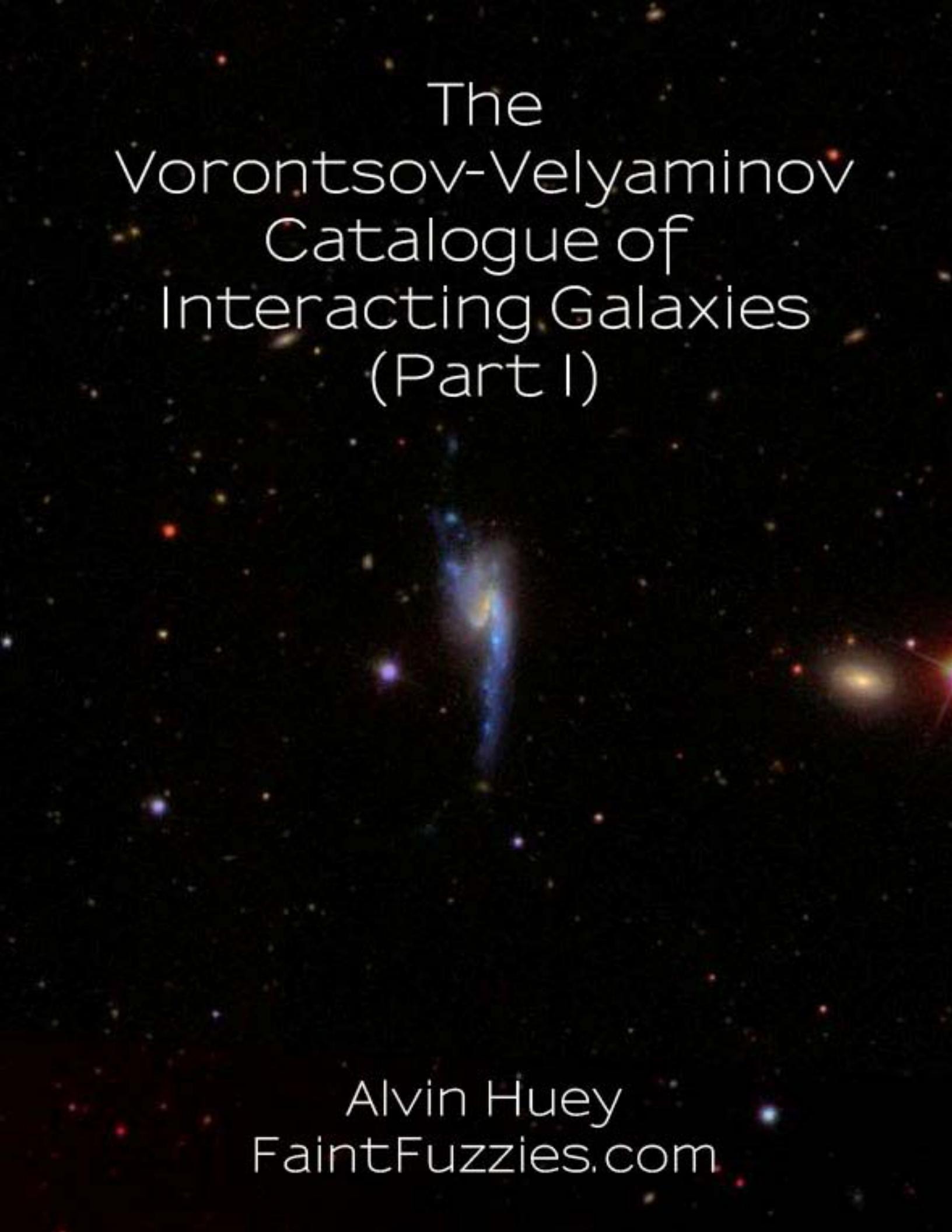


The
Vorontsov-Velyaminov
Catalogue of
Interacting Galaxies
(Part I)



Alvin Huey
FaintFuzzies.com

The Vorontsov-Velyaminov Catalogue of Interacting Galaxies (Part I)

Alvin Huey

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First Edition: May 30, 2013

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The Voronstov-Velyaminov Catalogue – Part I and II

Object of the Week 2012 and 2013 – Deep Sky Forum

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The Vorontsov-Velyaminov Catalogue

Dr. Boris Vorontsov-Velyaminov (1904-1994) of Sternberg Astronomical Institute, Moscow University, created a series of lists of interacting galaxies starting in 1959. A majority of the systems were found on the POSS plates from the Palomar 48-inch Schmidt astrograph. The original list, Part I, contained 355 systems. It should be noted that the more famous list, Arp Peculiar Galaxies, was done AFTER Boris's list. Approximately half of Boris's Part I list was listed as an Arp¹ as Boris's paper was the inspiration for Arp's list. Dr. Halton Arp has access to the 200-inch reflector, which in turn gives Arp the ability to dig deeper and get a clearer image of the structure within these galaxies. As Steve Gottlieb pointed out, a number of Vorontsov-Velyaminov "nests" and chains turned out to be late-type single dwarf irregulars (eg VV124 and VV104) with active star formations regions mimicking the appearance of multiple galaxies.

Then in 1977, Vorontsov-Velyaminov (V-V) published Part II of his list, containing an additional 497 interacting systems, labeled as VV356 through VV852. Lastly, in 2001, an additional 1162 objects were added from the Morphological Catalogue of Galaxies by Vorontsov-Velyaminov et al. These objects have numbers ranging from VV853 to VV2014.

V-V has classified each interacting galaxies within several categories, and for most objects, he classified some unique details. Categories include M-51 types, Nested galaxies, Pairs of galaxies, Chain of galaxies, Ring galaxies and Enigmatic galaxies. Some details he listed include tails, bridges and disruptions to list a few. A full table listing the categories and details is on page 28.

V-V was interested in M-51 type systems, interacting of multiple systems (nests and chains), tidal theory of bridges and tails. I believe that his work has profound impact on near future work on these classes of objects. I've provided a list of papers that he wrote on page 202. I want to thank Steve Gottlieb for providing a list of several of the papers that V-V authored.

This observing guide covers only Part I as I plan to work on Part II in the near future.

Background information of this very interesting Russian astronomer.

Boris didn't just do work on interacting galaxies, he wrote a number of articles on planetary nebulae. He in fact compiled the *General Catalogue of Planetary Nebulae*, which he created the classification of planetary nebulae (see table below), which is still being used today.

Table 1: Vorontsov-Velyaminov Planetary Nebula Types

| Type | Description |
|------|---|
| 1 | Stellar |
| 2a | Smooth disc – brighter towards the center |
| 2b | Smooth disc – uniform brightness |
| 2c | Smooth disc – traces of ring structure |
| 3a | Irregular disc – very irregular brightness distribution |
| 3b | Irregular disc – traces of ring structure |
| 4 | Ring structure |
| 5 | Irregular form |
| 6 | Anomalous form |

¹ A table on page 198 is provided cross-referencing VV Part I with Arp's list.

V-V is the principal architect in the Morphological Catalogue of Galaxies (MCG), which consists of 30,642 galaxies based on scrutiny of the POSS plates. The catalogue was published in five parts between 1962 and 1974. The key is that this list is limited by magnitude 15, otherwise it would be insanely large. V-V complained to other professional astronomers that his "Catalogue of Interacting Galaxies" and MCG were often ignored or not recognized in their papers, so he did not receive credit for the original discovery or designation. This probably occurred as he published primarily in Soviet astronomy journals, which were not easily accessible to many astronomers. It is possible that since he published primarily in Soviet astronomy journals, which is not widely available to the rest of the world. Anyhow, he wrote a correspondence expressing displeasure². This is not the only "complaint" that V-V wrote, he wrote another³ regarding that his Ring Galaxies⁴ paper was largely ignored as well.

Some Thanks for my observing friends

Big thanks for Steve Gottlieb for supplying some missing holes as the complete picture of Boris V-V's work is largely missing from internet search. And thanks for being a sound board for me to bounce ideas off before implementing into this observing guide.

Big thanks to Jimi Lowrey to suggest this list as my next observing guide. Also thanks to Jimi for his encouragement for going after the impossible and for the many joys of observing through his 48" reflector.

Lastly, giving Thanks to my close observing core of observing buddies, Shneor Sherman, Bill Porte and Marsha Robinson-Porte, for camaraderie when observing at remote sites over many years.

² Vorontsov-Velyaminov, B.A. *Correspondence – Morphological Catalogue of Galaxies Discriminated Against*. The Observatory, Vol. 94, p319-320 (1974)

³ Vorontsov-Velyaminov, B.A. *Ring Galaxies*. The Observatory, vol. 103, p. 259-260 (1983)

⁴ Vorontsov-Velyaminov, B.A. *Ring Galaxies*. Soviet Astronomy, Vol. 4, p.365

The Vorontsov-Velyaminov Catalogue

| Page | VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type | Const | Other IDs |
|------|------|------------|-----------|----------|-------|-------------|-----------|-------|----------------------------------|
| 30 | 84 | 22 57 56.9 | +26 09 00 | GPair | 14.0 | 25x25 | NNNP | Peg | |
| | 84b | 22 57 56.2 | +26 09 00 | G | 15 | 6x2 | | | MCG+4-54-5, NGC 7436A |
| | 84a | 22 57 57.5 | +26 09 00 | G | 14.0 | 20x20 | | | MCG+4-54-6, NGC 7436B, UGC 12269 |
| 31 | 305 | 23 23 36.8 | +19 35 04 | GTrpl | | | NNN | Peg | |
| | 305a | 23 23 32.7 | +19 35 59 | G | 15.4 | 5x4 | | | MCG+3-59-51, UGC 12574 |
| | 305b | 23 23 36.3 | +19 35 39 | G | 16.5 | 4x2 | | | MAC 2323+1935 |
| | 305c | 23 23 41.0 | +19 34 10 | G | 15.07 | 12x6 | | | MCG+3-59-52, UGC 12574 |
| 32 | 254 | 00 01 40.2 | +23 29 23 | GPair | | | PKdf | Peg | III Zw 125 |
| | 254a | 00 01 38.2 | +23 29 04 | G | 13.07 | 23x13 | | | MCG+4-1-10, UGC 12914 |
| | 254b | 00 01 42.2 | +23 29 42 | G | 13.95 | 15x5 | | | MCG+4-1-11, UGC 12915 |
| 33 | 37 | 02 04 23.8 | +45 46 33 | GPair | | | PDb | And | UGC 1562, V Zw 175 |
| | 37b | 02 04 22.3 | +45 46 35 | G | 16.2 | 6x3 | | | MCG+8-4-17 |
| | 37a | 02 04 25.4 | +45 46 27 | G | 15.0 | 4x4 | | | MCG+8-4-18 |
| 34 | 94 | 02 16 50.9 | +37 21 12 | GPair | 15.6 | 6x6 | PC | And | MCG+6-6-5 , UGCA 25 |
| | 94a | 02 16 50.5 | +37 21 12 | G | | | | | |
| | 94b | 02 16 51.3 | +37 21 11 | G | | | | | |
| 35 | 107 | 02 29 01.5 | +38 05 55 | GPair | 15.5 | 6x6 | PC | And | MCG+6-6-43 |
| | 107a | 02 29 01.1 | +38 05 53 | G | | | | | |
| | 107b | 02 29 02.0 | +38 05 56 | G | | | | | |
| 36 | 96 | 02 35 37.3 | +37 38 21 | G | 13.03 | 23x14 | PC | And | MCG+6-6-62, UGC 2069 |
| 37 | 187 | 23 34 04.5 | +01 35 03 | GPair | 15.85 | 7x4 | PK | Psc | MCG+0-60-9 |
| | 187a | 23 24 04.1 | +01 35 07 | G | | | | | |
| | 187b | 23 34 04.9 | +01 35 00 | G | | | | | |
| 38 | 36 | 01 24 43.9 | +33 26 08 | GPair | | | N | Psc | |
| | 36b | 01 24 43.6 | +33 26 08 | G | 17.5 | 2x2 | | | MAC 0124+3326 |
| | 36a | 01 24 43.8 | +33 25 46 | G | 13.42 | 20x10 | | | MCG+5-4-54, NGC 517, UGC 960 |
| | 36c | 01 24 44.3 | +33 26 51 | star | | | | | |
| 39 | 177 | 01 42 04.8 | +07 38 57 | GPair | | | PKb | Psc | |
| | 177a | 01 42 04.3 | +07 39 02 | G | 13.7 | 7x4 | | | MCG+1-5-22 |
| | 177b | 01 42 05.0 | +07 38 52 | G | 16.0 | 3x2 | | | MAC 0142+0738 |

| Page | VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type | Const | Other IDs |
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| 39 | 176 | 01 42 06.4 | +07 39 46 | GPair | | | PK | Psc | |
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| | 176b | 01 42 06.7 | +07 39 39 | G | 16.0 | 2x2 | | | MAC 0142+0739 |
| 40 | 54 | 01 48 44.2 | +10 30 26 | GPair | | | Nb | Psc | MCG+2-5-36, IC 161, Mrk 1007, UGC 1266 |
| | 54a | 01 48 43.7 | +10 30 28 | G | 14.69 | 8x6 | | | |
| | 54b | 01 48 44.9 | +10 30 23 | G | 16.99g | 1x1 | | | |
| 41 | 175 | 01 56 22.6 | +05 37 40 | GPair | | | PK | Psc | UGC 1413 |
| | 175a | 01 56 21.0 | +05 37 44 | G | 12.2 | 30x28 | | | MCG+1-6-3, NGC 741, III Zw 38 |
| | 175b | 01 56 24.2 | +05 37 36 | G | 15.30 | 2x2 | | | MCG+1-6-4, NGC 742 |
| 42 | 332 | 23 57 33.4 | -21 59 22 | GPair | | | PD | Cet | |
| | 332b | 23 57 32.6 | -22 00 00 | G | 16.59 | 16x4 | | | MCG-4-1-7 |
| | 332a | 23 57 34.8 | -21 58 44 | G | 15 | 10x7 | | | MCG-4-1-8 |
| 43 | 258 | 01 12 59.7 | -19 00 14 | GTrpl | | | NNN | Cet | |
| | 258a | 01 12 58.6 | -19 00 15 | G | 15.5 | 1x1 | | | MCG-3-4-28 |
| | 258b | 01 12 59.0 | -19 00 24 | G | 16 | 2x2 | | | MCG-3-4-29 |
| | 258c | 01 12 59.8 | -18 59 59 | G | 18 | 4x1 | | | MAC 0112-1859 |
| 44 | 302 | 02 18 19.2 | -12 12 38 | GPair | | | PD | Cet | |
| | 302a | 02 18 14.2 | -12 13 55 | G | 14.58 | 9x9 | | | MCG-2-6-52 |
| | 302b | 02 18 24.2 | -12 11 20 | G | 15 | 9x7 | | | MCG-2-6-54 |
| 45 | 285 | 02 34 37.4 | -08 47 08 | G | 14.01 | 10x9 | R | Cet | MCG-2-7-35, NGC 985, , Mrk 1048 |
| 46 | 200 | 02 40 28.1 | -12 52 35 | GPair | | | PDb | Cet | |
| | 200b | 02 40 27.4 | -12 52 33 | G | 15.5 | 3x2 | | | MCG-2-7-60 |
| | 200a | 02 40 28.9 | -12 52 38 | G | 15.6b | 3x3 | | | MCG-2-7-61 |
| 47 | 338 | 01 47 42.2 | +27 22 59 | GPair | | | PDdf | Tri | |
| | 338a | 01 47 29.9 | +27 20 00 | G | 12.07 | 69x30 | | | MCG+4-5-9, IC 1727, UGC 1249 |
| | 338b | 01 47 54.5 | +27 25 58 | G | 11.47 | 72x25 | | | MCG+4-5-11, NGC 672, UGC 1256 |
| 48 | 93 | 01 47 00.7 | +12 24 21 | G | 14.52 | 14x12 | PC | Ari | MCG+2-5-30, UGC 1246 |
| 49 | 44 | 02 11 30.4 | +14 17 54 | GPair | | | PDb | Ari | MCG+2-6-41 |
| | 44b | 02 11 30.2 | +14 17 46 | G | 18.9g | 1x1 | | | |
| | 44a | 02 11 30.8 | +14 18 02 | G | 15.2g | 8x5 | | | |
| 50 | 27 | 02 12 38.7 | +14 22 00 | G | 14.6g | 6x6 | M | Ari | MCG+2-6-46 |
| | 27b | 02 12 39.6 | +14 21 45 | PofG | 15.2 | | | | |

| Page | VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type | Const | Other IDs |
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| 51 | 278 | 02 43 26.7 | +16 39 59 | GPair | | | NNNP | Ari | MCG+3-7-50 |
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| | 278b | 02 43 26.8 | +16 40 21 | PofG | 16.5 | - | | | |
| | 278c | 02 43 26.8 | +16 39 46 | G | 15.5 | 6x4 | | | PGC 87158 |
| 52 | 85 | 02 54 25.5 | +41 34 33 | GGroup | | | PC | Per | |
| | 85d | 02 54 23.6 | +41 34 21 | star | 18 | | | | |
| | 85c | 02 54 24.8 | +41 34 31 | star | 17 | | | | |
| | 85b | 02 54 25.2 | +41 34 37 | G | 16.5 | 4x2 | | | MCG+7-7-3 |
| | 85a | 02 54 27.5 | +41 36 20 | G | 13.5 | 30x21 | | | MCG+7-7-4, NGC 1129, UGC 2373 |
| 53 | 78 | 03 55 46.1 | -42 22 05 | GPair | | | N | Eri | MCG-7-9-2, NGC 1487 |
| | 78a | 03 55 45.4 | -42 22 04 | G | 12.3b | 33x21 | | | PGC 14117 |
| | 78b | 03 55 47.2 | -42 22 07 | G | 12.3 | 25x19 | | | PGC 14118 |
| 54 | 161 | 05 16 36.9 | +06 26 30 | GGroup | | | Ch | Ori | MCG+1-14-16 |
| | 161f | 05 16 36.0 | +06 26 02 | G | 18 | | | | |
| | 161e | 05 16 36.5 | +06 26 15 | G | 16 | | | | |
| | 161a | 05 16 37.1 | +06 26 13 | G | 15.5 | 3x3 | | | MAC 0516+0627B |
| | 161d | 05 16 37.1 | +06 26 13 | G | 17.5 | | | | |
| | 161b | 05 16 37.1 | +06 26 53 | G | 15.5 | 4x3 | | | MAC 0516+0627C |
| | 161c | 05 16 37.3 | +06 26 27 | G | 14.8 | 7x7 | | | UGC 3274 |
| 55 | 225 | 05 21 57.7 | +03 29 03 | GPair | | | PK | Ori | |
| | 225b | 05 21 56.7 | +03 29 11 | G | 14.56 | 15x7 | | | MCG+1-14-34, IC 412, UGC 3298 |
| | 225a | 05 21 58.8 | +03 28 56 | G | 14.66 | 9x7 | | | MCG+1-14-35, IC 413, UGC 3299 |
| 56 | 162 | 05 45 28.6 | -25 55 55 | GTrpl | | | Ch | Lep | MCG-4-14-22 |
| | 162a | 05 45 27.6 | -25 55 51 | G | 13.89 | 6x6 | | | ESO 488-7 |
| | 162b | 05 45 28.5 | -25 55 54 | G | 14.14 | | | | |
| | 162c | 05 45 29.6 | -25 55 57 | G | 14.08 | 8x8 | | | ESO 488-9 |
| 57 | 180 | 05 47 25.2 | -25 15 04 | GPair | | | PD | Lep | |
| | 180b | 05 47 24.6 | -25 15 21 | G | 14.72 | 7x6 | | | ESO 488-15 |
| | 180a | 05 47 26.5 | -25 14 49 | G | 14.78 | 6x7 | | | ESO 488-19 |
| 58 | 178 | 06 47 40.8 | -26 45 00 | GPair | | | PK | CMa | |
| | 178b | 06 47 39.6 | -26 44 46 | G | 11.8p | 35x28 | | | MCG-4-16-22, NGC 2292 |
| | 178a | 06 47 42.9 | -26 45 16 | G | 12.3b | 42x33 | | | MCG-4-16-23, NGC 2293 |

| Page | VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type | Const | Other IDs |
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| 59 | 141 | 07 30 56.6 | +72 31 03 | GGroup | | | N | Cam | |
| | 141c | 07 30 54.6 | +72 30 42 | G | | | | | |
| | 141b | 07 30 54.8 | +72 30 37 | G | | | | | |
| | 141a | 07 30 57.0 | +72 31 02 | G | 14.80 | 12x12 | | | MCG+12-8-1, UGC 3864 |
| | 141d | 07 30 59.9 | +72 31 18 | G | | | | | |
| 60 | 157 | 08 27 48.9 | +73 39 01 | G | 15.5 | 14x7 | N | Cam | MCG+12-8-41, UGC 4389 |
| | 157a | 08 27 48.1 | +73 39 05 | G | 15.5 | 9x6 | | | |
| | 157b | 08 27 50.1 | +73 39 02 | G | | | | | |
| | 157c | 08 27 50.2 | +73 39 06 | G | | | | | |
| 61 | 284 | 07 43 49.7 | +52 21 11 | GPair | | | PDbt | Lyn | |
| | 284a | 07 43 47.6 | +52 21 27 | G | 14.7 | 15x4 | | | MCG+9-13-39, NGC 2429A, UGC 3983 |
| | 284b | 07 43 51.8 | +52 20 54 | G | 15 | 4x2 | | | MCG+9-13-40, NGC 2429B |
| 62 | 168 | 08 52 45.4 | -01 49 02 | GPair | 15.1 | 9x5 | NNN | Hya | MCG+0-23-9 |
| | 168a | 08 52 45.1 | -01 49 10 | G | | | | | |
| | 168b | 08 52 45.6 | -01 48 54 | G | | | | | |
| | 168c | 08 52 47.0 | -01 48 45 | Dbl star | | | | | |
| 63 | 171 | 09 23 25.7 | +22 19 10 | GTrpl | | | Ch | Leo | |
| | 171a | 09 23 24.3 | +22 18 47 | G | 14.7g | 9x8 | | | MCG+4-22-37 |
| | 171b | 09 23 25.9 | +22 19 00 | G | 16.2g | 6x4 | | | MCG+4-22-38, UGC 4991 |
| | 171c | 09 23 27.0 | +22 19 35 | G | 15.1 | 4x2 | | | MCG+4-22-39 |
| 64 | 154 | 09 24 49.9 | +21 34 21 | GTrpl | | | N | Leo | MCG+4-22-47 |
| | 154b | 09 24 49.4 | +21 34 18 | G | 17.0g | | | | |
| | 154c | 09 24 49.8 | +21 34 18 | G | 16.0 | 4x1 | | | MAC 0924+2134 |
| | 154a | 09 24 50.4 | +21 34 26 | G | 14.8 | 4x2 | | | |
| 65 | 63 | 09 25 50.3 | +22 22 11 | GPair | | | PDb | Leo | MCG+4-22-51 |
| | 63a | 09 25 50.4 | +22 22 10 | G | 15.5 | 9x5 | | | MAC 0925+2222A |
| | 63b | 09 25 51.0 | +22 22 13 | G | 15.0 | 4x4 | | | MAC 0925+2222 |
| 66 | 240 | 10 06 33.8 | +14 26 12 | GPair | | | Pkb | Leo | |
| | 240b | 10 06 33.3 | +14 26 01 | G | 16.3 | 5x4 | | | MCG+3-26-25, UGC 5448 |
| | 240a | 10 06 34.4 | +14 26 25 | G | 15.0 | 10x8 | | | MCG+3-26-26 |
| 67 | 252 | 10 53 26.8 | +16 46 44 | GPair | | | PKdf | Leo | |
| | 252a | 10 53 24.0 | +16 46 21 | G | 13.1 | 37x21 | | | MCG+3-28-27, NGC 3447A, UGC 6006 |
| | 252b | 10 53 29.6 | +16 47 10 | G | 14.3 | 15x8 | | | MCG+3-28-28, NGC 3447B, UGC 6007 |

