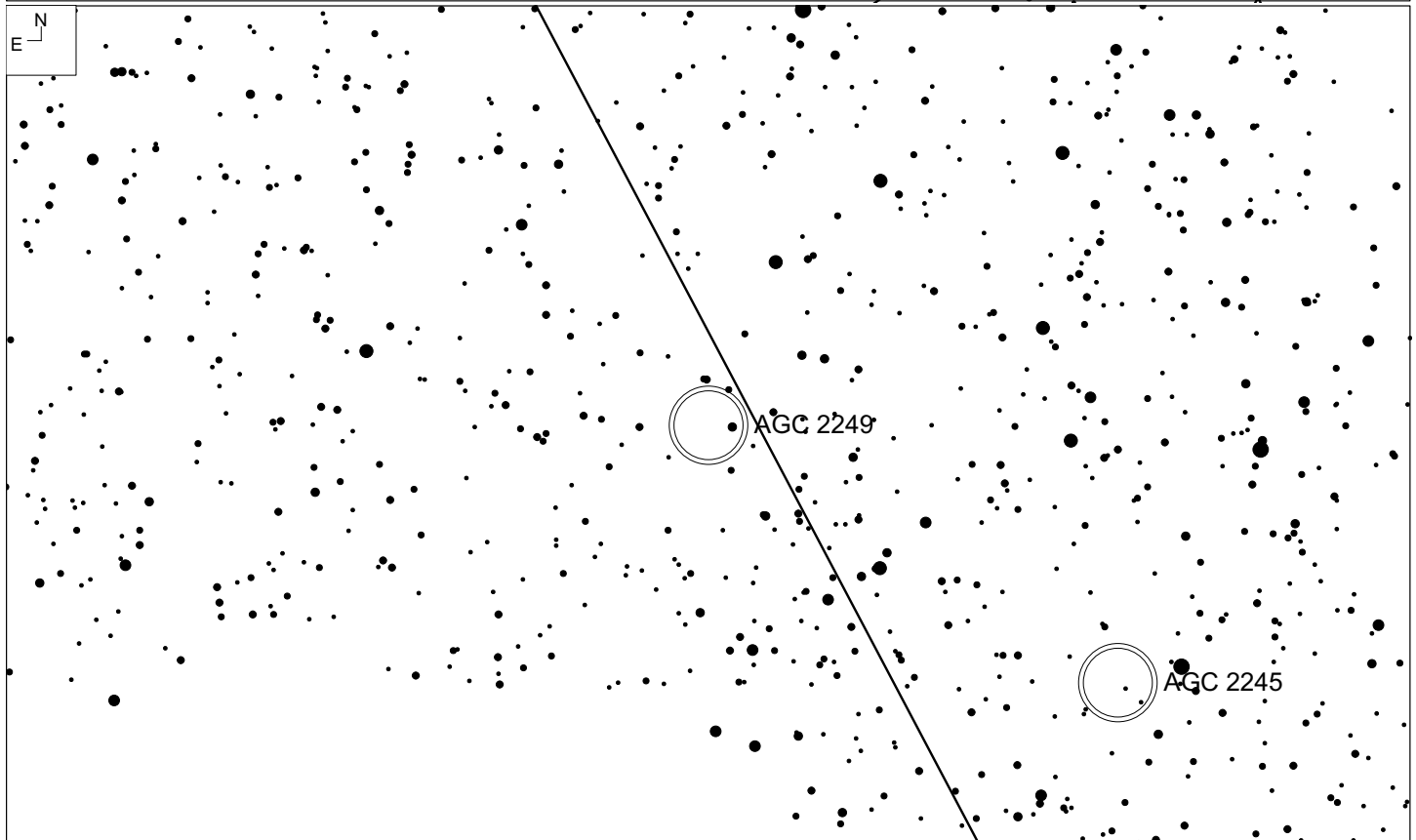
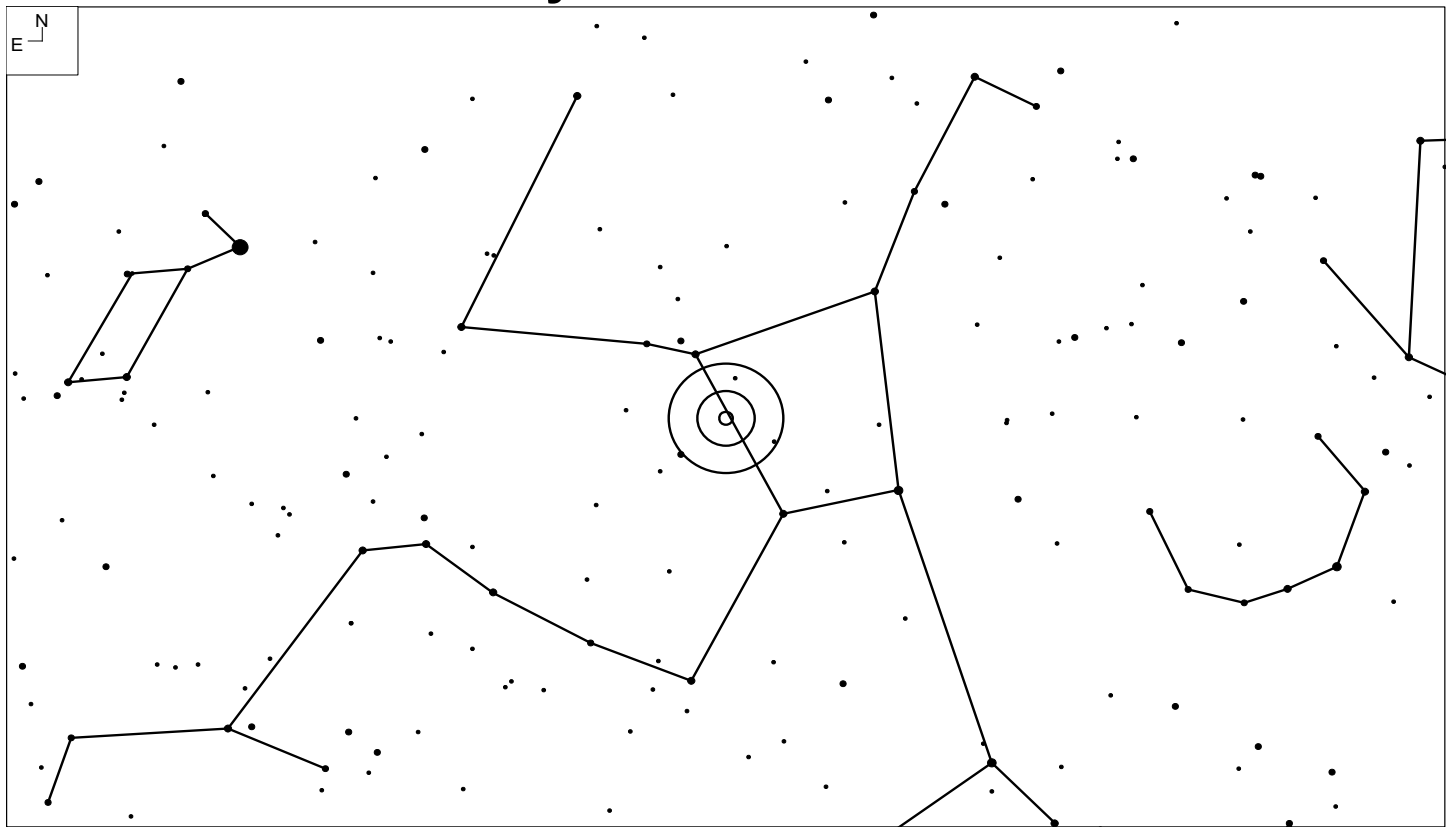


| RA | Dec | Mag ₁₀ | # of galaxies | Size | Class | Urano 2 | iDSA |
|------------|-----------|-------------------|---------------|-------|--------|---------|------|
| 14 01 42.0 | -11 36 00 | 15.7 | 41 | 14.6' | 0 4 II | 129 | 69 |

Abell Galaxy Cluster 1836 – Virgo



Abell Galaxy Cluster 2249 – Hercules



| RA | Dec | Mag ₁₀ | # of galaxies | Size | Class | Urano 2 | iDSA |
|------------|-----------|-------------------|---------------|-------|---------|---------|------|
| 17 09 42.0 | +34 27 00 | 15.4 | 39 | 16.8' | 0 3 III | 50 | 31 |

Abell Galaxy Cluster 2249 – Hercules