| Page | VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type | Const | Other IDs |
|------|------|------------|-----------|----------|-------|-------------|-------------|-------|--|
| 68 | 149 | 10 56 51.0 | +06 54 22 | G | 14.6p | 9x7 | N | Leo | MCG+1-28-23, UGC 6046 |
| 69 | 145 | 11 13 20.8 | +02 32 55 | GTrpl | | | NNN | Leo | MCG+1-29-19 |
| | 145b | 11 13 20.1 | +02 32 48 | G | 16.0 | - | | | |
| | 145c | 11 13 20.7 | +02 33 09 | G | 15.6 | 4x4 | | | |
| | 145a | 11 13 21.4 | +02 32 39 | G | 15.4 | 5x4 | | | |
| 70 | 218 | 11 51 27.4 | +22 01 37 | GPair | | | PK | Leo | |
| | 218a | 11 51 26.5 | +22 01 41 | G | 14.5 | 3x2 | | | MCG+4-28-73, NGC 3926B, UGC 6829 |
| | 218b | 11 51 28.2 | +22 01 33 | G | 14.5 | 3x2 | | | MCG+4-28-74, NGC 3926A |
| 71 | 230 | 11 58 05.2 | +27 52 44 | G | 13.9g | 18x6 | PKdf | Leo | MCG+5-28-60, NGC 4004, Mrk 432, UGC 6950 |
| 72 | 110 | 09 50 56.5 | -04 59 52 | G | 14.46 | 19x8 | PC | Sex | MCG-1-25-49 |
| | 110a | 09 50 55.9 | -04 59 57 | PofG | | | | | E part |
| | 110b | 09 50 57.1 | -04 59 49 | PofG | | | | | W part |
| 73 | 111 | 09 54 32.9 | -06 51 27 | G | 14.02 | 17x12 | PC | Sex | MCG-1-25-58, IC 575 |
| | 111a | 09 54 32.9 | -06 51 30 | PofG | | | | | S half |
| | 111b | 09 54 33.2 | -06 51 24 | PofG | | | | | N half |
| 74 | 97 | 10 17 10.9 | -03 29 52 | G | 13.68 | 23x12 | PC | Sex | MCG+0-26-34, IC 600, UGCA 209 |
| 75 | 113 | 10 41 53.4 | +00 47 35 | G | 14.9g | 9x8 | PC | Sex | MCG+0-27-41 |
| 76 | 65 | 10 27 51.3 | -43 54 13 | G | 12.15 | 38x21 | PC | Vel | MCG-7-22-10, NGC 3256 |
| 77 | 330 | 10 24 16.4 | +78 37 08 | GPair | | | PD | Dra | VII Zw 323 |
| | 330b | 10 24 09.9 | +78 37 44 | G | 14.19 | 14x10 | | | MCG+13-8-16B, UGC 5600 |
| | 330a | 10 24 22.3 | +78 36 33 | G | 14.40 | 13x8 | | | MCG+13-8-16A, UGC 5609 |
| 78 | 196 | 09 07 57.1 | +49 35 59 | GPair | | | PKb | UMa | |
| | 196b | 09 07 56.3 | +49 35 48 | G | 15.0g | 9x6 | | | MCG+8-17-34 |
| | 196a | 09 07 57.8 | +49 36 10 | G | 15.8g | 5x4 | | | MCG+8-17-35 |
| 79 | 131 | 09 15 16.3 | +48 40 03 | GPair | | | N | UMa | |
| | 131a | 09 15 15.1 | +48 40 12 | G | 16.5 | 11x9 | | | MCG+8-17-64, UGC 4874 |
| | 131b | 09 15 17.4 | +48 39 54 | star | 15.1 | | | | |
| 80 | 124 | 09 16 02.2 | +52 50 24 | G | 13.78 | 17x13 | N | UMa | MCG+9-15-113, UGC 4879 |
| 81 | 321 | 09 59 52.8 | +45 16 41 | GPair | | | PD b | UMa | UGC 5367 |
| | 321a | 09 59 52.4 | +45 16 59 | G | 15.8g | 11x3 | | | MCG+8-18-53 |
| | 321b | 09 59 53.4 | +45 16 22 | G | 16.1g | 7x3 | | | MCG+8-18-52 |
| 82 | 312 | 10 23 47.1 | +53 06 12 | GPair | | | PD b | UMa | UGC 5615 |
| | 312a | 10 23 46.9 | +53 06 28 | G | 13.8 | 8x7 | | | MCG+9-17-61 |
| | 312b | 10 23 47.3 | +53 05 57 | G | 13.5 | 7x5 | | | MCG+9-17-62 |

| Page | VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type | Const | Other IDs |
|------|-------|------------|-----------|----------|-------|-------------|-----------|-------|------------------------------------|
| 83 | 294 | 10 30 32.1 | +70 02 16 | GPair | | | PDb | UMa | |
| | 294a | 10 30 24.8 | +70 03 01 | G | 13.8 | 40x19 | | | MCG+12-10-44, VII Zw 331, UGC 5688 |
| | 294b | 10 30 39.4 | +70 01 32 | G | 14.6 | 5x1 | | | |
| 84 | 182 | 11 10 12.7 | +36 57 56 | GPair | | | PKb | UMa | |
| | 182b | 11 10 12.2 | +36 57 53 | G | 15.2g | 9x6 | | | MCG+6-25-16, NGC 3545A |
| | 182a | 11 10 13.2 | +36 58 00 | G | 15.0g | 9x6 | | | MCG+6-25-17, NGC 3545B |
| 85 | 160 | 11 14 25.0 | +53 41 27 | GGroup | | | NPNP | UMa | |
| | 160a1 | 11 15 12.8 | +53 40 21 | G | | | | | |
| | 160a2 | 11 15 13.2 | +53 40 17 | G | 18.21 | 3x1 | | | |
| | 160b1 | 11 15 23.3 | +53 41 14 | G | | | | | |
| | 160b2 | 11 15 23.5 | +53 41 22 | G | 17.68 | 4x2 | | | |
| | 160c1 | 11 15 24.5 | +53 41 49 | G | 17.73 | 3x1 | | | |
| | 160c2 | 11 15 25.4 | +53 41 53 | G | 18.0r | | | | |
| | 160d1 | 11 15 50.9 | +53 42 18 | G | | | | | |
| | 160d2 | 11 15 51.5 | +53 41 14 | G | | | | | |
| 86 | 153 | 11 15 53.2 | +53 45 12 | GGroup | | | N | UMa | MCG+9-19-19A, Shakhbazian 3 |
| | 153b | 11 15 51.8 | +53 45 10 | G | | | | | |
| | 153a | 11 15 52.1 | +53 45 12 | G | 18.7g | | | | |
| | 153e | 11 15 52.9 | +53 45 17 | G | 19.5g | | | | |
| | 153c | 11 15 53.8 | +53 45 08 | G | 18.7g | | | | |
| | 153d | 11 15 54.1 | +53 45 20 | G | | | | | |
| | 153f | 11 15 56.8 | +53 45 06 | G | 20.0g | - | | | |
| 87 | 198 | 11 16 56.0 | +35 15 23 | GPair | | | PDb | UMa | |
| | 198a | 11 16 55.8 | +35 15 33 | G | 15.6g | 6x5 | | | MCG+6-25-34 |
| | 198b | 11 16 56.3 | +35 15 14 | G | 15.5g | 6x5 | | | MCG+6-25-33 |
| 88 | 87 | 11 25 31.8 | +38 03 38 | G | 14.9g | 16x4 | PC | UMa | MCG+6-25-66, UGC 6433 |
| 89 | 265 | 11 27 21.3 | +50 16 39 | GPair | | | PK | UMa | MCG+8-21-36 |
| | 265a | 11 27 21.1 | +50 16 33 | G | 16.8g | 7x4 | | | |
| | 265b | 11 27 21.5 | +50 16 44 | G | | | | | |
| 90 | 60 | 11 29 23.9 | +41 52 16 | GTrpl | | | NNN | UMa | |
| | 60c | 11 29 22.2 | +41 52 18 | G | 16.5 | 2x1 | | | MAC 1129+4152A |
| | 60b | 11 29 24.3 | +41 52 19 | G | 15.0 | 6x5 | | | MAC 1129+4152 |
| | 60a | 11 29 25.5 | +41 52 14 | G | 14.9 | 5x4 | | | MCG+7-24-14 |
| 91 | 148 | 11 37 50.3 | +56 08 42 | G | 15.20 | 11x7 | N | UMa | MCG+9-19-140, UGC 6596 |

| Page | VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type | Const | Other IDs |
|------|------|------------|-----------|----------|-------|-------------|-----------|-------|----------------------------------|
| 92 | 320 | 11 44 00.6 | +55 02 28 | GPair | | | PK | UMa | |
| | 320b | 11 43 46.4 | +55 02 51 | G | 15.2p | 7x6 | | | MCG+9-19-165, Mrk 1452 |
| | 320a | 11 44 14.8 | +55 02 06 | G | 13.8p | 19x1 | | | MCG+9-19-169, NGC 3846, UGC 6706 |
| 93 | 273 | 11 50 47.7 | +56 27 21 | G | | | N | UMa | |
| | 273b | 11 50 43.7 | +56 27 28 | PofG | 18.0r | | | | |
| | 273a | 11 50 47.7 | +56 27 21 | G | 14.12 | 15x13 | | | MCG+10-17-86, UGC 6816 |
| 94 | 57 | 11 56 14.4 | +58 11 49 | G | 14.6 | 21x14 | R | UMa | MCG+10-17-104 |
| | 57a | 11 56 13.8 | +58 12 01 | PofG | | | | | |
| | 57b | 11 56 14.3 | +58 11 46 | PofG | | | | | |
| | 57c | 11 56 18.4 | +58 11 16 | PofG | | | | | UGC 6912 |
| 95 | 241 | 11 57 24.9 | +57 55 48 | G | 14.31 | 14x10 | PKdf | UMa | MCG+10-17-115, UGC 6931 |
| | 241b | 11 57 22.4 | +57 55 52 | PofG | 20.6g | 1x1 | | | |
| | 241a | 11 57 25.2 | +57 55 50 | PofG | | | | | UGC 6931 |
| 96 | 259 | 12 02 29.4 | +62 25 02 | G | 15.2 | 15x8 | PK | UMa | MCG+11-15-11, UGC 7019 |
| 97 | 136 | 12 03 13.1 | +57 53 40 | GTrpl | 15.2 | | N | UMa | MCG+10-17-131, NGC 4054 |
| | 136a | 12 03 12.4 | +57 53 36 | G | 15.2 | 7x4 | | | main component |
| | 136c | 12 03 13.4 | +57 53 53 | G | 17.2g | 3x2 | | | NE component |
| | 136b | 12 03 13.8 | +57 53 26 | G | 15.6g | 5x3 | | | SE component |
| 98 | 270 | 12 04 56.2 | +58 06 10 | GPair | | | PKt | UMa | |
| | 270c | 12 04 52.8 | +58 05 49 | G | 17.5 | 4x4 | | | MCG+10-17-136A, MAC 1204+5805 |
| | 270b | 12 04 59.0 | +58 06 24 | G | 15.1p | 8x6 | | | MCG+10-17-137, UGC 7070 |
| | 270a | 12 04 59.7 | +58 06 35 | PofG | | | | | MCG+10-17-137, UGC 7070 |
| 99 | 183 | 12 14 50.2 | +59 54 27 | GPair | | | PD | UMa | MCG+10-18-11, NGC 4199, UGC 7253 |
| | 183a | 12 14 48.6 | +59 54 22 | G | 15.2g | 9x6 | | | |
| | 183b | 12 14 51.7 | +59 53 30 | G | 17 | 7x3 | | | |
| 100 | 235 | 13 23 17.4 | +52 39 10 | GPair | | | PKt | UMa | I Zw 57, UGC 8416 |
| | 235b | 13 23 16.7 | +52 39 13 | G | 15.2 | 6x5 | | | MCG+9-22-55 |
| | 235a | 13 23 18.0 | +52 39 07 | G | 15.6 | 11x4 | | | MCG+9-22-56 |
| 101 | 344 | 14 04 07.4 | +54 00 24 | GPair | | | PD | UMa | |
| | 344a | 14 03 12.5 | +54 20 55 | G | 8.3b | 289x269 | | | MCG+9-23-28, NGC 5457, UGC 8981 |
| | 344b | 14 05 01.3 | +53 39 44 | G | 11.3b | 47x47 | | | MCG+9-23-32, NGC 5474, UGC 9013 |
| 102 | 236 | 12 10 36.7 | +34 57 24 | G | 15.7g | 8x6 | PK | CVn | MCG+6-27-19 |
| | 236a | 12 10 36.3 | +34 57 18 | PofG | | | | | |
| | 236b | 12 10 37.0 | +34 57 28 | PofG | | | | | |

| Page | VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type | Const | Other IDs |
|------|------|------------|-----------|----------|-------|-------------|-----------|-------|---------------------------------|
| 103 | 345 | 12 12 39.5 | +34 41 48 | GPair | | | PD | CVn | |
| | 345a | 12 12 39.2 | +34 42 13 | G | 15.5g | 7x4 | | | MCG+6-27-28 |
| | 345b | 12 12 39.4 | +34 41 25 | G | 16.0g | 15x2 | | | MCG+6-27-29, UGC 7212 |
| 104 | 104 | 12 13 44.8 | +36 38 03 | G | 13.4g | 15x12 | PC | CVn | MCG+6-27-30, NGC 4190, UGC 7232 |
| | 104a | 12 13 44.1 | +36 37 53 | PofG | | | | | |
| | 104b | 12 13 45.5 | +36 38 40 | Star Cl | | | | | |
| 105 | 127 | 12 44 25.1 | +34 23 12 | G | 14.7 | 24x16 | PD | CVn | MCG+6-28-24, I Zw 42, UGC 7916 |
| | 127d | 12 44 23.1 | +34 22 49 | PofG | 19.64 | | | | |
| | 127c | 12 44 24.5 | +34 23 36 | PofG | 19.8g | 1x1 | | | |
| | 127a | 12 44 24.6 | +34 22 37 | PofG | 18.17 | | | | |
| | 127f | 23 4 26.4 | +34 24 13 | PofG | 19.08 | | | | |
| | 127b | 12 44 26.6 | +34 22 47 | G | 17.7g | 3x1 | | | |
| | 127e | 12 44 26.9 | +34 24 01 | PofG | 20.00 | | | | |
| 106 | 222 | 12 59 59.7 | +37 11 26 | GPair | | | PK | CVn | UGC 8111 |
| | 222b | 12 59 59.6 | +37 11 36 | G | 15.6 | 5x5 | | | MCG+6-29-8, NGC 4893 |
| | 222a | 12 59 59.8 | +37 11 16 | G | 16.9 | 4x4 | | | MCG+6-29-9, NGC 4893A |
| 107 | 292 | 13 06 50.5 | +35 07 00 | GPair | | | PDb | CVn | |
| | 292a | 13 06 45.2 | +35 06 02 | G | 14.8p | 13x7 | | | MCG+6-29-35, UGC 8199 |
| | 292b | 13 06 55.9 | +35 07 57 | G | 15.6g | 9x5 | | | MCG+6-29-36, UGC 8200 |
| 108 | 325 | 13 29 45.1 | +33 20 45 | GPair | | | PDt | CVn | |
| | 325a | 13 29 44.5 | +33 20 21 | G | 15.1g | 7x6 | | | MCG+6-30-19 |
| | 325b | 13 29 45.7 | +33 21 09 | G | 15.7g | 7x2 | | | MCG+6-30-20 |
| 109 | 69 | 13 03 17.3 | +31 19 59 | GGroup | | | PC | CVn | MCG+5-32-31, UGC 8496 |
| | 69a | 13 03 17.3 | +31 20 07 | G | 14.9 | | | | |
| | 69b | 13 30 17.4 | +31 19 59 | G | 16.4g | 5x3 | | | |
| 110 | 326 | 10 30 38.0 | +31 17 07 | GPair | | | PD | CVn | UGC 8502 |
| | 326b | 13 30 36.6 | +31 17 10 | G | 14.6 | 6x5 | | | MCG+5-32-34 |
| | 326a | 13 30 39.4 | +31 17 04 | G | 14.6 | 7x4 | | | MCG+5-32-35, Mrk 455 |
| 111 | 317 | 13 47 04.1 | +33 53 14 | GPair | | | PDdf | CVn | |
| | 317b | 13 47 01.2 | +33 53 37 | G | 15.3p | 18x14 | | | MCG+6-30-81, UGC 8713 |
| | 317a | 13 47 07.0 | +33 52 53 | G | 14.5p | 13x11 | | | MCG+6-30-83, UGC 8715 |
| 112 | 202 | 13 53 52.3 | +33 11 32 | GPair | | | NN | CVn | |
| | 202a | 13 53 41.7 | +33 13 41 | G | 15.3 | 3x3 | | | MCG+6-31-12, UGC 8817 |
| | 202b | 13 53 43.8 | +33 13 20 | G | 15.5 | 4x4 | | | MCG+6-31-15 |

| Page | VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type | Const | Other IDs |
|------|------|------------|-----------|----------|-------|-------------|-----------|-------|---------------------------------|
| 112 | 203 | 13 53 45.5 | +33 13 15 | GPair | | | PK | CVn | MCG+6-31-16 |
| | 203b | 13 53 45.4 | +33 13 12 | G | 18 | 1x1 | | | |
| | 203a | 13 53 45.6 | +33 13 18 | G | 18 | 1x1 | | | |
| 113 | 158 | 13 56 20.7 | +28 31 22 | GGroup | | | Ch | CVn | |
| | 158a | 13 56 19.2 | +28 32 11 | G | 15.3 | 4x3 | | | MCG+5-33-24 |
| | 158b | 13 56 25.3 | +28 31 35 | G | 15.8 | 3x3 | | | MCG+5-33-24A |
| | 158c | 13 56 32.2 | +28 31 20 | G | 15.7 | 4x3 | | | MCG+5-33-25 |
| | 158d | 13 56 42.6 | +28 30 10 | G | 15.6 | 7x2 | | | MCG+5-33-26 |
| 114 | 310 | 13 59 54.0 | +38 11 30 | GPair | | | PD | CVn | |
| | 310a | 13 59 50.9 | +38 10 55 | G | 14.4p | 34x6 | | | MCG+6-31-41, NGC 5403, UGC 8919 |
| | 310b | 13 59 57.1 | +38 12 02 | G | 15.4 | 8x4 | | | MCG+6-31-42 |
| 115 | 256 | 14 00 55.4 | +40 59 49 | GPair | | | PKdf | CVn | |
| | 256a | 14 00 54.5 | +40 59 17 | G | 14.03 | 15x8 | | | MCG+7-29-34, NGC 5410, UGC 8931 |
| | 256b | 14 00 56.4 | +41 00 21 | G | 15.43 | 8x3 | | | MCG+7-29-35, UGC 8932 |
| 116 | 185 | 12 00 49.0 | +15 27 07 | GPair | | | PK | Com | MCG+3-31-12 |
| | 185b | 12 00 48.6 | +15 27 10 | G | | | | | |
| | 185a | 12 00 49.3 | +15 27 04 | G | 15.6g | 7x6 | | | |
| 117 | 45 | 12 01 38.7 | +22 39 41 | GPair | 15.5 | 8 | PDb | Com | MCG+4-28-121 |
| | 45b | 12 01 38.6 | +22 39 50 | G | | | | | |
| | 45a | 12 01 38.8 | +22 39 32 | G | 16.53 | 6x4 | | | |
| 118 | 276 | 12 03 53.5 | +25 25 57 | G | 14.1 | 19x11 | PK | Com | MCG+4-29-5, UGC 7040 |
| 119 | 179 | 12 04 03.8 | +20 14 01 | GPair | | | PD | Com | |
| | 179b | 12 04 01.5 | +20 13 56 | G | 14.12 | 12x9 | | | MCG+4-29-6, NGC 4061, UGC 7044 |
| | 179a | 12 04 06.2 | +20 14 06 | G | 13.58 | 11x10 | | | MCG+4-29-7, NGC 4065, UGC 7050 |
| 120 | 46 | 12 04 15.9 | +24 08 40 | GPair | | | PDb | Com | MCG+4-29-10, UGC 7055 |
| | 46b | 12 04 15.1 | +24 08 32 | G | 17.6g | 4x2 | | | |
| | 46a | 12 04 16.8 | +24 08 49 | G | 15.84 | 10x8 | | | |
| 121 | 61 | 12 06 03.9 | +20 36 22 | GPair | 14.36 | 13x18 | PK | Com | MCG+4-29-23, NGC 4098, UGC 7091 |
| | 61a | 12 06 03.6 | +20 36 29 | G | | | | | |
| | 61b | 12 06 04.2 | +20 36 14 | G | | | | | |
| 122 | 62 | 12 06 18.3 | +20 36 40 | GPair | | | PDb | Com | MCG+4-29-24 |
| | 62b | 12 06 18.2 | +20 36 33 | G | 19.0g | 1x1 | | | |
| | 62a | 12 06 18.2 | +20 36 45 | G | 18 | 3x3 | | | |

| Page | VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type | Const | Other IDs |
|------|-------|------------|-----------|----------|-------|-------------|-----------|-------|-----------------------------------|
| 123 | 147 | 12 12 11.6 | +18 05 37 | GGroup | | | Ch | Com | MCG+3-31-69 |
| | 147a | 12 12 11.8 | +18 05 38 | G | 17.0g | 8x1 | | | |
| | 147b | 12 12 12.9 | +18 05 47 | G | | | | | |
| | 147e | 12 12 13.5 | +18 05 48 | G | | | | | |
| | 147d | 12 12 13.8 | +18 05 58 | PofG | | | | | |
| | 147c | 12 12 13.9 | +18 05 43 | G | | | | | |
| 124 | 279 | 12 27 53.9 | +28 38 17 | GTrpl | | | PK | Com | MCG+5-29-88 |
| | 279a1 | 12 27 53.7 | +28 38 15 | G | 16 | 9x1 | | | |
| | 279a | 12 27 53.9 | +28 38 24 | GPair | | | | | |
| | 279a2 | 12 27 54.0 | +28 38 35 | G | 17.3g | 8x1 | | | |
| | 279b | 12 27 54.0 | +28 38 01 | G | 16.9 | 17x2 | | | |
| 125 | 287 | 12 39 15.7 | +27 42 52 | GPair | | | PK | Com | MCG+5-30-49 |
| | 287a | 12 39 15.1 | +27 42 52 | G | 17.9g | 2x2 | | | |
| | 287b | 12 39 16.1 | +27 42 51 | G | 17.2r | | | | |
| 126 | 151 | 12 43 03.6 | +30 22 58 | GTrpl | | | PDb | Com | |
| | 151c | 12 43 03.0 | +30 22 44 | G | | | | | MCG+5-30-63, UGC 7891 |
| | 151a | 12 43 03.7 | +30 22 55 | G | 15.3 | 7x3 | | | MCG+5-30-63, UGC 7891 |
| | 151b | 12 43 04.2 | +30 23 14 | G | 16.0 | 7x5 | | | MAC 1243+3023 |
| | 151d | 12 43 05.1 | +30 23 17 | PofG | | | | | |
| 127 | 88 | 13 30 58.7 | +19 26 17 | G | 13.94 | 14x8 | PC | Com | MCG+3-34-44, VIII Zw321, UGC 8507 |
| 128 | 105 | 11 52 44.1 | +01 44 26 | GPair | | | N | Vir | |
| | 105a | 11 52 43.4 | +01 44 27 | G | 14.7g | 8x7 | | | MCG+0-30-33, Mrk 752, UGC 6854 |
| | 105c | 11 52 44.5 | +01 44 29 | PofG | 19.6g | 1x1 | | | |
| | 105b | 11 52 44.7 | +01 44 24 | G | 17 | 1x1 | | | MCG+0-30-33, UGC 6854 |
| 129 | 76 | 12 31 40.0 | +03 55 58 | GPair | | | PK | Vir | MCG+1-32-90, UGC 7668 |
| | 76a | 12 31 39.2 | +03 56 23 | G | 11.94 | 40x32 | | | NGC 4496A |
| | 76b | 12 31 40.9 | +03 55 34 | G | 14.0g | 13x7 | | | NGC 4496B |
| 130 | 219 | 12 36 33.5 | +11 14 54 | GPair | | | PK | Vir | Siamese twins |
| | 219b | 12 36 32.7 | +11 15 28 | G | 12.1b | 33x20 | | | MCG+2-32-151, NGC 4567, UGC 7777 |
| | 219a | 12 36 34.2 | +11 14 20 | G | 11.7b | 48x20 | | | MCG+2-32-152, NGC 4568, UGC 7776 |
| 131 | 64 | 12 44 20.5 | +04 25 35 | GPair | | | PDb | Vir | |
| | 64b | 12 44 19.5 | +04 25 31 | G | 15.3p | 5x2 | | | MCG+1-33-2, UGC 7909 |
| | 64a | 12 44 21.5 | +04 25 39 | G | 15.7 | 3x2 | | | MCG+1-33-3 |

| Page | VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type | Const | Other IDs |
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| 132 | 283 | 13 01 50.8 | +04 20 00 | GPair | 15.28 | 6x6 | PK | Vir | MCG+1-33-36 |
| | 283a | 13 01 50.2 | +04 20 02 | G | 15.5 | | | | |
| | 283b | 13 01 51.2 | +04 20 00 | G | | | | | |
| 133 | 47 | 13 10 28.6 | -21 35 13 | GPair | | | PDb | Vir | MCG-3-34-7 |
| | 47b | 13 10 28.1 | -21 35 17 | G | 17.10 | 1x1 | | | PGC 45712 |
| | 47a | 13 10 28.8 | -21 35 11 | G | 15.86 | 4x1 | | | |
| 134 | 184 | 13 21 37.6 | -16 16 57 | GPair | | | PD | Vir | |
| | 184b | 13 21 36.7 | -16 17 10 | G | 16 | 2x2 | | | MCG-3-34-57 |
| | 184a | 13 21 38.5 | -16 16 45 | G | 14.29 | 3x2 | | | MCG-3-34-58 |
| 135 | 18 | 13 34 39.4 | +04 08 00 | GPair | | | M | Vir | MCG+1-35-8, NGC 5213, UGC 8552 |
| | 18a | 13 34 39.2 | +04 07 48 | G | 14.5g | 9x7 | | | |
| | 18b | 13 34 39.6 | +04 08 11 | G | 17.9g | 5x1 | | | |
| 136 | 211 | 13 35 14.8 | +10 41 22 | GPair | | | PK | Vir | |
| | 211a | 13 35 14.4 | +10 41 10 | G | 15.4g | 6x3 | | | MCG+2-35-7, Mrk 1356b, UGC 8562 |
| | 211b | 13 35 14.8 | +10 41 31 | G | 15.03 | 5x5 | | | MCG+2-35-8, Mrk 1356, UGC 8563 |
| 137 | 108 | 13 39 12.4 | +04 37 20 | GPair | | | PC | Vir | MCG+1-35-24, UGC 8635 |
| | 108a | 13 39 11.5 | +04 37 17 | G | 18.6g | 4x1 | | | |
| | 108b | 13 39 13.2 | +04 37 24 | G | 14.6g | 9x7 | | | |
| 138 | 170 | 13 41 53.3 | +02 04 41 | GTrpl | | | Ch | Vir | |
| | 170a | 13 41 51.2 | +02 04 34 | G | 15.5 | 6x5 | | | MCG+0-35-17, UGC 8666 |
| | 170b | 13 41 54.0 | +02 04 45 | G | 15.5 | 4x3 | | | MAC 1341+0204A |
| | 170c | 13 41 55.4 | +02 04 49 | G | 16.5 | 2x2 | | | MAC 1341+0204B |
| 139 | 135 | 13 49 11.1 | -07 13 15 | GTrpl | | | NNN | Vir | Hickson 67 |
| | 135b | 13 49 09.8 | -07 13 54 | G | 15.77 | 5x3 | | | MCG-1-35-14 |
| | 135a | 13 49 11.4 | -07 13 28 | G | 13.43 | 20x18 | | | MCG-1-35-14, NGC 5306 |
| | 135c | 13 49 12.3 | -07 12 33 | G | 15.69 | 7x3 | | | MCG-1-35-15 |
| 140 | 253 | 13 52 16.3 | +02 06 11 | GPair | 14.3 | | PKt | Vir | MCG+0-35-22, NGC 5331, UGC 8774 |
| | 253a | 13 52 16.1 | +02 06 03 | G | 15.0 | 6x3 | | | |
| | 253b | 13 52 16.4 | +02 06 31 | G | 16.2 | 6x4 | | | PGC 49266 |
| 141 | 99 | 13 55 34.2 | -05 58 22 | G | 14.53 | 6x5 | PC | Vir | MCG-1-35-21 |
| | 99b | 13 55 33.9 | -05 58 18 | G | 15.5 | | | | |
| | 99a | 13 55 34.5 | -05 58 26 | G | | | | | |

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| 141 | 100 | 13 55 45.4 | -06 00 10 | G | 13.93 | 16x8 | PC | Vir | MCG-1-35-22 |
| | 100b | 13 55 45.3 | -06 00 28 | PofG | | | | | |
| | 100a | 13 55 45.5 | -06 00 18 | PofG | | | | | |
| | 100c | 13 55 46.4 | -06 00 40 | PofG | | | | | |
| | 100d | 13 55 46.7 | -06 00 42 | PofG | | | | | |
| 142 | 269 | 12 04 26.3 | -18 30 59 | GPair | | | PK | Crv | |
| | 269a | 12 04 26.1 | -18 30 48 | G | 15.92 | 4x2 | | | MCG-3-31-19 |
| | 269b | 12 04 26.6 | -18 31 11 | G | 16.32 | 4x2 | | | MCG-3-31-20 |
| 143 | 49 | 12 06 07.2 | -22 50 58 | G | 13.03 | 29x21 | N | Crv | MCG-4-29-6, UGCA 270 |
| | 49c | 12 06 06.5 | -22 50 07 | PofG | | | | | |
| | 49b | 12 06 07.0 | -22 50 29 | PofG | | | | | |
| | 49a | 12 06 07.2 | -22 50 58 | PofG | | | | | |
| 144 | 201 | 12 54 36.2 | -12 33 47 | GPair | | | PK | Crv | |
| | 201a | 12 54 35.7 | -12 34 07 | G | 12.7p | 17x16 | | | MCG-2-33-50, NGC 4782 |
| | 201b | 12 54 36.6 | -12 33 28 | G | 12.5p | 17x17 | | | MCG-2-33-51, NGC 4783 |
| 145 | 333 | 12 16 58.0 | -26 12 37 | GPair | | | PD | Hya | |
| | 333b | 12 16 57.1 | -26 12 34 | G | 16 | 8x7 | | | MCG-4-29-15 |
| | 333a | 12 16 59.9 | -26 12 36 | G | 15.49 | 8x7 | | | MCG-4-29-16 |
| 146 | 290 | 12 47 44.1 | -26 11 58 | GPair | | | PKb | Hya | |
| | 290a | 12 47 40.3 | -26 12 00 | G | 14.81 | 12x5 | | | MCG-4-30-16 |
| | 290b | 12 47 48.1 | -26 11 59 | G | 15.51 | 12x10 | | | MCG-4-30-17 |
| 147 | 351 | 13 54 30.5 | -26 33 58 | GPair | | | PD | Hya | |
| | 351a | 13 54 26.4 | -26 34 35 | G | 14.43 | 14x7 | | | MCG-4-33-10 |
| | 351b | 13 54 34.7 | -26 33 22 | G | 14.82 | 12x10 | | | MCG-4-33-11 |
| 148 | 133 | 13 39 19.4 | +24 46 32 | G | 14.47 | 12x8 | N | Boo | MCG+4-32-18, UGC 8638 |
| 149 | 195 | 13 41 49.4 | +26 22 19 | GPair | | | PD b | Boo | |
| | 195b | 13 41 49.1 | +26 22 25 | G | 15.0g | 8x6 | | | MCG+5-32-63 |
| | 195a | 13 41 50.4 | +26 22 13 | G | 15.3 | 2x2 | | | MCG+5-32-64 |
| 150 | 163 | 13 44 25.0 | 20 24 50 | GTrpl | 14.89 | 11 | Ch | Boo | |
| | 163a | 13 44 24.5 | +20 24 34 | G | 15.0 | | | | MCG+4-32-34, UGC 8691 |
| | 163c | 13 44 25.4 | +20 24 52 | G | 16.0 | 1x1 | | | MAC 1344+2025 |
| | 163b | 13 44 25.4 | +20 25 06 | G | | 1x1 | | | MCG+4-32-34, UGC 8691 |

| Page | VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type | Const | Other IDs |
|------|------|------------|-----------|----------|-------|-------------|-----------|-------|------------------------------------|
| 151 | 306 | 13 48 08.9 | +07 23 27 | GTrpl | | | NNNP | Boo | UGC 8728 |
| | 306c | 13 48 05.0 | +07 23 32 | G | 15.5 | 6x6 | | | MAC 1348+0723 |
| | 306b | 13 48 06.0 | +07 23 15 | G | 14.7 | 4x4 | | | MCG+1-35-37 |
| | 306a | 13 48 12.5 | +07 23 41 | G | 14.39 | 13x7 | | | MCG+1-35-39 |
| 152 | 190 | 13 48 15.1 | +25 43 59 | GPair | | | | Boo | |
| | 190b | 13 48 14.1 | +25 43 58 | G | 16.1g | 4x4 | PDb | | MCG+4-33-4 |
| | 190a | 13 48 16.1 | +25 44 01 | G | 15.3g | 7x5 | | | MCG+4-33-3 |
| 152 | 191 | 13 48 22.1 | +25 50 50 | GPair | | | PDb | Boo | |
| | 191a | 13 48 21.8 | +25 40 31 | G | 15.5 | 5x5 | | | MCG+4-33-6 |
| | 191b | 13 48 22.4 | +25 40 50 | G | 15.8g | 5x5 | | | MCG+4-33-5 |
| 153 | 281 | 13 55 30.0 | +25 04 26 | GTrpl | | | Ch | Boo | |
| | 281c | 13 55 28.4 | +25 04 25 | G | 17.7g | 1x1 | | | MCG+4-33-27, UGC 8842 |
| | 281b | 13 55 28.7 | +25 04 19 | PofG | 21.3 | 1x1 | | | |
| | 281a | 13 55 29.9 | +25 04 27 | PofG | | | | | |
| | 281d | 13 55 32.6 | +25 04 28 | G | 15.76 | 5x4 | | | MCG+4-33-28 |
| 154 | 335 | 13 55 59.6 | +17 30 21 | GPair | | | PDb | Boo | IC 960, UGC 8849 |
| | 335a | 13 55 59.1 | +17 29 57 | G | 14.50 | 9x6 | | | MCG+3-36-3 |
| | 335b | 13 56 00.1 | +17 30 42 | G | 14.50 | 7x2 | | | MCG+3-36-4 |
| 155 | 339 | 14 00 22.5 | +12 57 26 | GPair | | | PD | Boo | |
| | 339a | 14 00 19.8 | +12 57 26 | G | 14.77 | 10x6 | | | MCG+2-36-7 |
| | 339b | 14 00 25.3 | +12 57 27 | G | 14.93 | 9x7 | | | MCG+2-36-8, UGC 8920 |
| 156 | 277 | 14 01 08.2 | +21 14 24 | GPair | 15.1 | 10x4 | PKdf | Boo | MCG+4-33-38, UGC 8929 |
| | 277b | 14 01 07.1 | +21 14 35 | G | 14.8 | 2x2 | | | |
| | 277c | 14 01 08.2 | +21 14 34 | PofG | 16.6g | 1x1 | | | |
| | 277a | 14 01 09.3 | +21 14 16 | G | 14.70 | 6x4 | | | |
| 157 | 328 | 14 04 54.2 | +12 42 48 | GPair | | | PD | Boo | |
| | 328a | 14 04 53.7 | +12 43 18 | G | 14.4p | 13x8 | | | MCG+2-36-34, UGC 9002 |
| | 328b | 14 04 54.7 | +12 42 17 | G | 15.6 | 4x2 | | | MCG+2-36-35, Mrk 803 |
| 158 | 103 | 14 07 00.1 | +10 27 44 | Gpair? | 14.8 | 8x5 | PC | Boo | MCG+2-36-41 |
| | 103a | 14 07 00.2 | +10 27 45 | G | 14.8g | 9x6 | | | |
| 159 | 125 | 14 11 27.0 | +50 12 33 | G | 14.85 | 11x8 | N | Boo | MCG+8-26-9, UGC 9083 |
| 160 | 299 | 14 13 06.9 | +08 37 31 | GPair | | | PD | Boo | |
| | 299b | 14 13 05.4 | +08 37 55 | G | 15.8g | 6x2 | | | MCG+2-36-50, NGC 5511, VIII Zw 381 |
| | 299a | 14 13 08.3 | +08 37 08 | G | 15.0 | 6x6 | | | MCG+2-36-51, , VIII Zw 382 |

| Page | VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type | Const | Other IDs |
|------|-------|------------|-----------|----------|-------|-------------|-----------|-------|---|
| 161 | 70 | 14 13 38.8 | +07 39 34 | GPair | 13.7 | | | Boo | MCG+1-36-23, NGC 5514, UGC 9102 |
| | 70a | 14 13 38.4 | +07 39 38 | G | 14.5 | 10x5 | PC | | |
| | 70b | 14 13 39.4 | +07 39 29 | G | 15.50 | 8x7 | | | |
| 162 | 223 | 14 13 44.7 | +08 13 13 | GTrpl | | | NNNP | Boo | MCG+1-36-24, UGC 9103 |
| | 223c | 14 13 42.0 | +08 13 16 | G | 16.0g | 10x2 | | | PGC 50811 |
| | 223a | 14 13 45.7 | +08 13 07 | G | 14.7 | 4x2 | | | PGC 50821 |
| | 223b | 14 13 46.5 | +08 13 15 | G | 15.3 | 5x2 | | | PGC 50830 |
| 163 | 24 | 14 27 01.5 | +39 57 25 | GPair | 14.8 | 8x6 | M | Boo | MCG+7-30-13, NGC 5625 |
| | 24b | 14 27 00.6 | +39 57 22 | G | 20.5g | 1x1 | | | |
| | 24a | 14 27 01.6 | +39 57 25 | G | 14.7g | 8x6 | | | |
| 164 | 15 | 14 28 45.3 | +28 57 51 | G | | | M | Boo | MCG+5-34-50, IC 4442, UGC 9287 |
| | 15b | 14 28 44.6 | +28 58 00 | PofG | 19.6 | 1x1 | | | |
| | 15a | 14 28 45.3 | +28 57 51 | G | 14.9p | 10x6 | | | |
| | 15c | 14 28 46.4 | +28 57 44 | PofG | 18.7g | 2x1 | | | |
| 165 | 152 | 14 29 50.7 | +44 26 52 | G | 14.9 | 23x1 | N | Boo | MCG+7-30-18, UGC 9324 |
| 166 | 262 | 14 31 56.8 | +36 18 15 | GPair | | | PK | Boo | MCG+6-32-59 |
| | 262b | 14 31 55.7 | +36 18 21 | G | 17.0 | 9x3 | | | MAC 1431+3618 |
| | 262a | 14 31 57.7 | +36 18 11 | G | 16.3 | | | | |
| 167 | 146 | 14 35 38.9 | +13 09 56 | GTrpl | 14.10 | 22x7 | N | Boo | MCG+2-37-26, UGC 9394 |
| | 146c | 14 35 37.9 | +13 09 40 | G | 16 | | | | |
| | 146b | 14 35 38.1 | +13 09 50 | G | 15.0 | | | | |
| | 146a | 14 35 39.9 | +13 10 12 | G | 15.0g | 10x5 | | | |
| 168 | 109 | 14 46 02.8 | +08 30 11 | GTrpl | | | NNNP | Boo | UGC 9509 |
| | 109a1 | 14 46 01.8 | +08 29 46 | G | 15.4 | 4x2 | | | MCG+2-38-3 |
| | 109a | 14 46 01.8 | +08 29 47 | GPair | 15.4 | 12x4 | | | MCG+2-38-3 |
| | 109a2 | 14 46 02.8 | +08 29 43 | G | 16 | 5x3 | | | MCG+2-38-3 |
| | 109b | 14 46 03.8 | +08 30 40 | G | 15.7g | 4x2 | | | MCG+2-38-4 |
| 169 | 324 | 14 51 05.5 | +35 33 23 | GPair | | | PD | Boo | |
| | 324b | 14 50 56.5 | +35 34 18 | G | 14.8b | 10x3 | | | MCG+6-33-2, II Zw 70, Mrk 829, UGC 9560 |
| | 324a | 14 51 14.4 | +35 32 29 | G | 14.4b | 11x8 | | | MCG+6-33-4, II Zw 71, UGC 9562 |
| 170 | 274 | 14 55 28.2 | +32 50 25 | GPair | | | PKt | Boo | MCG+6-33-9 |
| | 274a | 14 55 28.2 | +32 50 24 | G | 15.6g | 6x5 | | | |
| | 274b | 14 55 28.7 | +32 50 26 | G | 19.9g | 1x1 | | | |

| Page | VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type | Const | Other IDs |
|------|------|------------|-----------|----------|-------|-------------|-----------|-------|-----------------------|
| 170 | 275 | 14 55 30.8 | +32 49 51 | GPair | 16.0 | 12x5 | PDt | Boo | UGC 9603 |
| | 275a | 14 55 29.8 | +32 49 54 | G | 16.5g | 5x3 | | | MCG+6-33-10 |
| | 275b | 14 55 31.7 | +32 49 47 | G | 16.3g | 8x4 | | | MCG+6-33-11 |
| 171 | 26 | 14 56 53.1 | +09 16 18 | GPair | | | M | Boo | MCG+2-38-28, UGC 9616 |
| | 26a | 14 56 53.1 | +09 16 18 | G | 14.39 | 10x9 | | | |
| | 26b | 14 56 53.1 | +09 15 49 | PofG | | | | | |
| 172 | 204 | 15 04 57.2 | +26 00 54 | G | 15.24 | | NNNP | Boo | |
| | 204c | 15 04 56.1 | +26 00 55 | G | 18.1g | 2x2 | | | |
| | 204b | 15 04 57.1 | +26 00 58 | G | 15.5g | 7x6 | | | MCG+4-36-4 |
| | 204a | 15 04 58.3 | +26 00 51 | G | 16.2g | 5x4 | | | MCG+4-36-5 |
| 173 | 59 | 15 08 04.9 | +34 23 14 | GPair | 15.9g | 10x3 | N | Boo | MCG+6-33-22, Rose 25 |
| | 59b | 15 08 04.3 | +34 23 07 | G | 15.6 | 1x1 | | | |
| | 59a | 15 08 05.8 | +34 23 24 | G | 13.8 | 1x1 | | | |
| 174 | 98 | 14 45 01.6 | -13 56 48 | GGroup | 13.3 | 16x10 | PC | Lib | MCG-2-38-4, NGC 5745 |
| | 98d | 14 44 57.2 | -13 57 54 | star | 14.0b | | | | |
| | 98c | 14 45 00.9 | -13 56 56 | G | 14.96 | | | | |
| | 98a | 14 45 01.9 | -13 56 40 | G | 14.96 | | | | |
| | 98b | 14 45 01.9 | -13 56 50 | G | 15.45 | | | | |
| 175 | 164 | 14 45 25.8 | -20 41 07 | G | 15.03 | 14x8 | Ch | Lib | MCG-3-38-5 |
| | 164a | 14 45 25.5 | -20 41 13 | PofG | | | | | |
| | 164b | 14 45 25.7 | -20 41 07 | PofG | | | | | |
| | 164d | 14 45 16.1 | -20 40 51 | PofG | | | | | |
| | 164c | 14 45 26.3 | -20 40 45 | PofG | | | | | |
| 176 | 322 | 14 50 48.6 | -13 31 49 | GTrpl | | | NNN | Lib | |
| | 322a | 14 50 47.9 | -13 32 16 | G | 15.5 | 6x5 | | | MCG-2-38-19 |
| | 322b | 14 50 48.2 | -13 31 31 | G | 15.5 | 7x2 | | | MCG-2-38-18 |
| | 322c | 14 50 49.3 | -13 31 19 | G | 17 | 3x3 | | | MCG-2-38-18A |
| 177 | 130 | 14 51 12.4 | -20 26 27 | G | 13.98 | 20x11 | NNN | Lib | MCG-3-38-21 |
| | 130b | 14 51 10.9 | -20 26 03 | PofG | | | | | |
| | 130a | 14 51 12.1 | -20 26 24 | PofG | | | | | |
| | 130c | 14 51 12.5 | -20 26 41 | PofG | | | | | |
| 178 | 137 | 14 55 12.8 | -19 39 53 | G | 14.06 | 17x1 | N | Lib | MCG-3-38-26 |

| Page | VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type | Const | Other IDs |
|------|------|------------|-----------|----------|-------|-------------|-----------|-------|--|
| 179 | 139 | 15 19 28.2 | +20 53 37 | GGroup | | | N | Ser | |
| | 139b | 15 19 24.2 | +20 53 27 | G | 15.65 | 6x4 | | | MCG+4-36-35, UGC 9813 |
| | 139a | 15 19 24.7 | +20 53 47 | G | 14.96 | 8x8 | | | MCG+4-36-35, NGC 5910 |
| | 139d | 15 19 25.2 | +20 54 10 | G | 19.2g | 1x1 | | | MCG+4-36-36 |
| | 139c | 15 19 25.8 | +20 53 58 | G | 17.00 | 5x3 | | | MCG+4-36-36A |
| 180 | 227 | 15 25 39.8 | +20 47 18 | GPair | 15.5 | 11x7 | PK | Ser | MCG+4-36-45, UGC 9843 |
| 181 | 132 | 15 35 10.5 | +16 32 58 | G | 14 | 17x17 | N | Ser | MCG+3-40-7, UGC 9912 |
| 182 | 115 | 15 59 11.9 | +20 45 31 | GGroup | | | NNN | Ser | NGC 6027, VII Zw631, UGC 10116, Hickson 79 |
| | 115b | 15 59 10.8 | +20 45 44 | G | 15.31 | 4x2 | | | MCG+4-38-5 |
| | 115a | 15 59 11.1 | +20 45 17 | G | 14.98 | 5x4 | | | MCG+4-38-6 |
| | 115c | 15 59 11.8 | +20 44 49 | G | 16.75 | 9x2 | | | MCG+4-38-7 |
| | 115A | 15 59 12.5 | +20 45 48 | G | 14.7 | 4x2 | | | MCG+4-38-8 |
| | 115d | 15 59 12.9 | +20 45 36 | G | 16.47 | 2x2 | | | MCG+4-38-9 |
| 183 | 115e | 15 59 14.5 | +20 45 57 | G | 16.7 | 8x4 | | | MCG+4-38-10 |
| | 156 | 16 00 14.7 | +18 22 32 | GPair | | | N | Ser | MCG+3-41-22 |
| | 156a | 16 00 14.4 | +18 22 33 | G | 17.8g | 4x3 | | | |
| | 156b | 16 00 14.9 | +18 22 33 | G | 14.87 | 5x4 | | | |
| 184 | 91 | 16 02 02.4 | +15 40 43 | GPair | | | PC | Her | |
| | 91a | 16 02 01.9 | +15 40 38 | G | 15.8 | 2x2 | | | MCG+3-41-46 |
| | 91b | 16 02 02.8 | +15 40 49 | G | 16.5 | 3x2 | | | MAC 1602+1540 |
| 184 | 90 | 16 02 08.2 | +15 41 38 | GPair | | | PC | Her | |
| | 90a | 16 02 08.0 | +15 41 47 | G | 14.8g | 7x6 | | | MCG+3-41-48, IC 1165A |
| | 90b | 16 02 08.6 | +15 41 35 | G | 15.4g | 7x5 | | | MCG+3-41-49, IC 1165B |
| 184 | 92 | 16 02 08.7 | +15 42 39 | GPair | | | PDb | Her | MCG+3-41-50 |
| | 92b | 16 02 07.9 | +15 42 39 | G | 17.9g | 2x2 | | | |
| | 92a | 16 02 09.3 | +15 42 40 | G | 16.5g | 5x2 | | | |
| 185 | 213 | 16 04 35.3 | +17 43 09 | GPair | | | PC | Her | MCG+3-41-78, NGC 6041, UGC 10170 |
| | 213b | 16 04 34.9 | +17 43 03 | G | 15.4g | 7x6 | | | NGC 6041B, PGC 56960 |
| | 213a | 16 04 35.8 | +17 43 18 | G | 14.5g | 11x8 | | | NGC 6041A, PGC 56962 |
| 186 | 327 | 16 06 05.1 | +20 47 13 | GTrpl | | | PD | Her | |
| | 327c | 16 06 04.1 | +20 46 21 | G | 17.0 | 3x3 | | | MAC 1606+2046 |
| | 327b | 16 06 04.4 | +20 48 06 | G | 15.4g | 12x5 | | | MCG+4-38-27, UGC 10198 |
| | 327a | 16 06 05.9 | +20 47 03 | G | 15.2 | 11x6 | | | MCG+4-38-26, UGC 10197 |

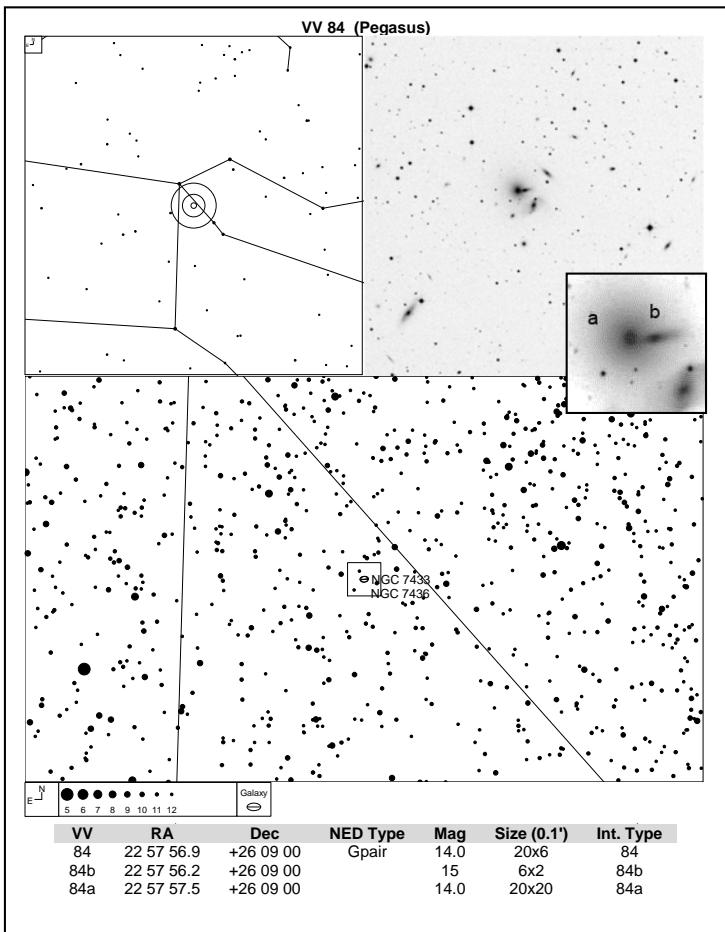
| Page | VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type | Const | Other IDs |
|------|------|------------|-----------|----------|-------|-------------|-----------|-------|-----------------------------------|
| 187 | 214 | 16 06 18.2 | +15 40 29 | GPair | | | PK | Her | |
| | 214a | 16 06 17.8 | +15 40 27 | G | 18.2g | 2x2 | | | |
| | 214b | 16 06 18.3 | +15 40 49 | G | 18.4g | 2x1 | | | |
| 187 | 215 | 16 06 25.7 | +15 41 23 | GPair | | | PK | Her | UGC 10201 |
| | 215a | 16 06 25.5 | +15 41 07 | G | 13.4 | 8x8 | | | MCG+3-41-123 |
| | 215b | 16 06 25.8 | +15 41 37 | G | 15.4 | 6x4 | | | MCG+3-41-124 |
| 188 | 192 | 16 15 34.8 | +19 27 27 | GPair | | | PKb | Her | |
| | 192b | 16 15 34.1 | +19 27 41 | G | 14.4b | 12x9 | | | MCG+3-41-145, NGC 6098, UGC 10299 |
| | 192a | 16 15 35.6 | +19 27 12 | G | 14.3b | 8x6 | | | MCG+3-41-146, NGC 6099 |
| 189 | 129 | 16 18 06.3 | +21 33 39 | GGroup | | | NN | Her | UGC 10321 |
| | 129a | 16 18 05.3 | +21 33 14 | G | 16.1g | 7x4 | | | MCG+4-38-46 |
| | 129d | 16 18 05.5 | +21 34 12 | G | 17.7g | 4x1 | | | MCG+4-38-46, UGC 10321 |
| | 129c | 16 18 05.7 | +21 33 48 | G | 18 | 2x1 | | | MCG+4-38-46, UGC 10321 |
| | 129b | 16 18 05.9 | +21 33 24 | G | 15.5 | 5x3 | | | MCG+4-38-46 |
| | 129e | 16 18 09.7 | +21 33 37 | G | 16.6g | 5x4 | | | MCG+4-38-47 |
| 190 | 289 | 16 55 00.5 | +43 03 30 | GPair | | | PDbt | Her | UGC 10610 |
| | 289a | 16 54 58.7 | +43 03 40 | G | 15.4g | 7x4 | | | MCG+7-35-4 |
| | 289b | 16 55 02.4 | +43 03 19 | G | 15.5 | 6x4 | | | MCG+7-35-5 |
| 191 | 268 | 17 33 38.0 | +50 22 25 | GPair | 16 | 15x9 | N | Her | MCG+8-32-10, UGC 10908 |
| | 268a | 17 33 37.8 | +50 22 41 | G | | | | | |
| | 268b | 17 33 37.9 | +50 22 25 | G | | | | | |
| | 268c | 17 33 38.0 | +50 22 22 | PofG | 16.5 | | | | |
| 192 | 121 | 17 58 15.8 | +66 38 00 | Other | 15 | 10x7 | Other | Dra | |
| 193 | 72 | 19 59 28.3 | +40 44 02 | G | 17.04 | | PC | Cyg | MCG+7-41-3, CygA |
| 194 | 304 | 19 18 30.0 | -60 29 56 | GPair | | | PDdf | Pav | |
| | 304a | 19 18 22.6 | -60 30 03 | G | 12.55 | 23x15 | | | NGC 6769 |
| | 304b | 19 18 37.3 | -60 29 50 | G | 12.83 | 23x17 | | | NGC 6770 |
| 195 | 297 | 20 16 57.3 | -70 45 30 | GPair | | | PD | Pav | |
| | 297a | 20 16 56.5 | -70 46 03 | G | 12.69 | 60x17 | | | NGC 6872 |
| | 297b | 20 16 57.3 | -70 44 57 | G | 14.7 | 7x2 | | | IC 4970 |
| 196 | 102 | 21 04 28.7 | +16 05 01 | GPair | | | PC | Del | MCG+3-53-13, UGC 11672 |
| | 102b | 21 04 28.2 | +16 05 04 | G | 15.0 | 8x4 | | | MAC 2104+1605 |
| | 102a | 21 04 29.1 | +16 04 58 | G | 14.7 | 10x6 | | | |

| Page | VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type | Const | Other IDs |
|------|-----|------------|-----------|----------|-------|-------------|-----------|-------|-------------|
| 197 | 17 | 22 54 56.7 | -16 08 12 | GPair | | | MM | Aqr | |
| | 17c | 22 54 56.1 | -16 08 16 | PofG | 19 | | | | |
| | 17b | 22 54 56.3 | -16 07 55 | PofG | 18 | | | | |
| | 17d | 22 54 56.5 | -16 08 27 | G | 18 | | | | |
| | 17a | 22 54 56.9 | -16 07 57 | G | 13.73 | 13x9 | | | MCG-3-58-12 |

Note: This observing guide contains only the non-Arp VV objects as the Arp Peculiar Galaxies are covered in my publication, Observing the Arp Peculiar Galaxies.

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How to Use the Atlas



The top left panel contains the naked eye field with the TelRad™ superimposed on the center of the galaxy trio or triple system. The top right panel contains the inverted labeled DSS image. The image is generally 15' square, otherwise larger.

The bottom panel is a finder field of about 5.0° across and 3.0° high. The finder field is wide enough for the finder scope and detailed enough for those who choose to use a low power eyepiece as a “finder”, like I do. The limiting magnitude of the field stars is set to 12.0 (or 11.0 in star rich regions). The field of the DSS image is superimposed on the finder chart. All charts and images are oriented north pointed up and west to the right.

Many VV objects have an inset showing detail and labeled components as listed by Boris Vorontsov-Velyaminov. Most inset images are from the Sloan Digital Sky Survey (SDSS) others are from the DSS from where the SDSS is not available.

A table provided at the bottom of the each page includes:

VV – The first row contains the main catalogue item. The remaining rows contain details of components of the VV object as listed by Dr. Vorontsov-Velyaminov

RA and **Dec** are in Epoch 2000.0. For the main catalogue item, the coordinates listed is the center of the group as provided by NASA Extragalactic Database (NED)

NED Type - The type as provided by NED

G – Galaxy

GPair – Galaxy Pair

GTrpl – Triple Galaxy

GGroup – Galaxy Group

PofG – Part of Galaxy

Star Cl – star cluster

Star – a star

Dbl star – double star

Magnitude as listed by NED or RC3 (Third Reference Catalogue of Bright Galaxies)

Size as provided by the original VV Catalogue, NED or RC3. The size given is in 0.1' units. For example 20x7 is 2.0 x 0.7'. Since Vorontsov-Velyaminov provided the sizes in this format, I've decided to leave it alone.

Interaction Type – The Interaction Type as listed by Vorontsov-Velyaminov. See table below:

Table 2: Vorontsov-Velyaminov Interaction Type

| Type | Description |
|------------------------------|--|
| HII-regions | |
| H | large inner subsystems, the galaxies with vast HII-regions |
| M-51 type⁵ | |
| M | the satellite on the spiral branch of primary component |
| MM | one satellite |
| MMM | two satellites on the spirals |
| | satellite lies on the bridge connecting the components |
| Nests⁶ | |
| N | three or more members in a tight group |
| NN | disrupted nest |
| NNN | separated triples |
| NNNP | triples with a tight pair |
| NPNP | the pair of tight pairs |
| NP | nest with clear pair |
| Ch | chain |
| Pairs | |
| PC | pair of coalescents |
| PK | pair in contact |
| PD | distant pair |
| b | bridge |
| t | tail |
| df | disruption of the facade |
| Pseudo-Rings | |
| R | a ring without a nucleus together the non-elliptic galaxy |
| "Comets" | |
| K | comet-like single galaxy |
| Enigmatic | |
| En | including |
| Ent | a single galaxy with a tail |
| Enf | a single with breaking of inner structure |
| Enat | not tidal phenomena |

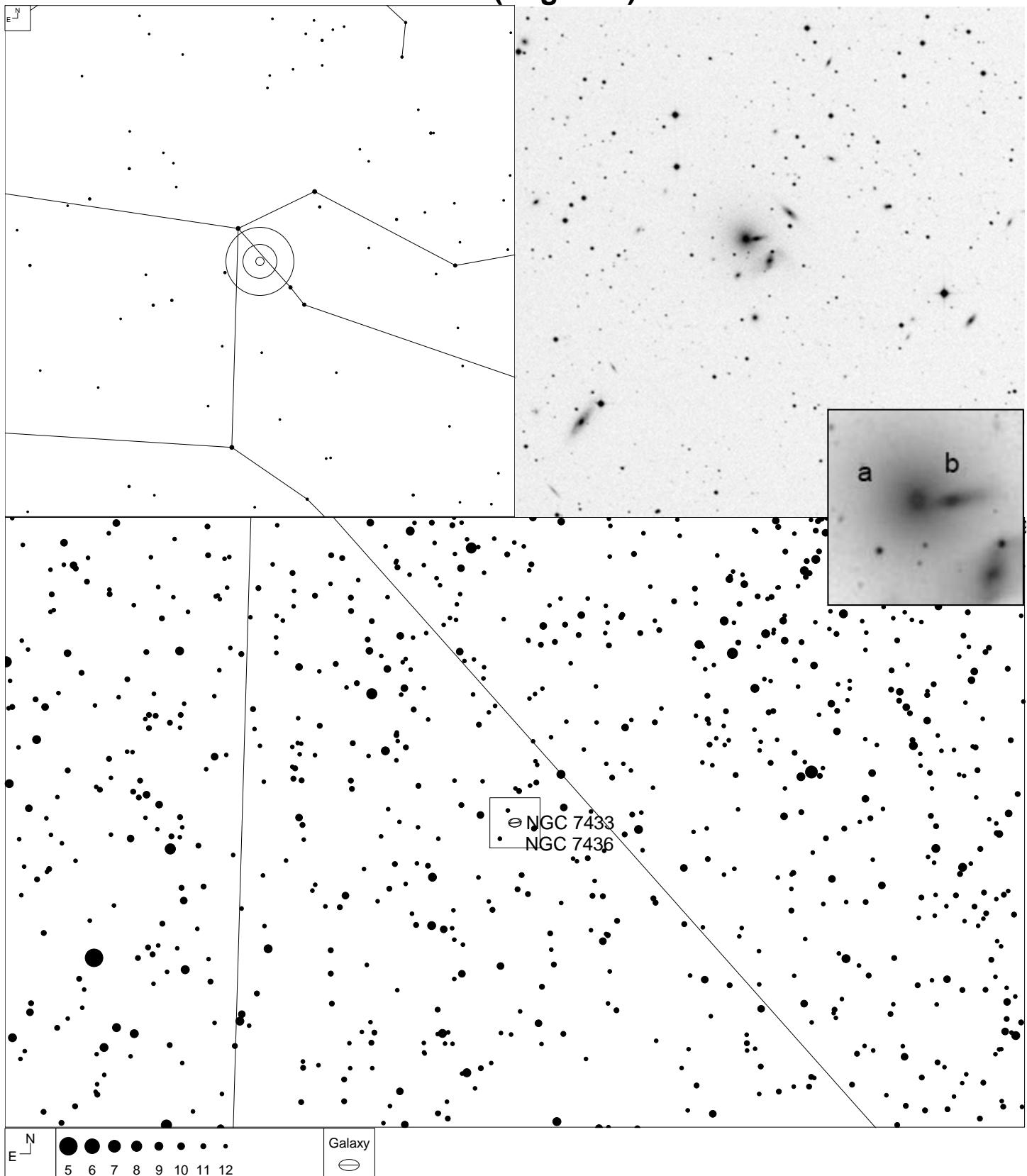
Any comments or if you want to share any observations. Please send them to
Alvin@FaintFuzzies.com

⁵ Jokimäki, A et al. *A Catalogue of M51 type Galaxy Associations*. *Astrophysics and Space Science*, **315**(1):249-283

⁶ Zasov, A. V. & Arkhipova, V. P. *Vorontsov-Velyaminov' nests: what are they?* Small Galaxy Groups: IAU Colloquium 174, ASP Conference Series, Volume **209**

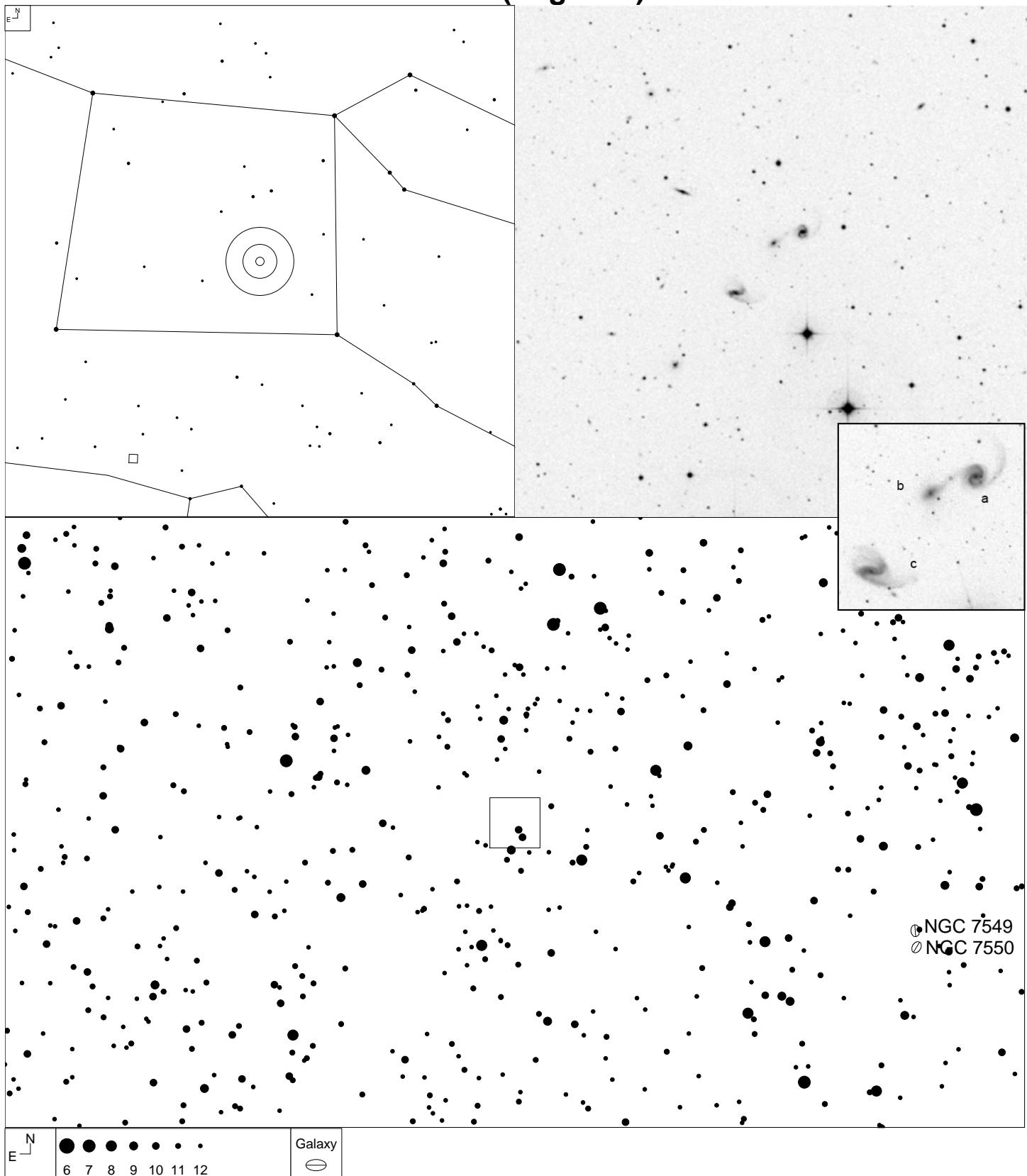
The Vorontsov-Velyaminov Atlas of Interacting Galaxies (Part I)

VV 84 (Pegasus)



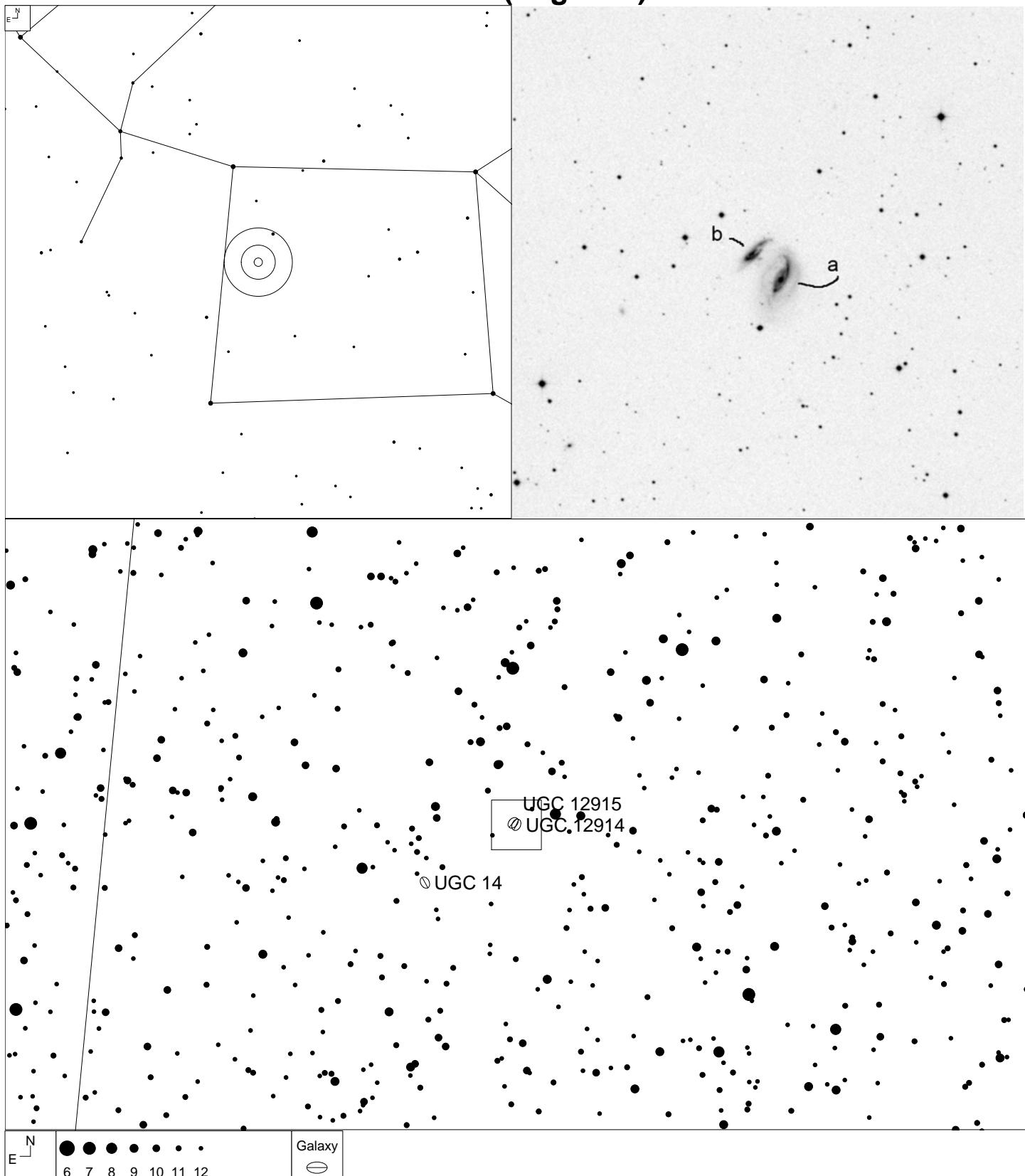
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|------|-------------|-----------|
| 84 | 22 57 56.9 | +26 09 00 | GPair | 14.0 | 25x25 | NNNP |
| 84b | 22 57 56.2 | +26 09 00 | G | 15 | 6x2 | |
| 84a | 22 57 57.5 | +26 09 00 | G | 14.0 | 20x20 | |

VV 305 (Pegasus)



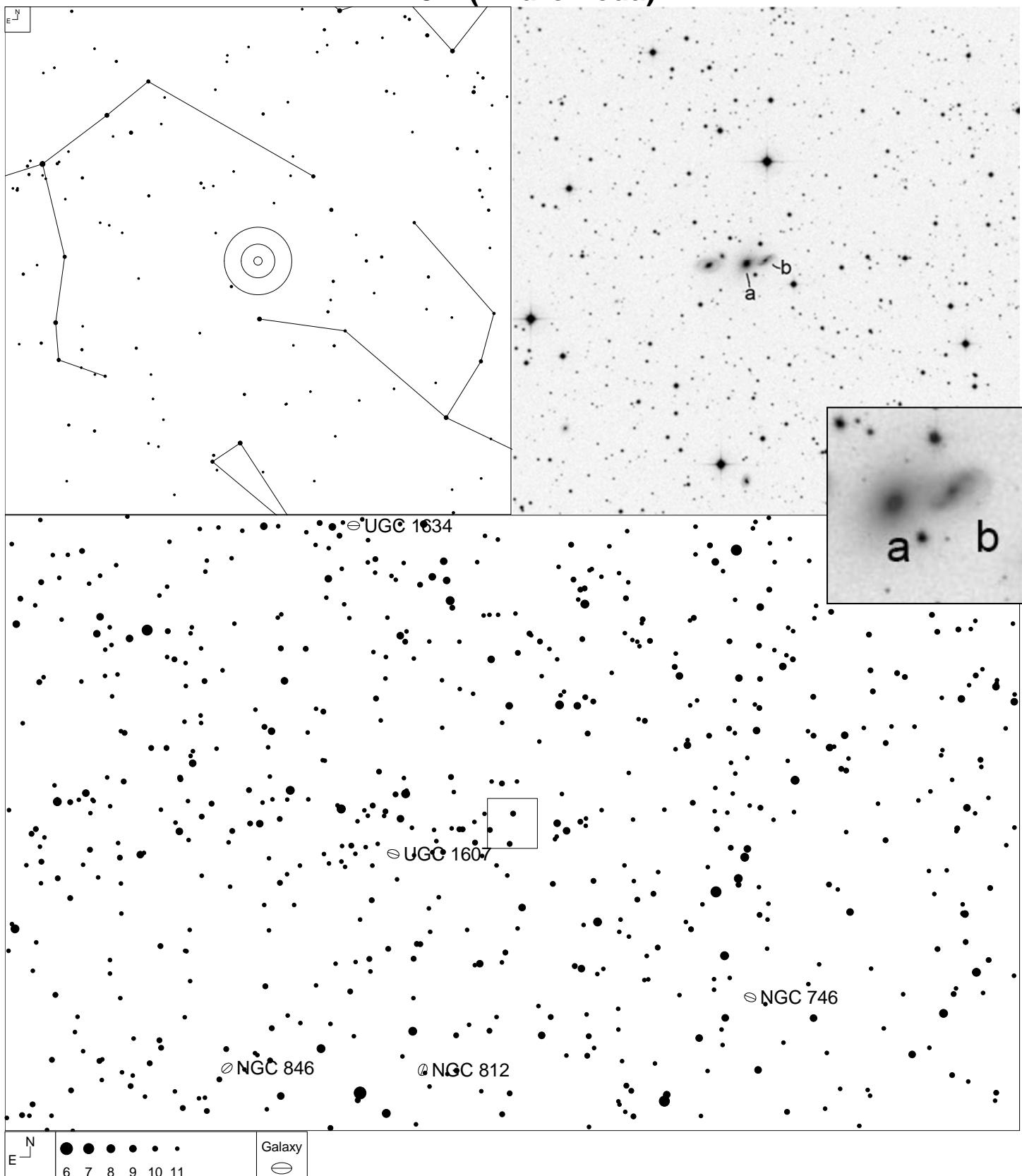
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 305 | 23 23 36.8 | +19 35 04 | GTrpl | | | NNN |
| 305a | 23 23 32.7 | +19 35 59 | G | 15.4 | 5x4 | |
| 305b | 23 23 36.3 | +19 35 39 | G | 16.5 | 4x2 | |
| 305c | 23 23 41.0 | +19 34 10 | G | 15.07 | 12x6 | |

VV 254 (Pegasus)



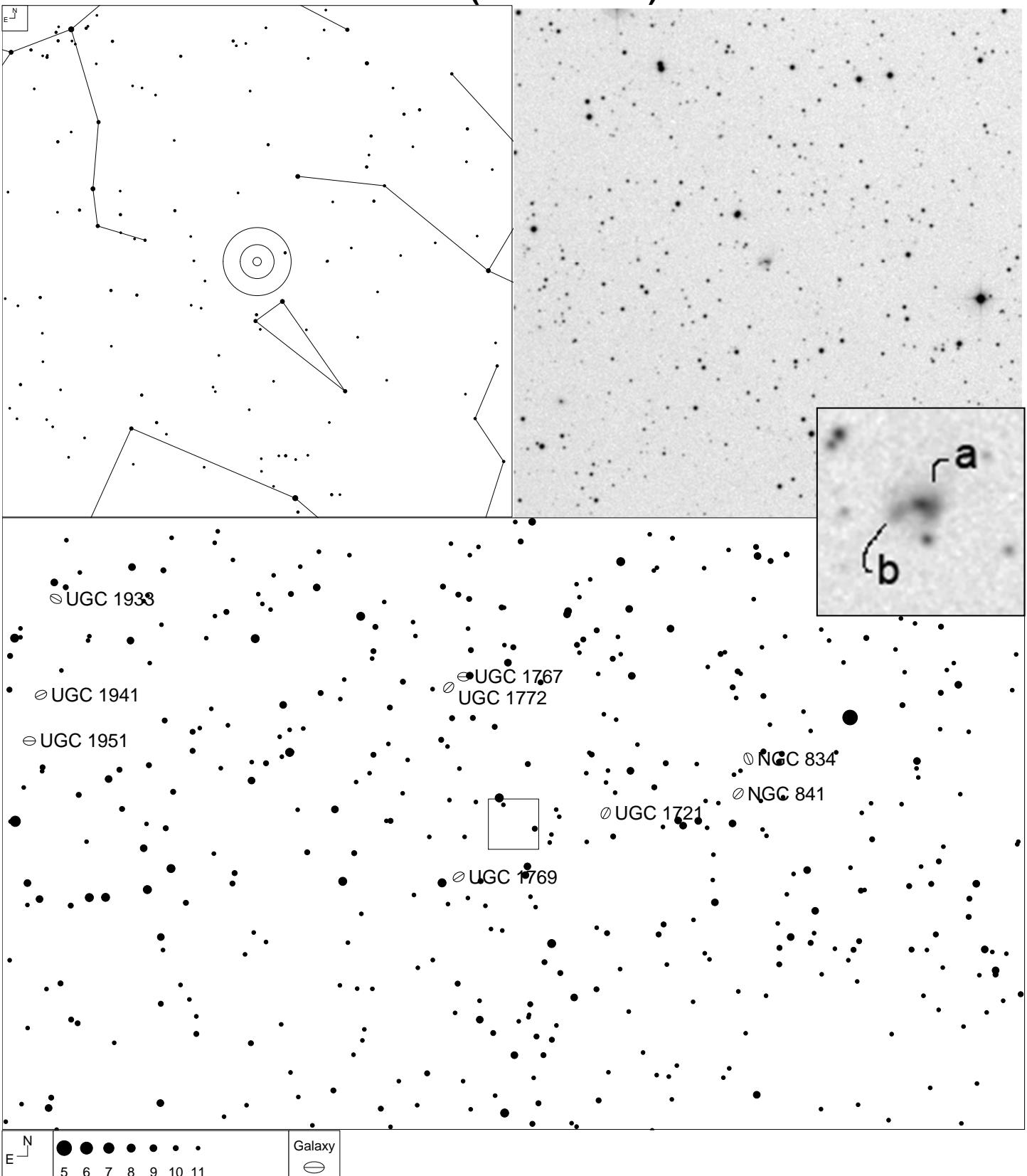
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 254 | 00 01 40.2 | +23 29 23 | GPair | | | PKdf |
| 254a | 00 01 38.2 | +23 29 04 | G | 13.07 | 23x13 | |
| 254b | 00 01 42.2 | +23 29 42 | G | 13.95 | 15x5 | |

VV 37 (Andromeda)

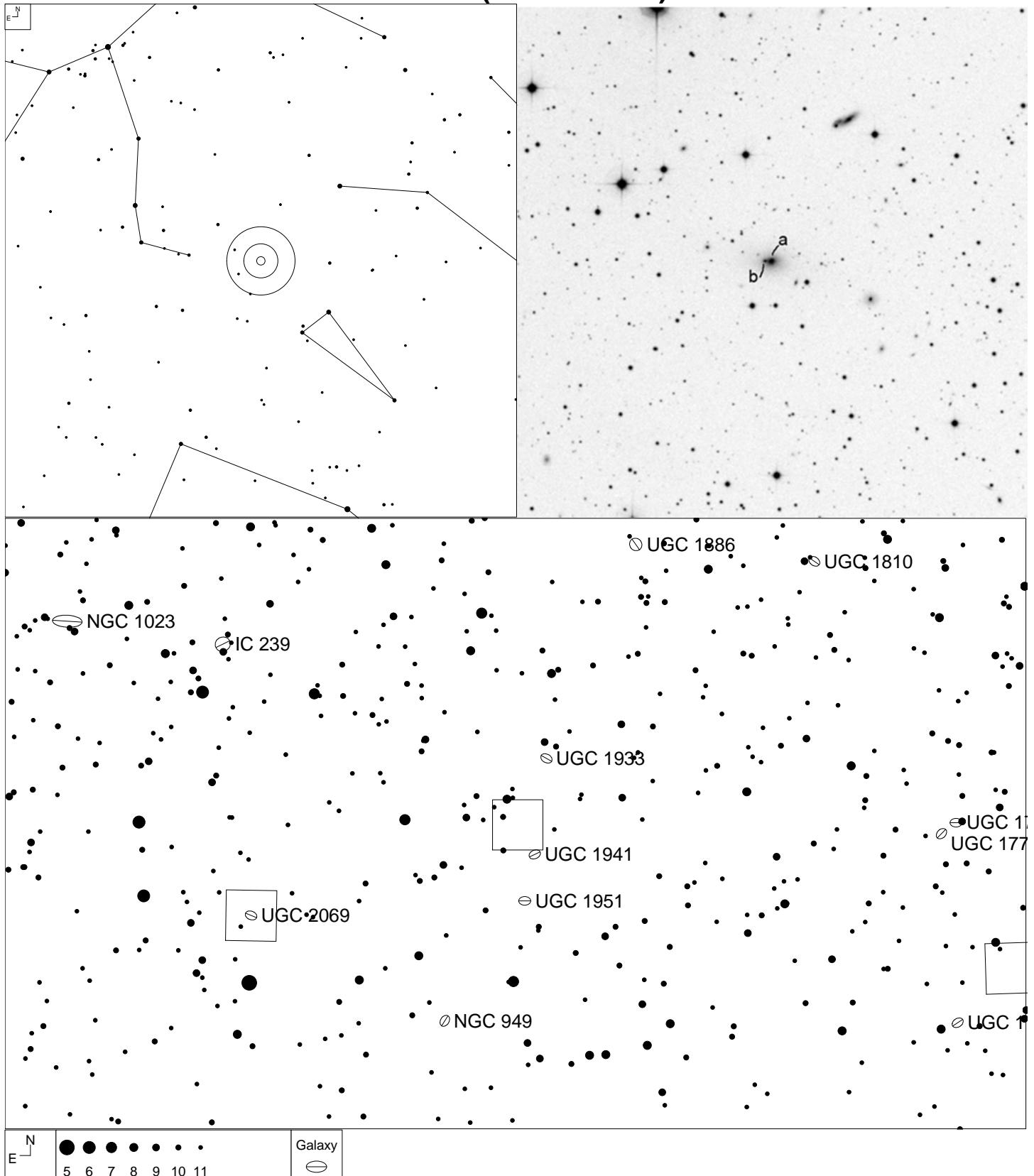


| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|------|-------------|-------------|
| 37 | 02 04 23.8 | +45 46 33 | GPair | | | PD b |
| 37b | 02 04 22.3 | +45 46 35 | G | 16.2 | 6x3 | |
| 37a | 02 04 25.4 | +45 46 27 | G | 15.0 | 4x4 | |

VV 94 (Andromeda)

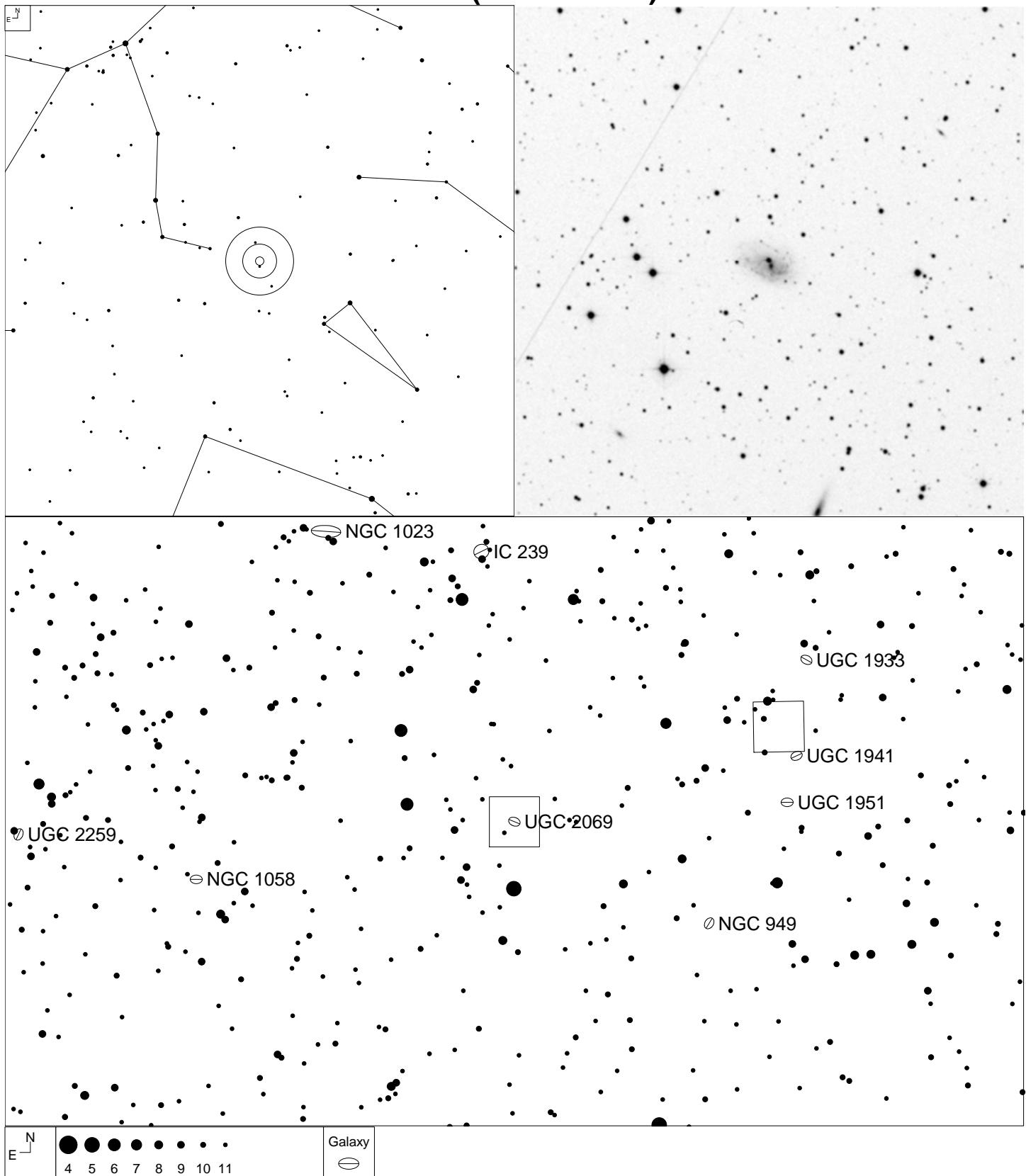


VV 107 (Andromeda)



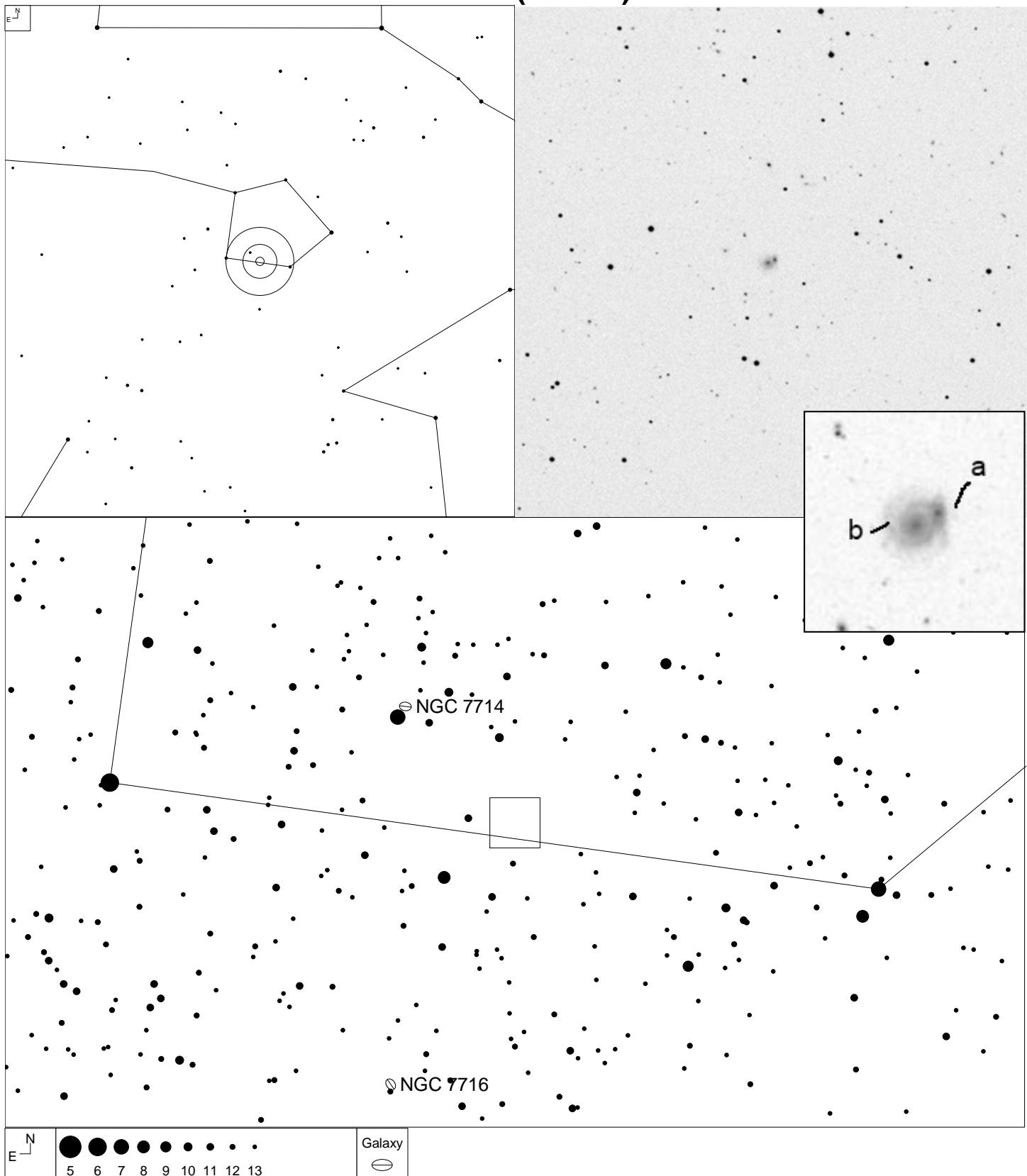
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|------|-------------|-----------|
| 107 | 02 29 01.5 | +38 05 55 | GPair | 15.5 | 6x6 | PC |
| 107a | 02 29 01.1 | +38 05 53 | G | | | |
| 107b | 02 29 02.0 | +38 05 56 | G | | | |

VV 96 (Andromeda)



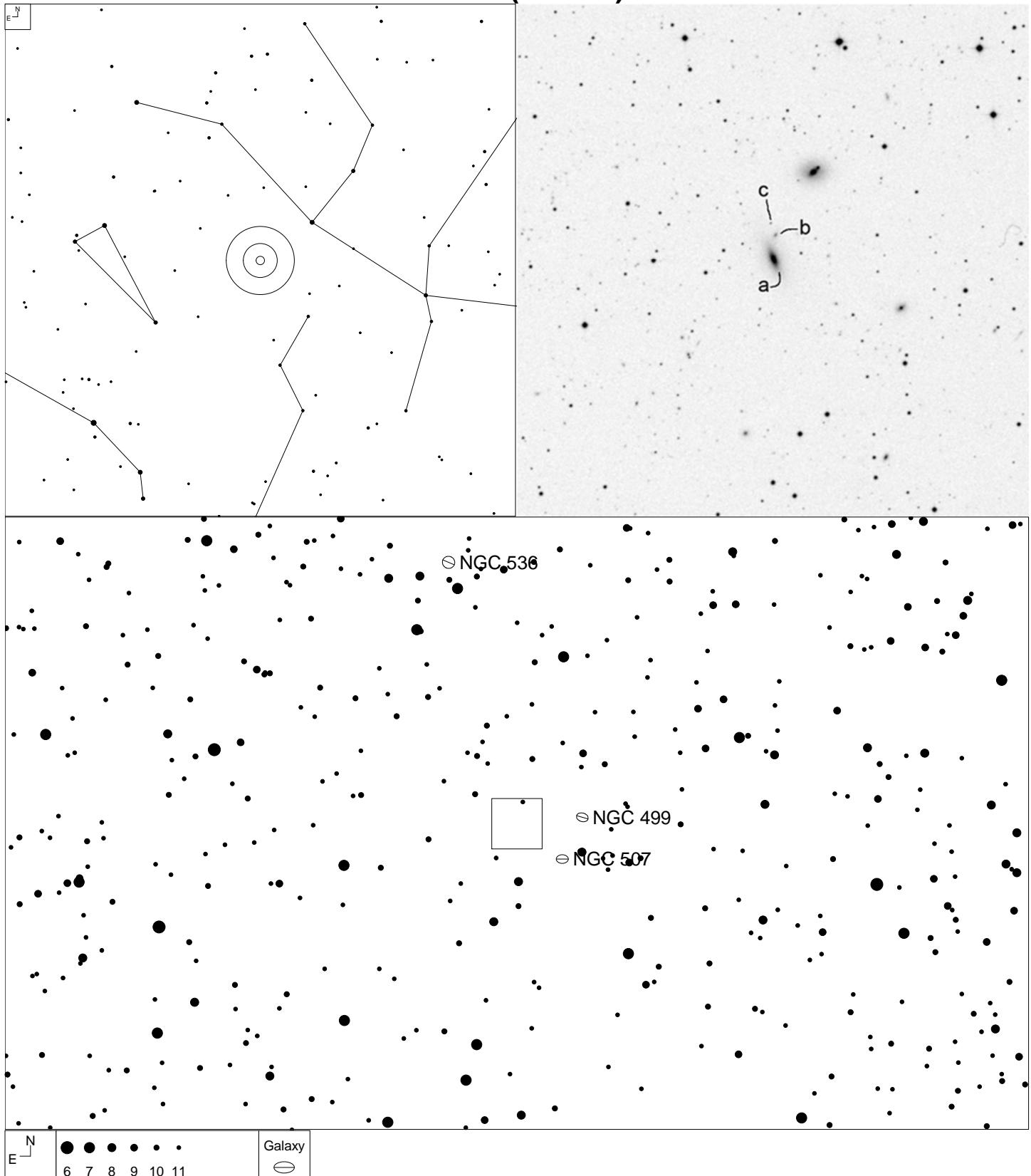
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|----|------------|-----------|----------|-------|-------------|-----------|
| 96 | 02 35 37.3 | +37 38 21 | G | 13.03 | 23x14 | PC |

VV 187 (Pisces)



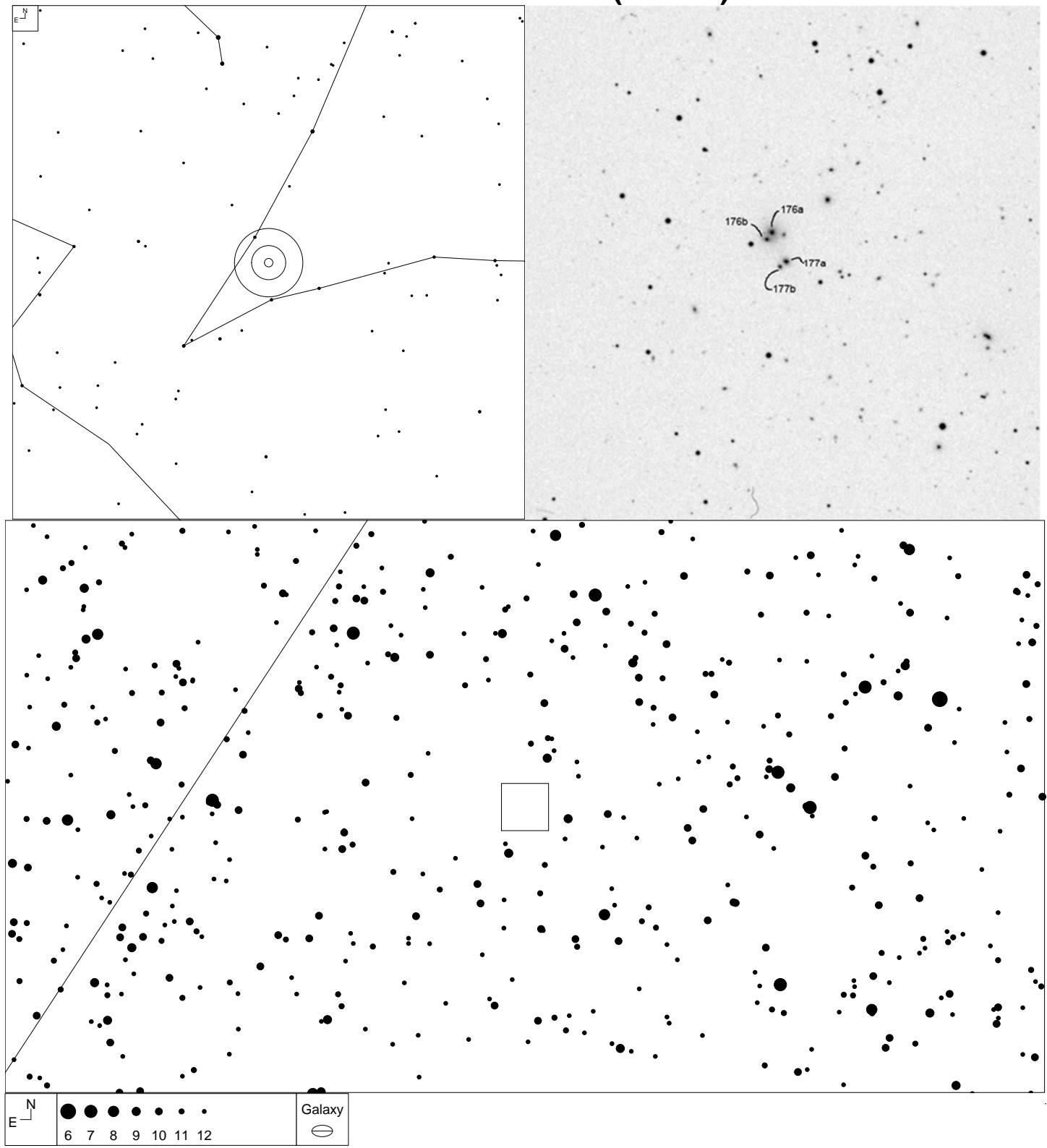
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 187 | 23 34 04.5 | +01 35 03 | GPair | 15.85 | 7x4 | PK |
| 187a | 23 24 04.1 | +01 35 07 | G | | | |
| 187b | 23 34 04.9 | +01 35 00 | G | | | |

VV 36 (Pisces)



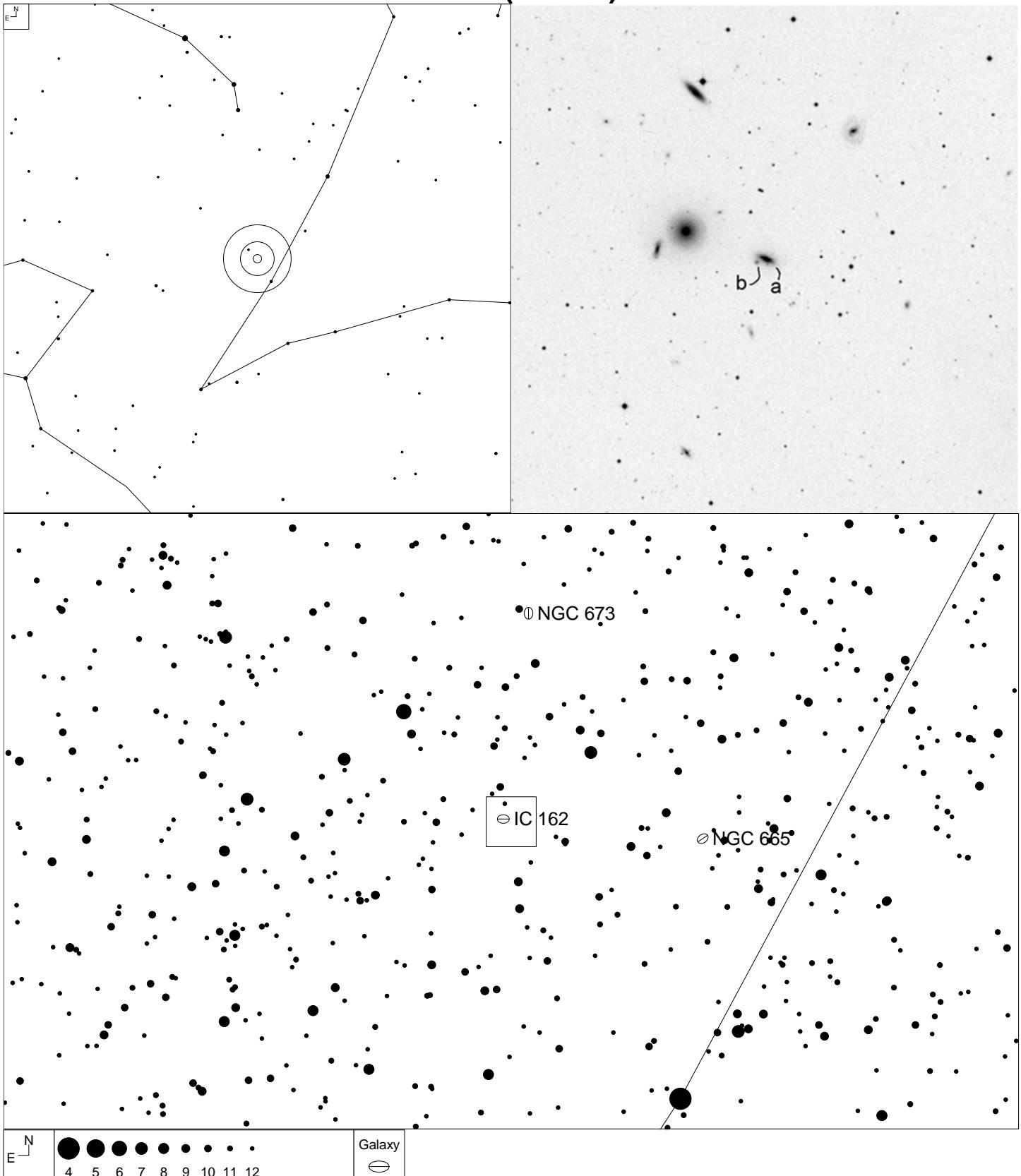
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|-------|-------------|-----------|
| 36 | 01 24 43.9 | +33 26 08 | GPair | | | N |
| 36b | 01 24 43.6 | +33 26 08 | G | 17.5 | 2x2 | |
| 36a | 01 24 43.8 | +33 25 46 | G | 13.42 | 20x10 | |
| 36c | 01 24 44.3 | +33 26 51 | star | | | |

VV 176 and VV 177 (Pisces)



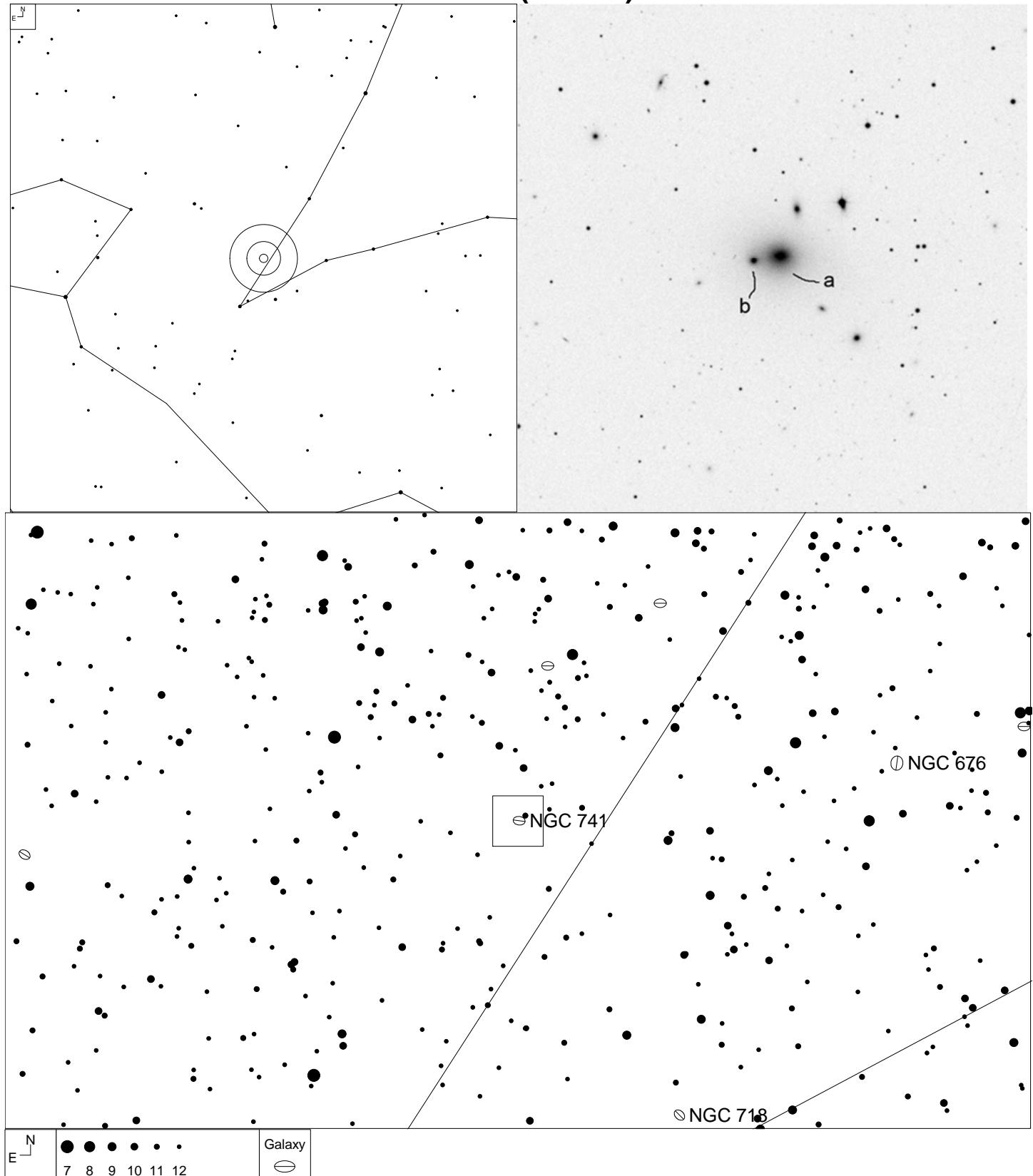
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|------|-------------|-----------|
| 177 | 01 42 04.8 | +07 38 57 | GPair | | | PKb |
| 177a | 01 42 04.3 | +07 39 02 | G | 13.7 | 7x4 | |
| 177b | 01 42 05.0 | +07 38 52 | G | 16.0 | 3x2 | |
| 176 | 01 42 06.4 | +07 39 46 | GPair | | | PK |
| 176a | 01 42 06.0 | +07 39 54 | G | 14.9 | 6x6 | |
| 176b | 01 42 06.7 | +07 39 39 | G | 16.0 | 2x2 | |

VV 54 (Pisces)



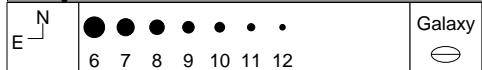
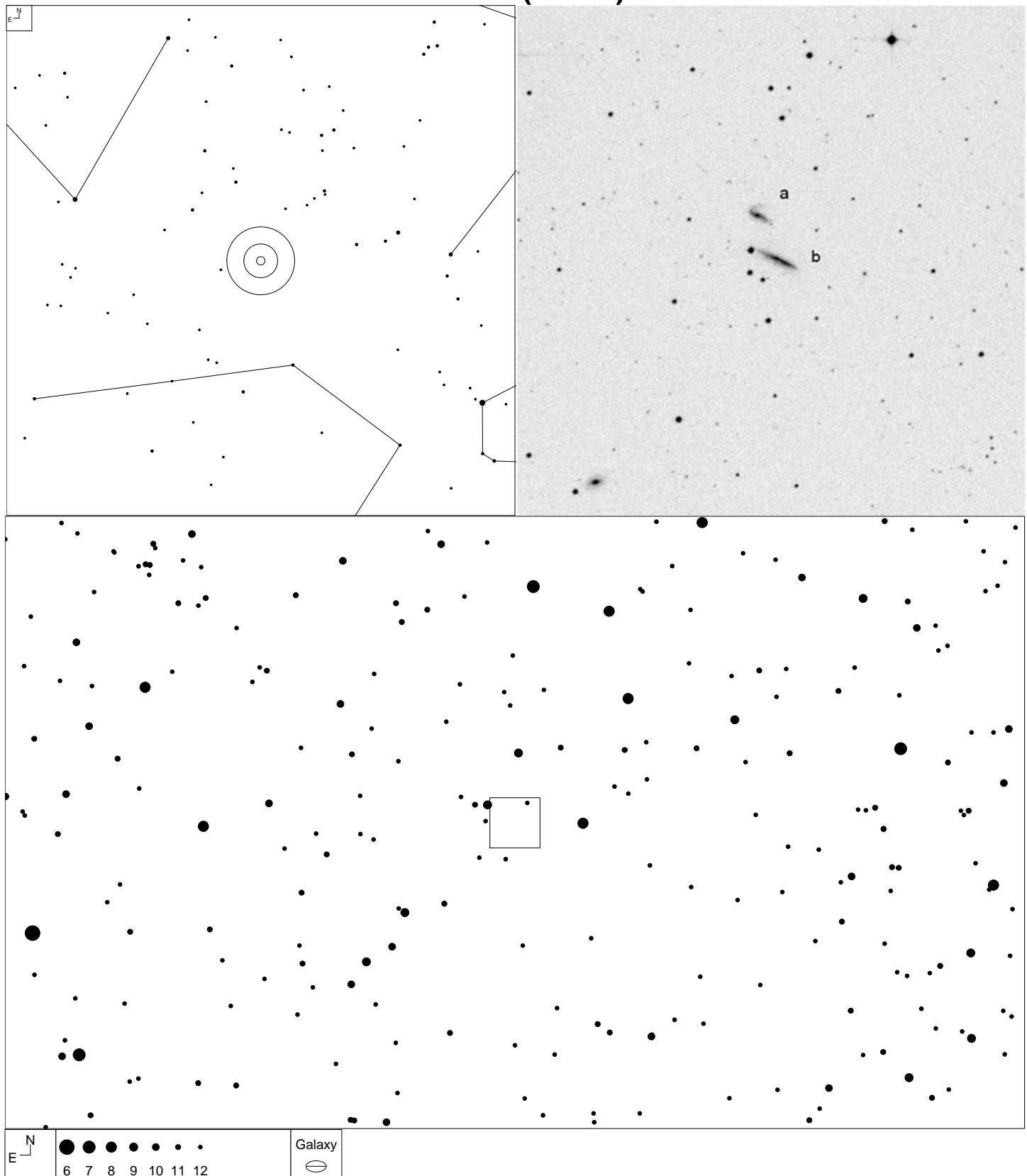
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|--------|-------------|-----------|
| 54 | 01 48 44.2 | +10 30 26 | GPair | | | Nb |
| 54a | 01 48 43.7 | +10 30 28 | G | 14.69 | 8x6 | |
| 54b | 01 48 44.9 | +10 30 23 | G | 16.99g | 1x1 | |

VV 175 (Pisces)



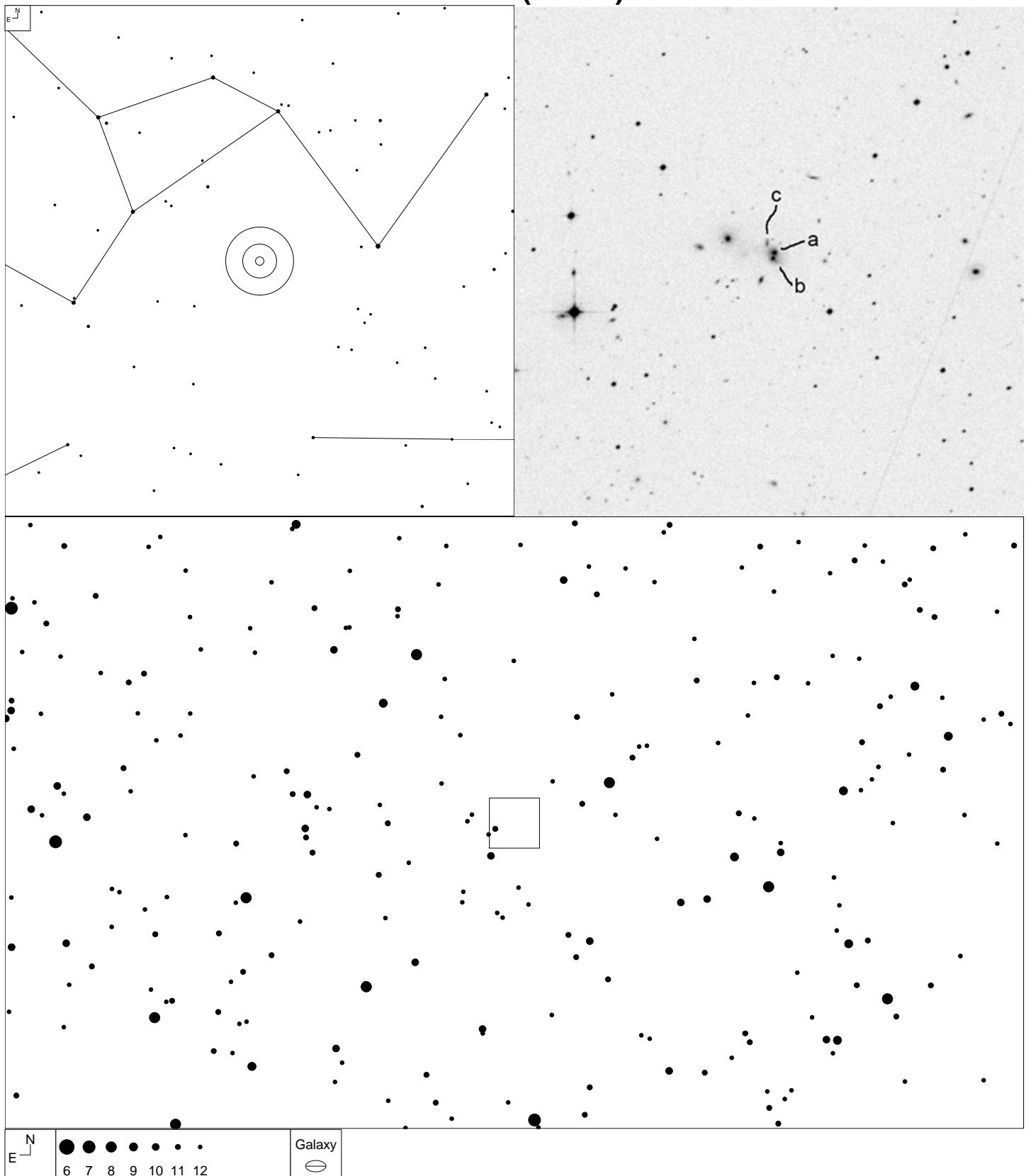
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 175 | 01 56 22.6 | +05 37 40 | GPair | | | PK |
| 175a | 01 56 21.0 | +05 37 44 | G | 12.2 | 30x28 | |
| 175b | 01 56 24.2 | +05 37 36 | G | 15.30 | 2x2 | |

VV 332 (Cetus)



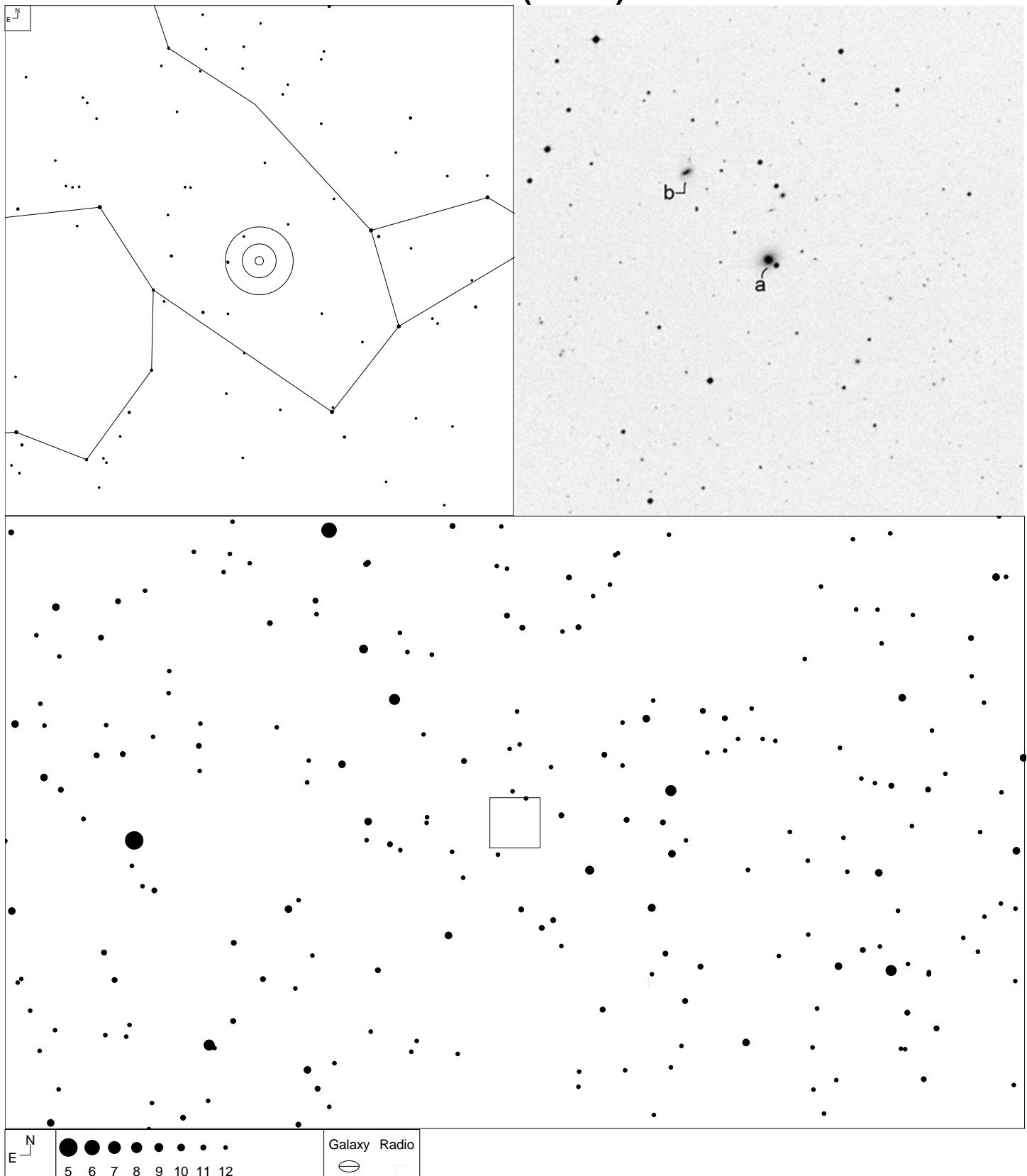
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 332 | 23 57 33.4 | -21 59 22 | GPair | | | PD |
| 332b | 23 57 32.6 | -22 00 00 | G | 16.59 | 16x4 | |
| 332a | 23 57 34.8 | -21 58 44 | G | 15 | 10x7 | |

VV 258 (Cetus)



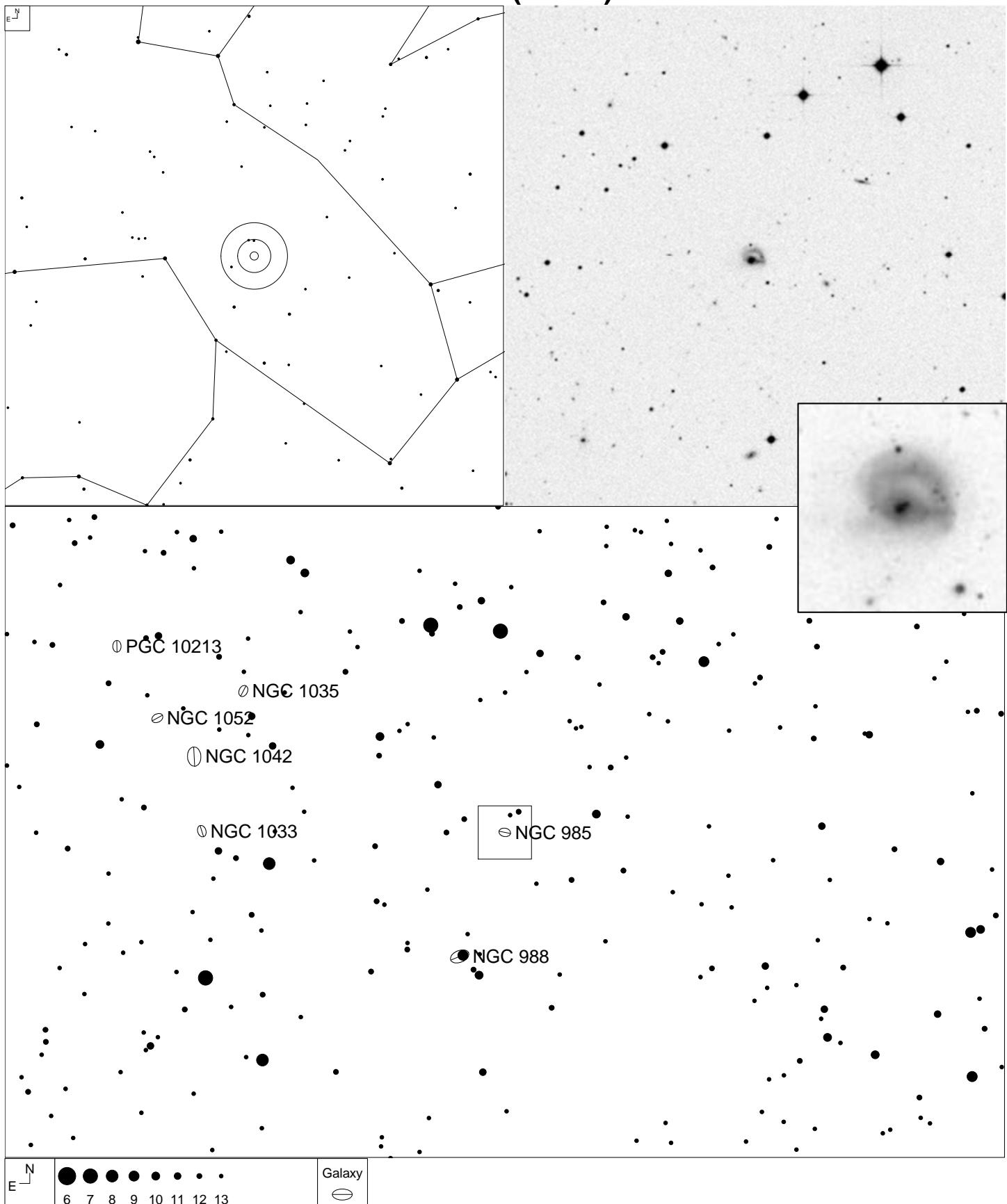
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|------|-------------|-----------|
| 258 | 01 12 59.7 | -19 00 14 | GTrpl | | | NNN |
| 258a | 01 12 58.6 | -19 00 15 | G | 15.5 | 1x1 | |
| 258b | 01 12 59.0 | -19 00 24 | G | 16 | 2x2 | |
| 258c | 01 12 59.8 | -18 59 59 | G | 18 | 3x2 | |

VV 302 (Cetus)



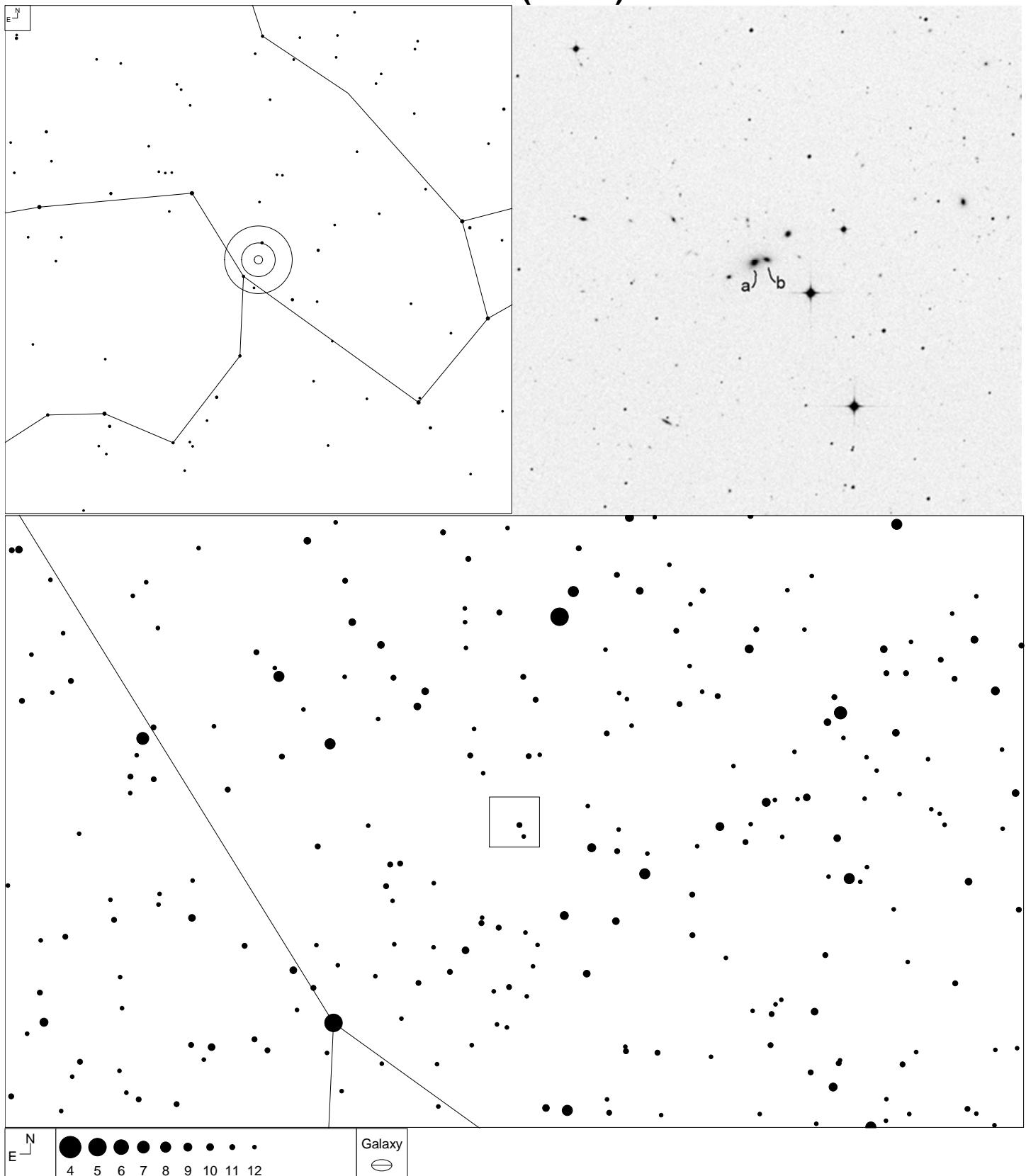
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 302 | 02 18 19.2 | -12 12 38 | GPair | | | PD |
| 302a | 02 18 14.2 | -12 13 55 | G | 14.58 | 9x9 | |
| 302b | 02 18 24.2 | -12 11 20 | G | 15 | 9x7 | |

VV 285 (Cetus)



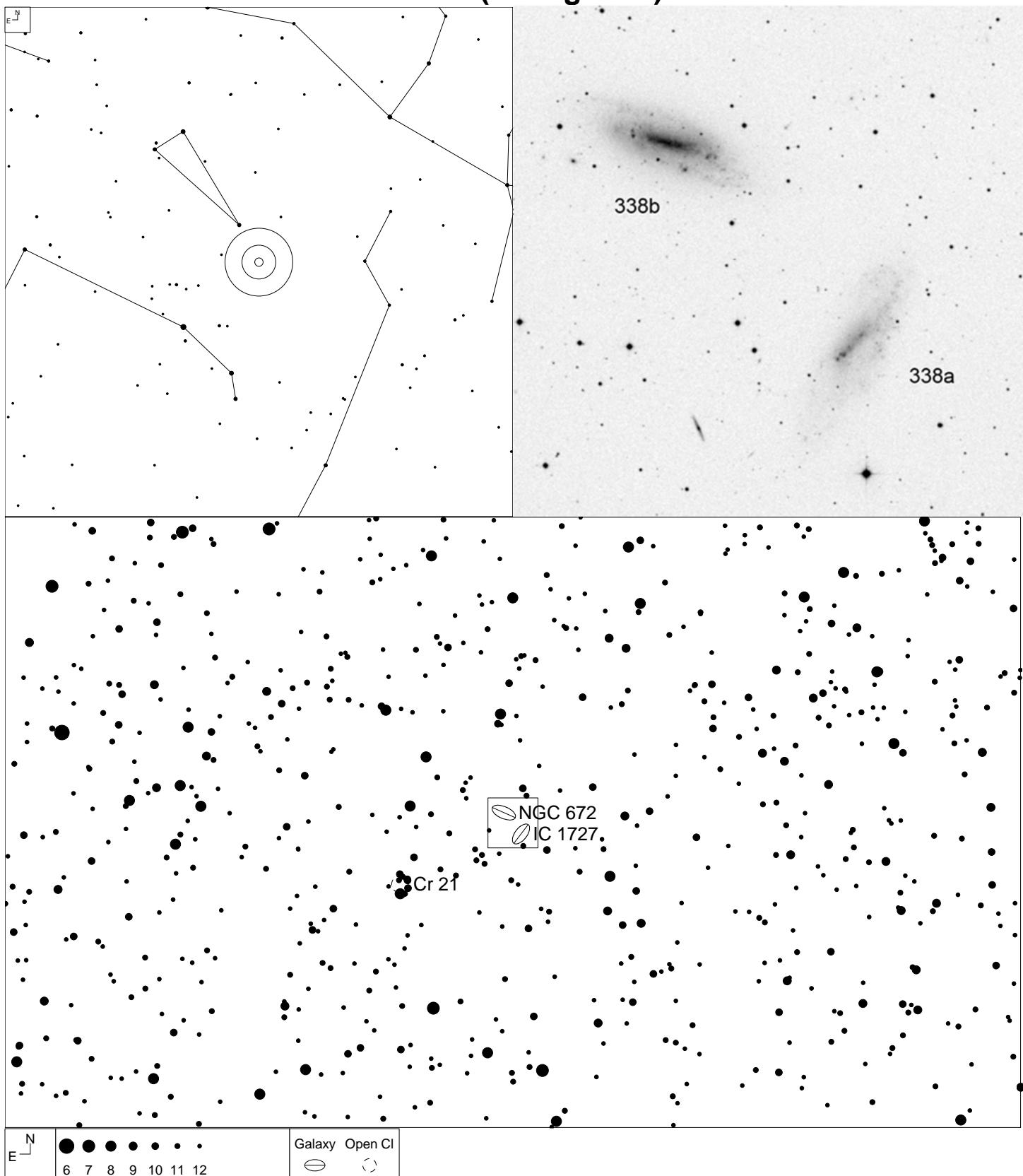
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|-------|-------------|-----------|
| 285 | 02 34 37.4 | -08 47 08 | G | 14.01 | 10x9 | R |

VV 200 (Cetus)



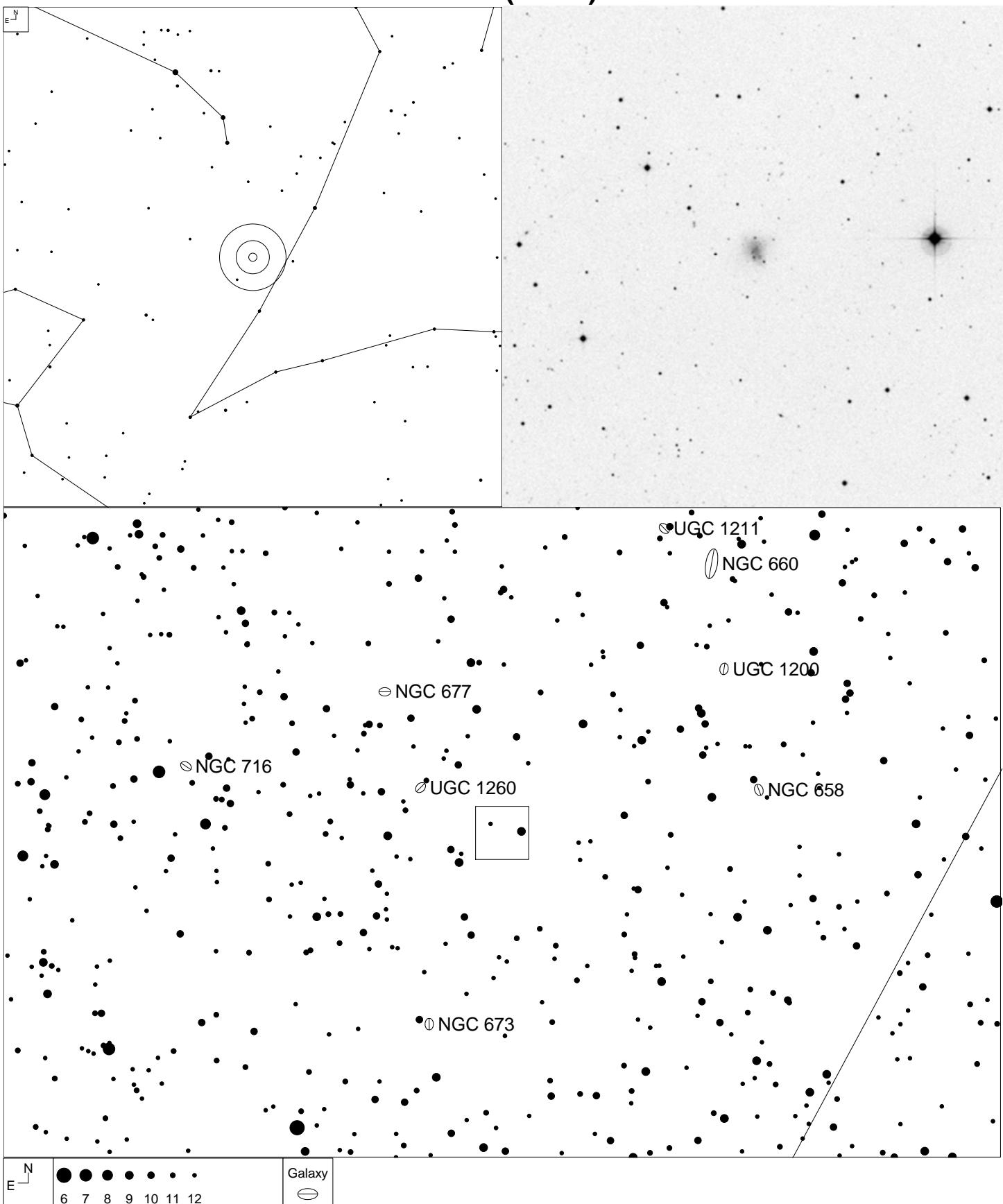
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-------------|
| 200 | 02 40 28.1 | -12 52 35 | GPair | | | PD b |
| 200b | 02 40 27.4 | -12 52 33 | G | 15.5 | 3x2 | |
| 200a | 02 40 28.9 | -12 52 38 | G | 15.6b | 3x3 | |

VV 338 (Triangulum)



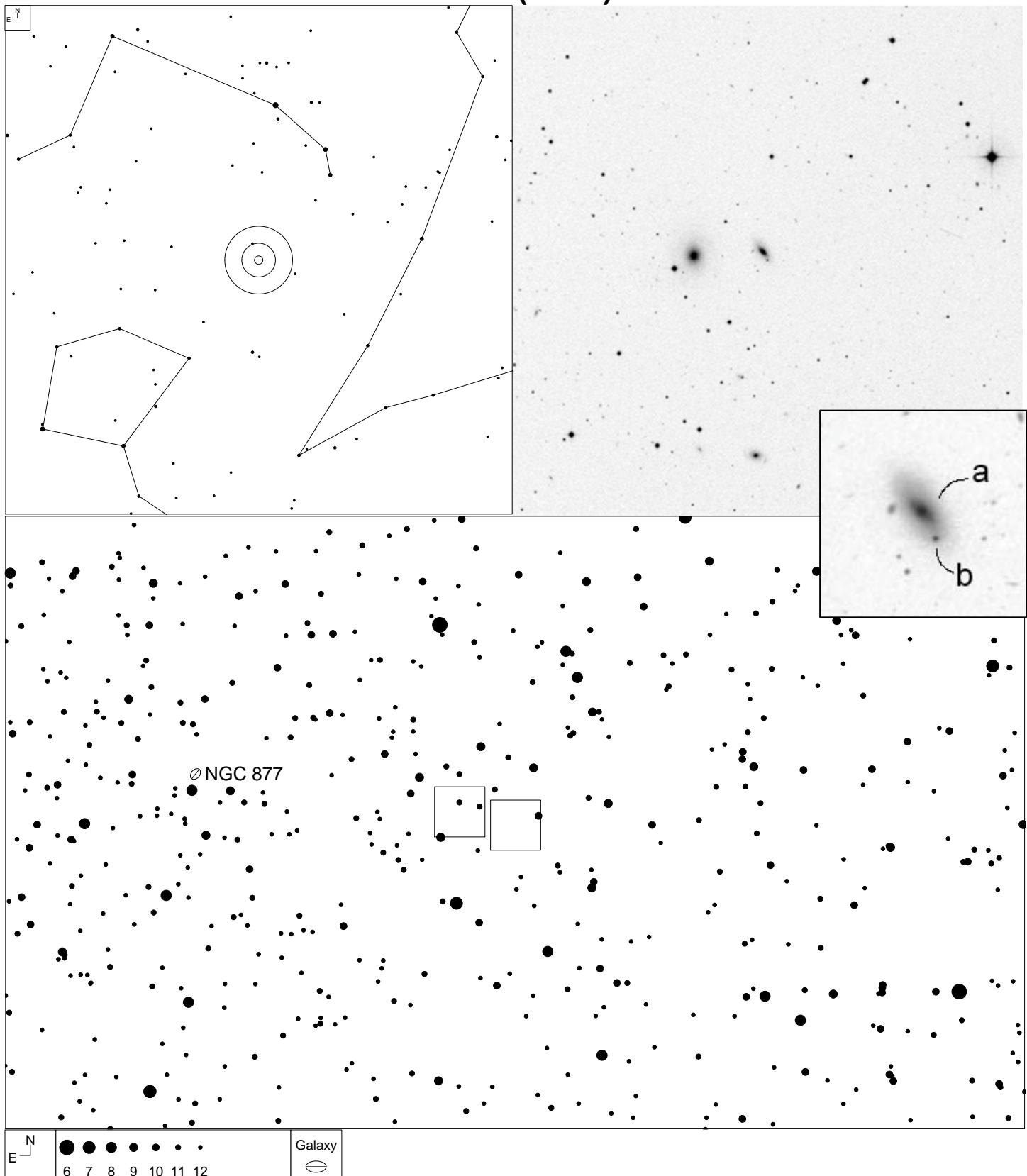
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 338 | 01 47 42.2 | +27 22 59 | GPair | | | PDdf |
| 338a | 01 47 29.9 | +27 20 00 | G | 12.07 | 69x30 | |
| 338b | 01 47 54.5 | +27 25 58 | G | 11.47 | 72x25 | |

VV 93 (Aries)

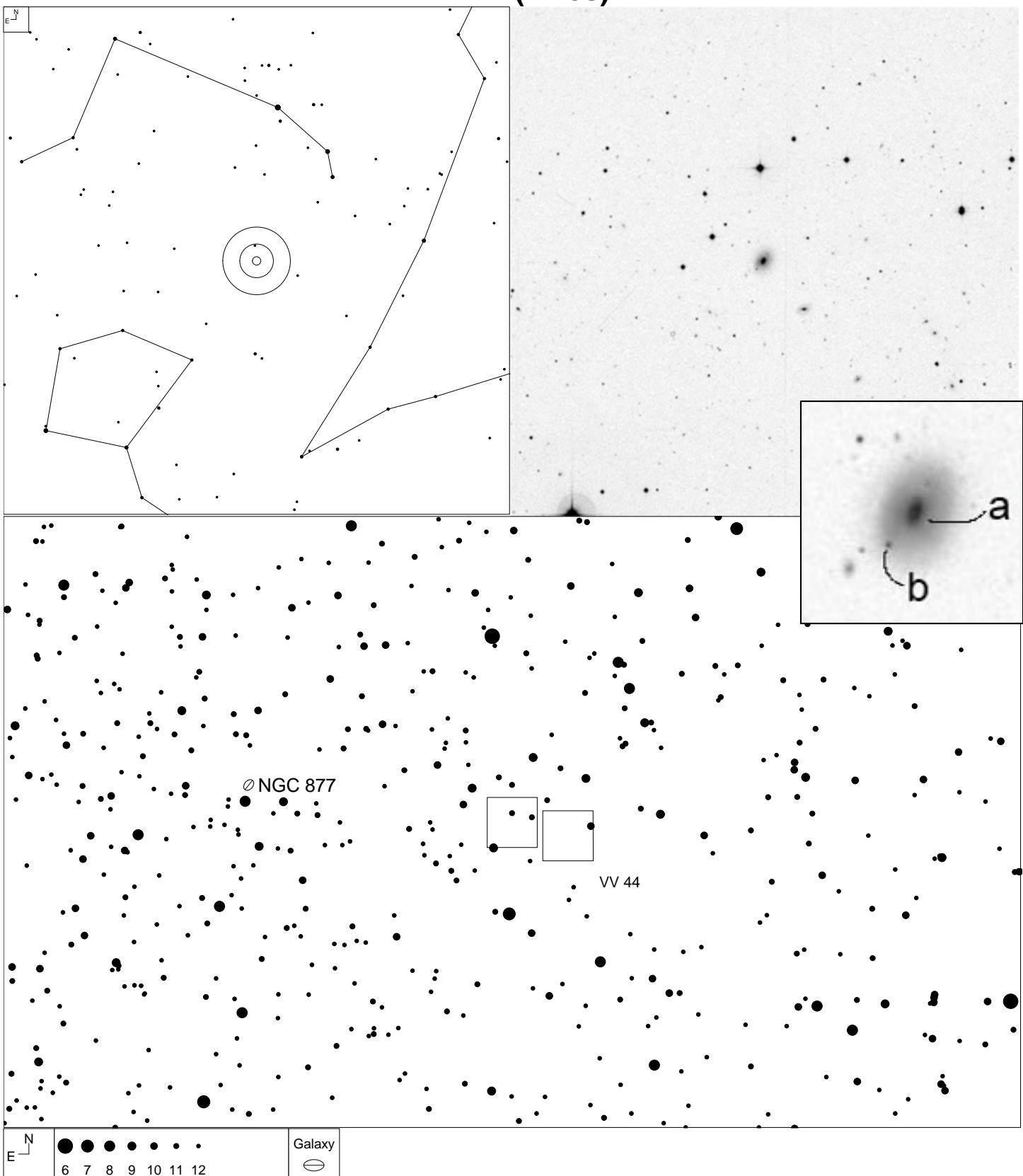


| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|----|------------|-----------|----------|-------|-------------|-----------|
| 93 | 01 47 00.7 | +12 24 21 | G | 14.52 | 14x12 | PC |

VV 44 (Aries)

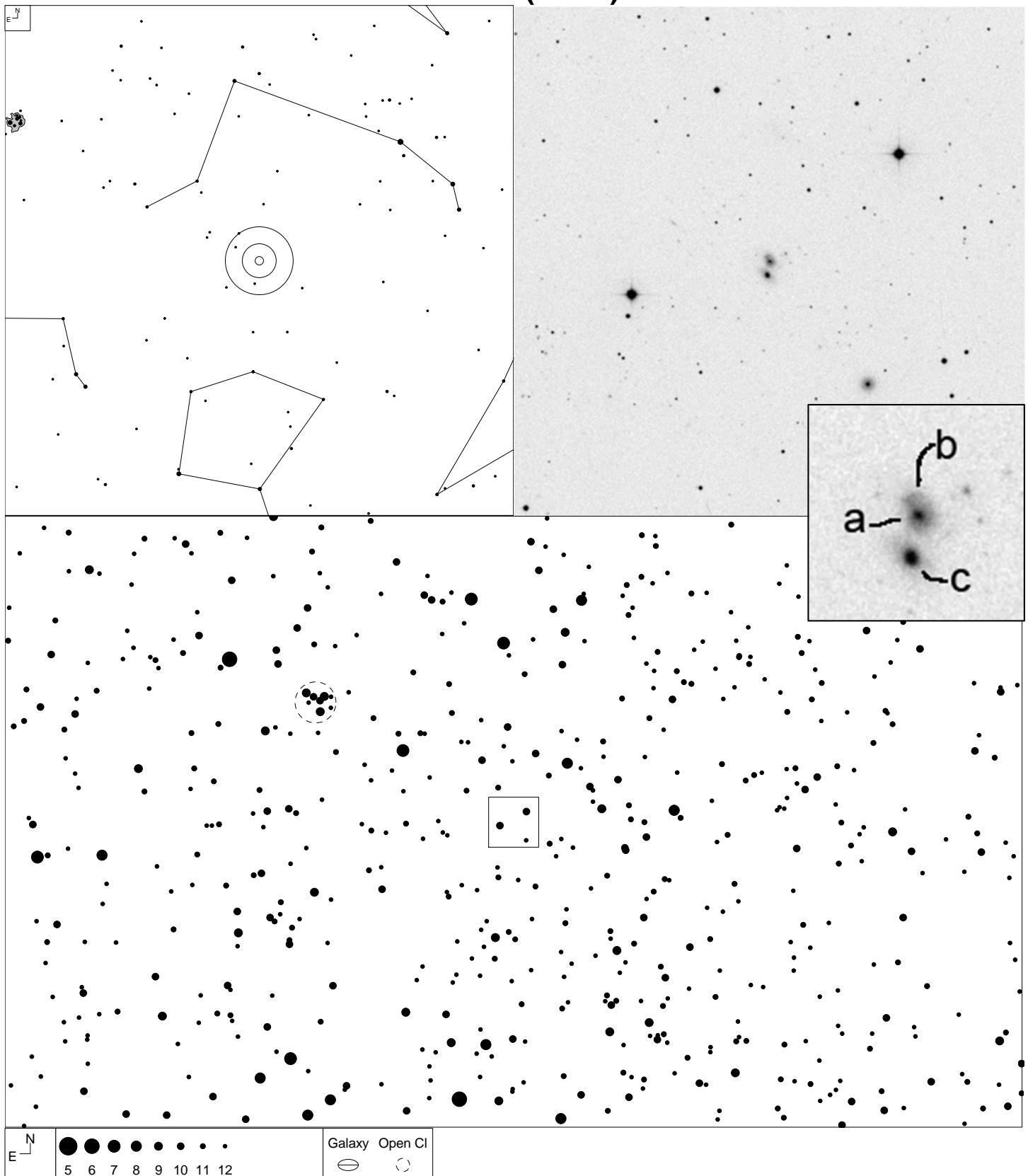


VV 27 (Aries)



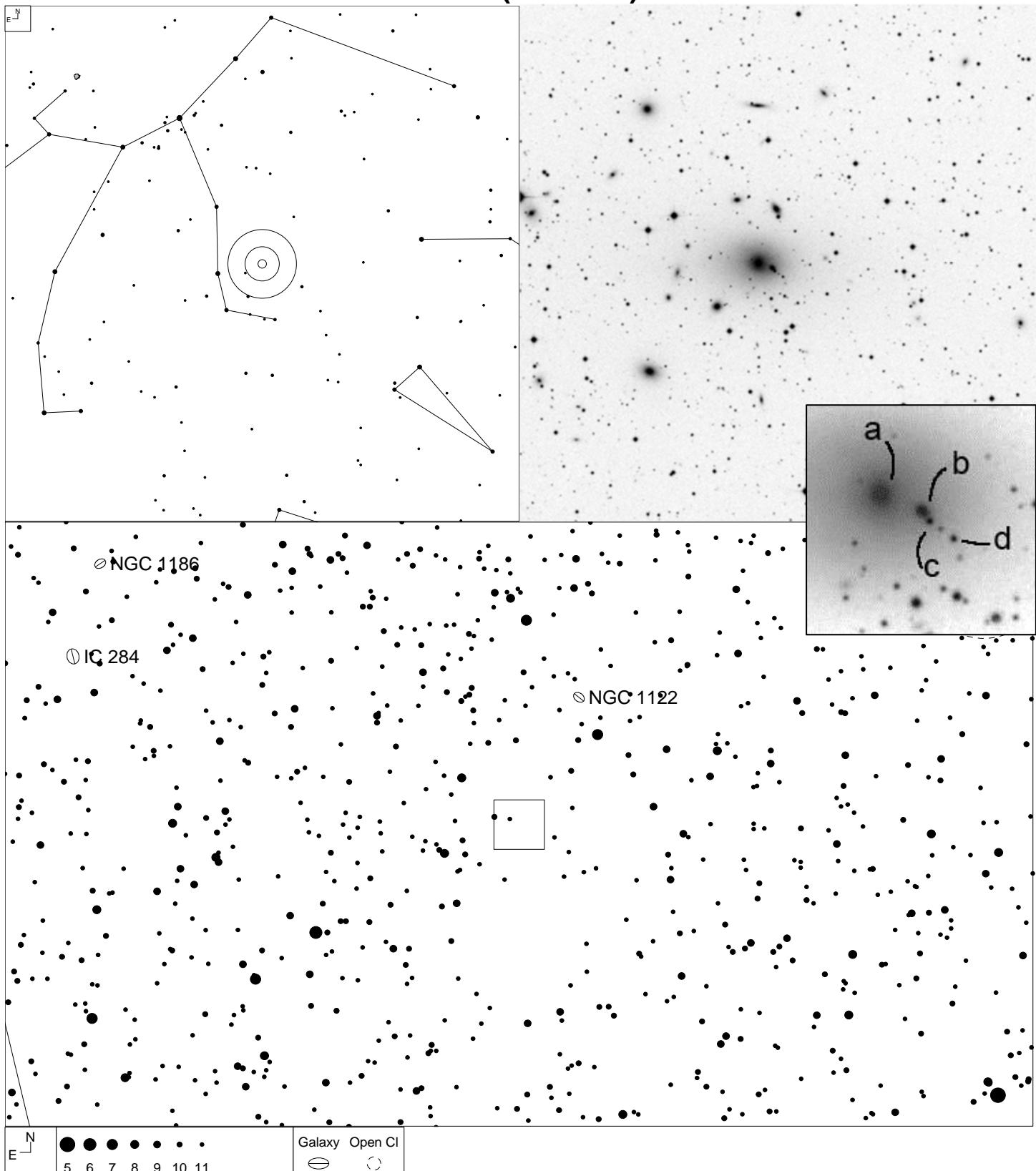
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|-------|-------------|-----------|
| 27 | 02 12 38.7 | +14 22 00 | G | 14.6g | 6x6 | M |
| 27b | 02 12 39.6 | +14 21 45 | PofG | 15.2 | | |

VV 278 (Aries)



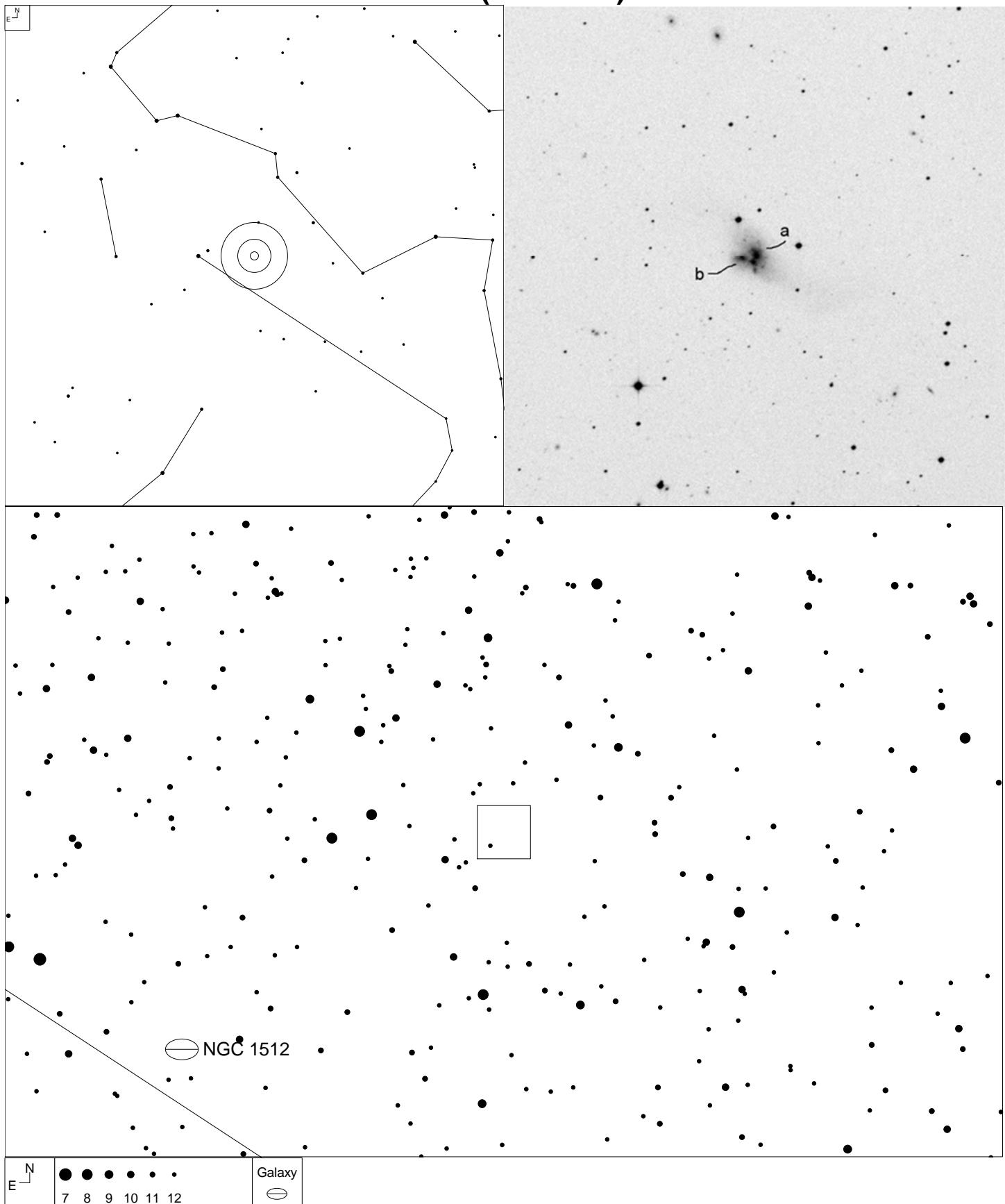
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|------|-------------|-----------|
| 278 | 02 43 26.7 | +16 39 59 | GPair | | | NNNP |
| 278a | 02 43 26.6 | +16 40 12 | G | 15.6 | 6x5 | |
| 278b | 02 43 26.8 | +16 40 21 | PofG | 16.5 | - | |
| 278c | 02 43 26.8 | +16 39 46 | G | 15.5 | 6x4 | |

VV 85 (Perseus)

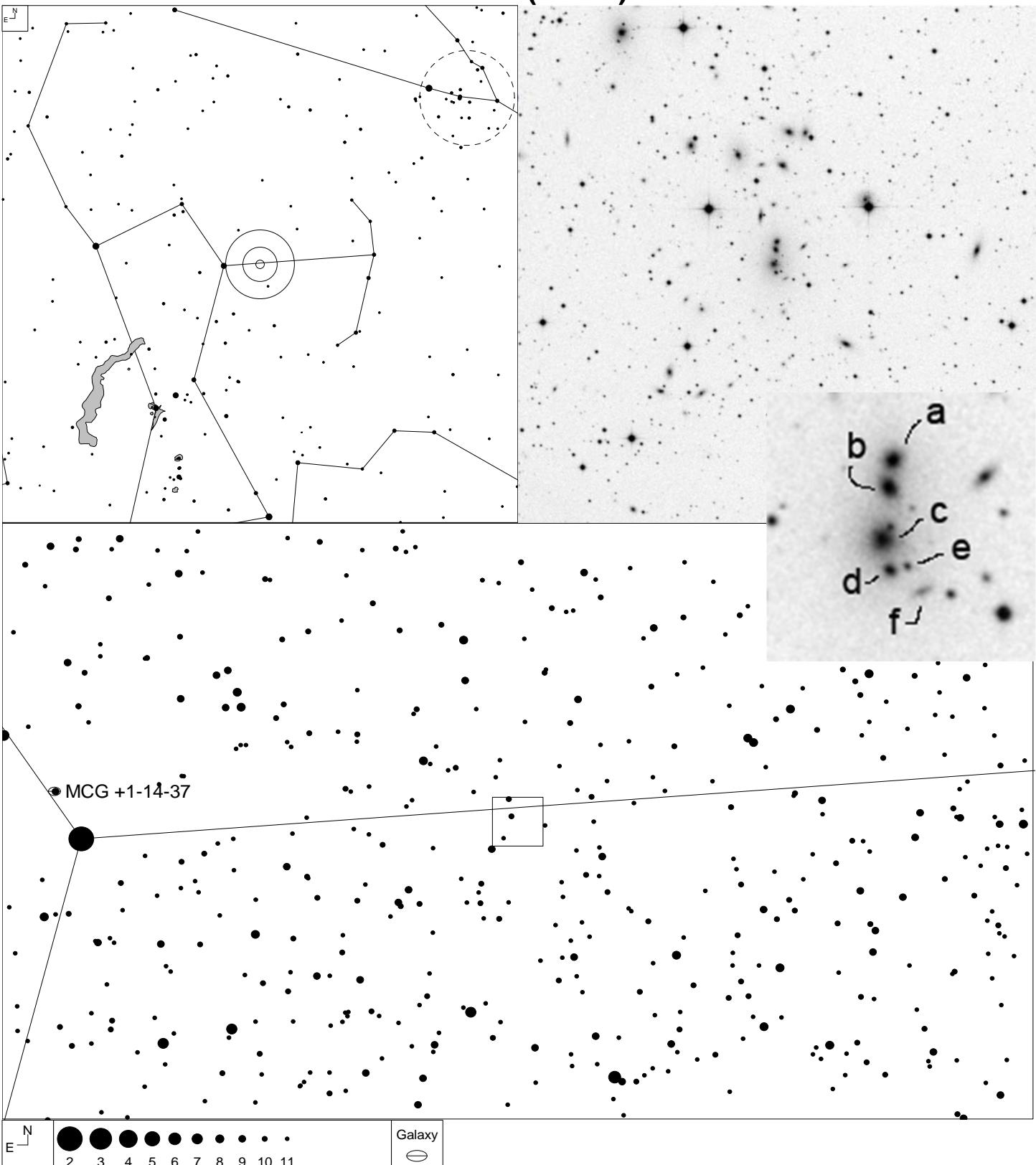


| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|------|-------------|-----------|
| 85 | 02 54 25.5 | +41 34 33 | GGroup | | | PC |
| 85d | 02 54 23.6 | +41 34 21 | star | 18 | | |
| 85c | 02 54 24.8 | +41 34 31 | star | 17 | | |
| 85b | 02 54 25.2 | +41 34 37 | G | 16.5 | 4x2 | |
| 85a | 02 54 27.5 | +41 36 20 | G | 13.5 | 30x21 | |

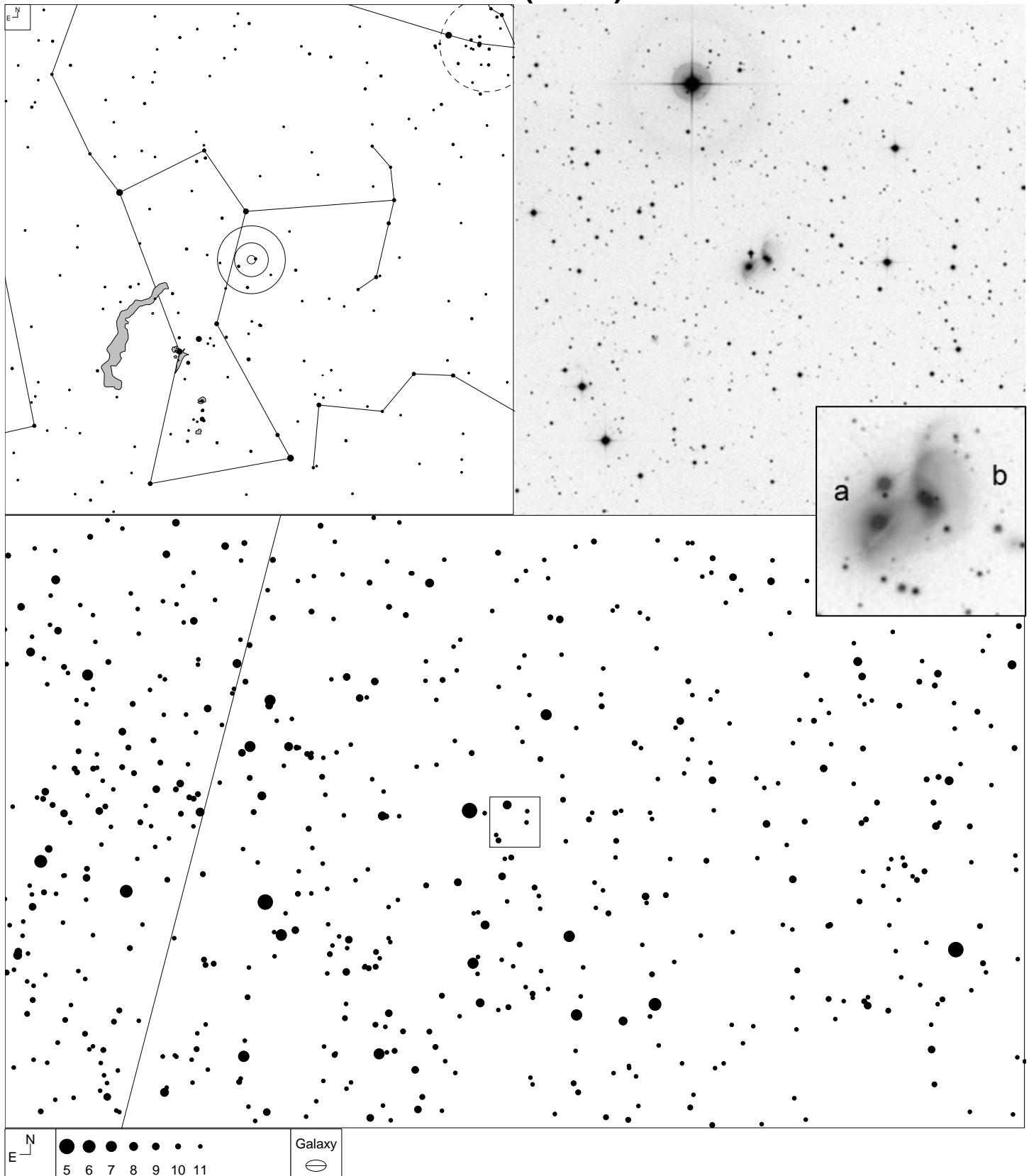
VV 78 (Eridanus)



VV 161 (Orion)

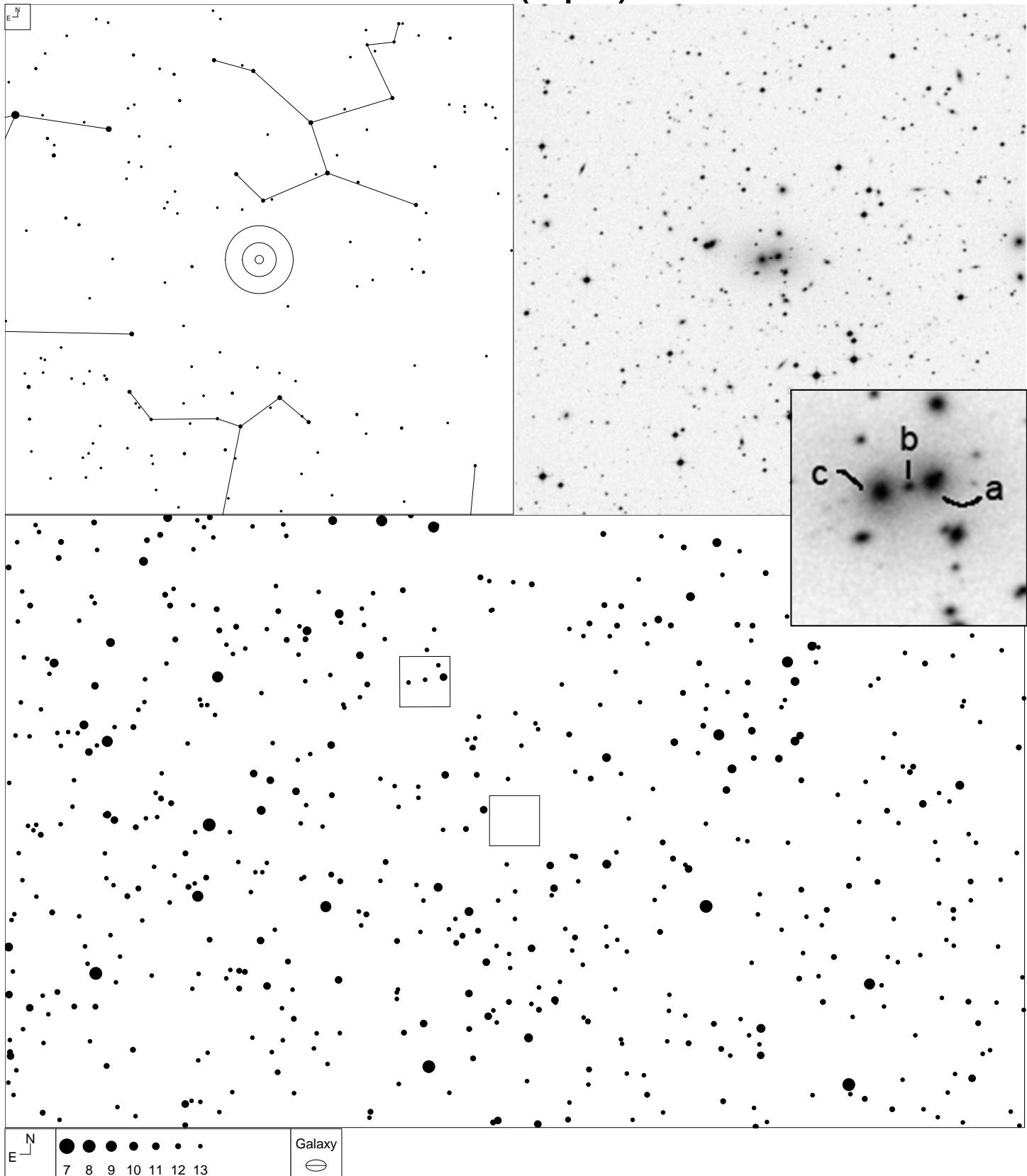


VV 225 (Orion)



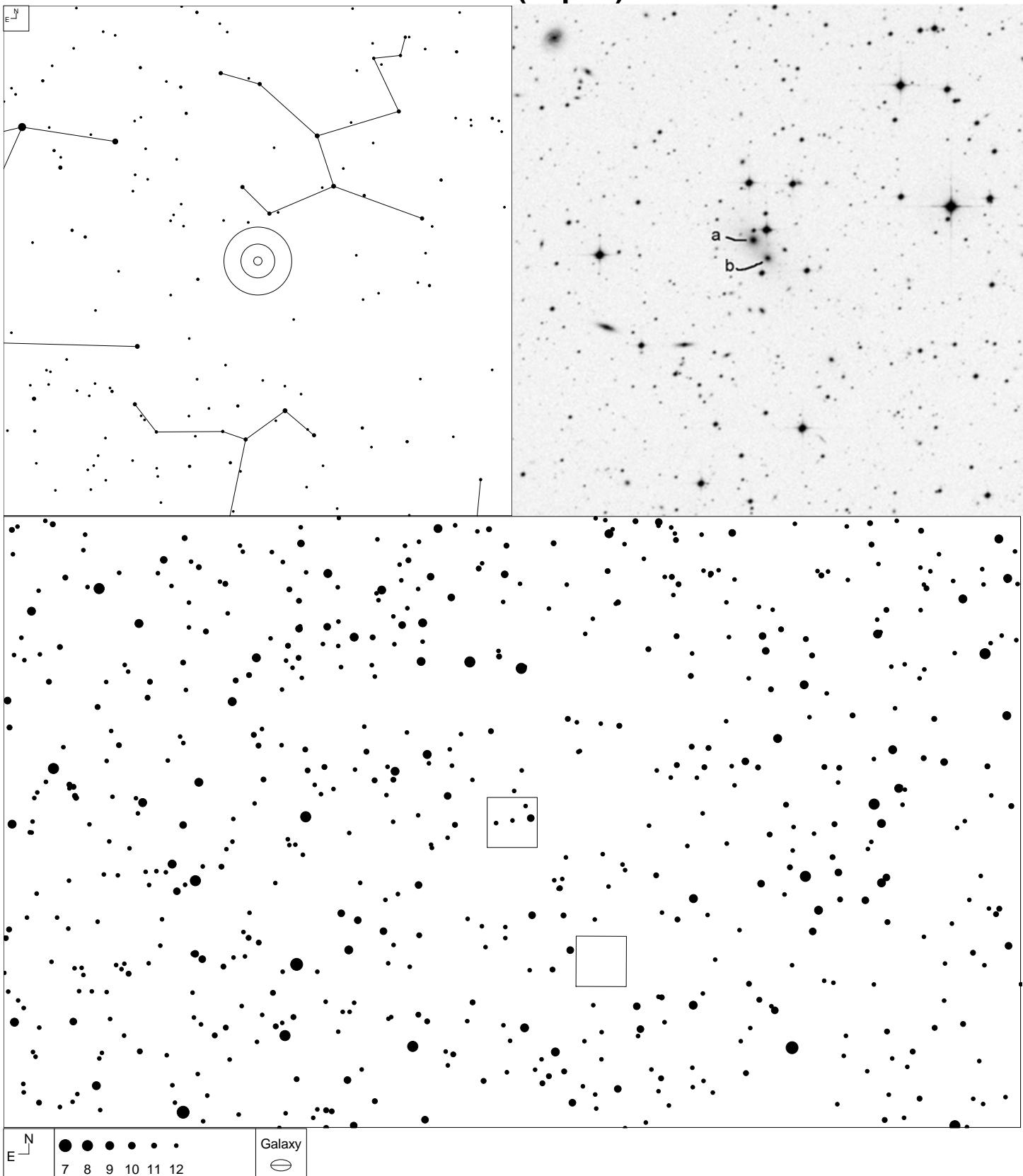
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 225 | 05 21 57.7 | +03 29 03 | GPair | | | PK |
| 225b | 05 21 56.7 | +03 29 11 | G | 14.56 | 10x7 | |
| 225a | 05 21 58.8 | +03 28 56 | G | 14.66 | | |

VV 162 (Lepus)



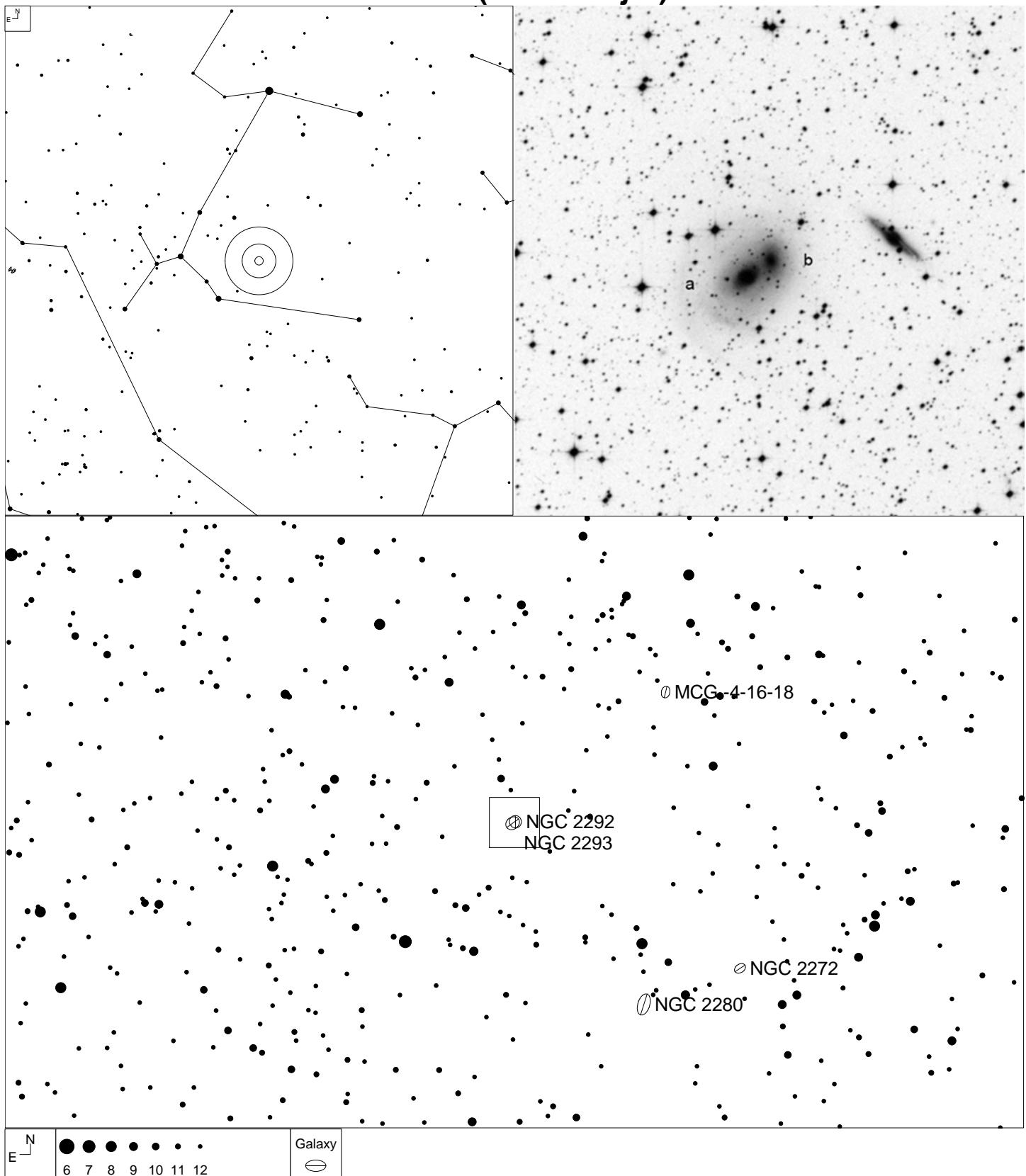
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 162 | 05 45 28.6 | -25 55 55 | GTrpl | | | Ch |
| 162a | 05 45 27.6 | -25 55 51 | G | 13.89 | 6x6 | |
| 162b | 05 45 28.5 | -25 55 54 | G | 14.14 | | |
| 162c | 05 45 29.6 | -25 55 57 | G | 14.08 | 8x8 | |

VV 180 (Lepus)



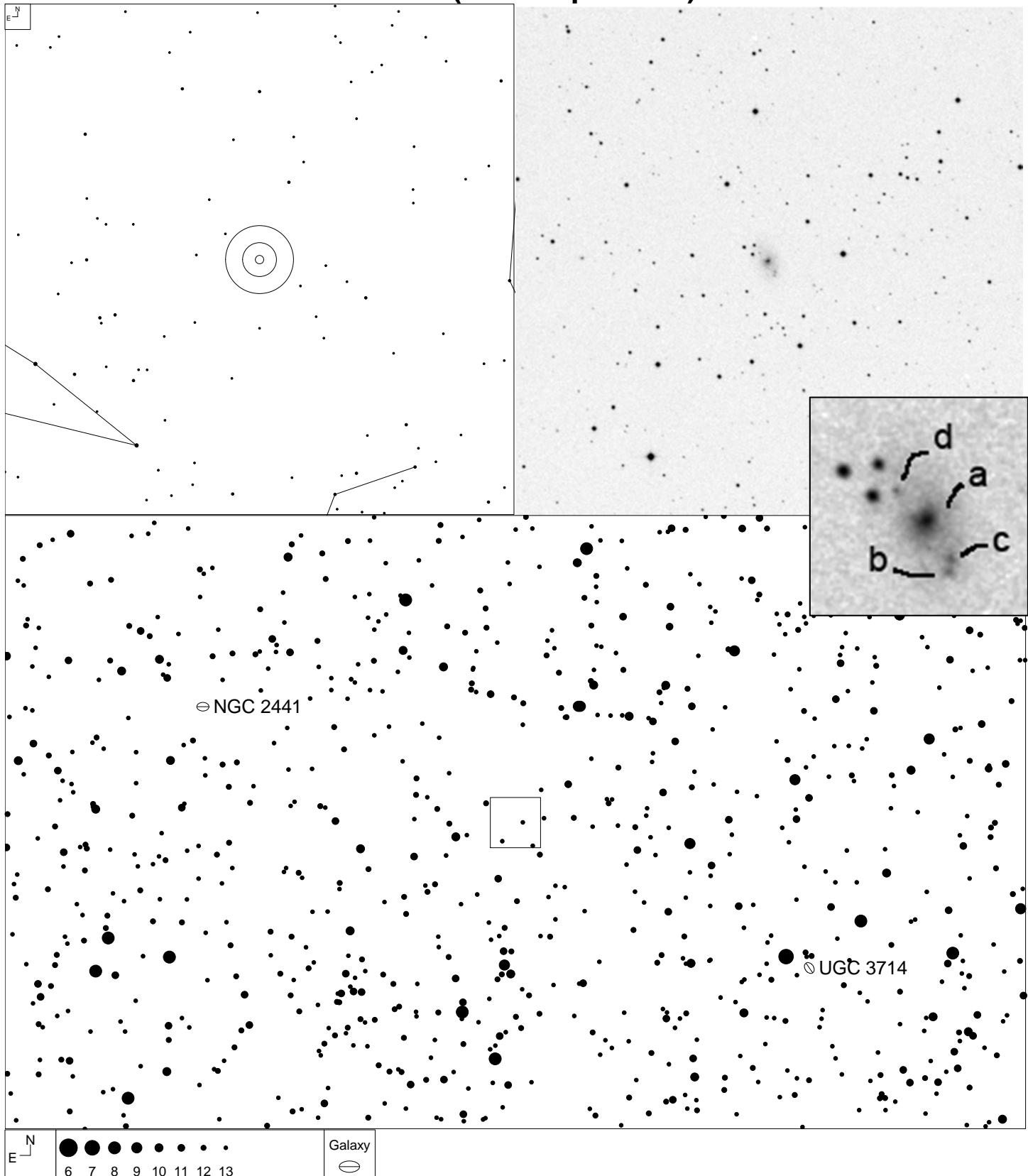
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 180 | 05 47 25.2 | -25 15 04 | GPair | | | PD |
| 180b | 05 47 24.6 | -25 15 21 | G | 14.72 | 7x6 | |
| 180a | 05 47 26.5 | -25 14 49 | G | 14.78 | 9x7 | |

VV 178 (Canis Major)



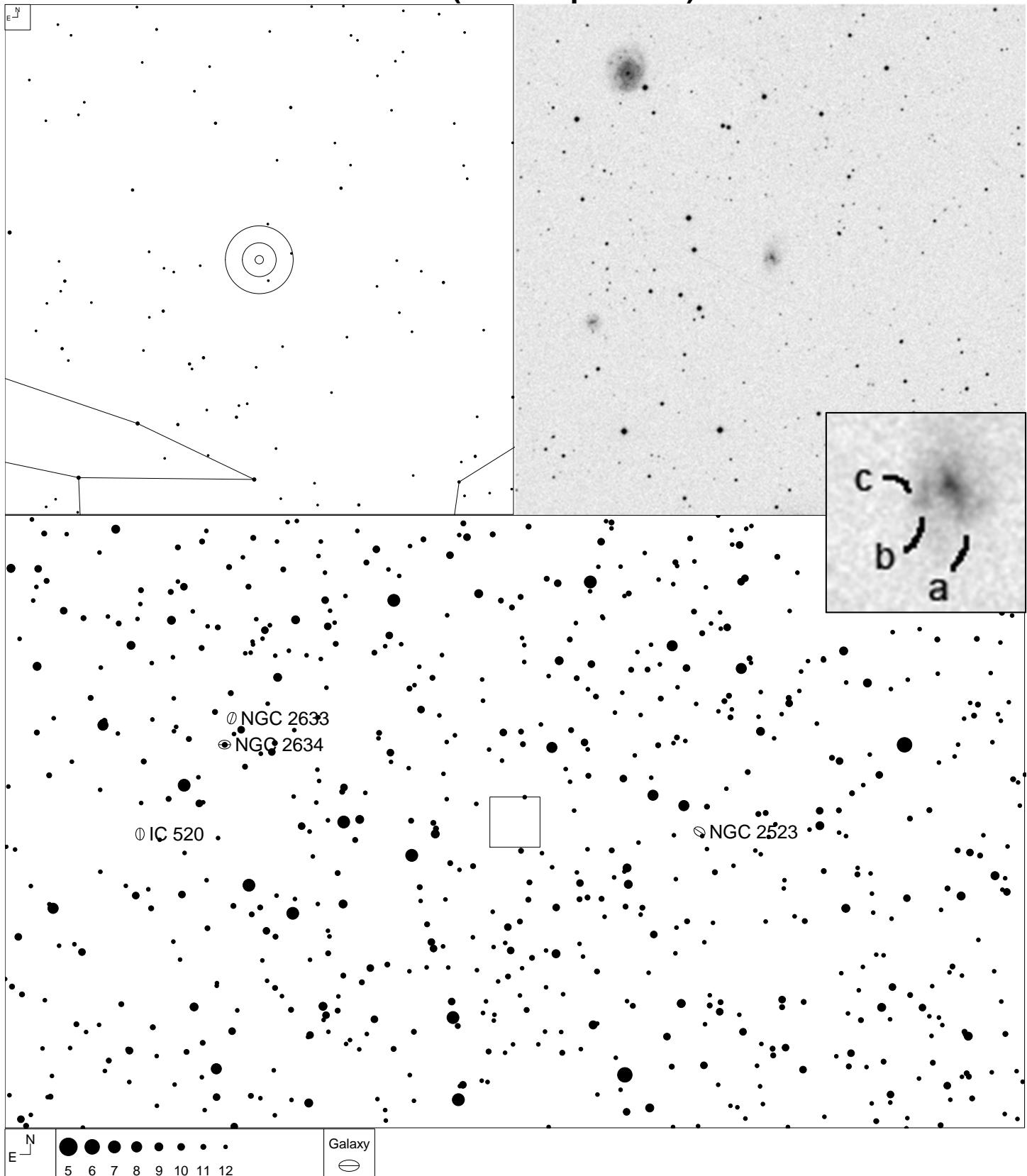
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 178 | 06 47 40.8 | -26 45 00 | GPair | | | PK |
| 178b | 06 47 39.6 | -26 44 46 | G | 11.8p | 35x28 | |
| 178a | 06 47 42.9 | -26 45 16 | G | 12.3b | 42x33 | |

VV 141 (Camelopardalis)



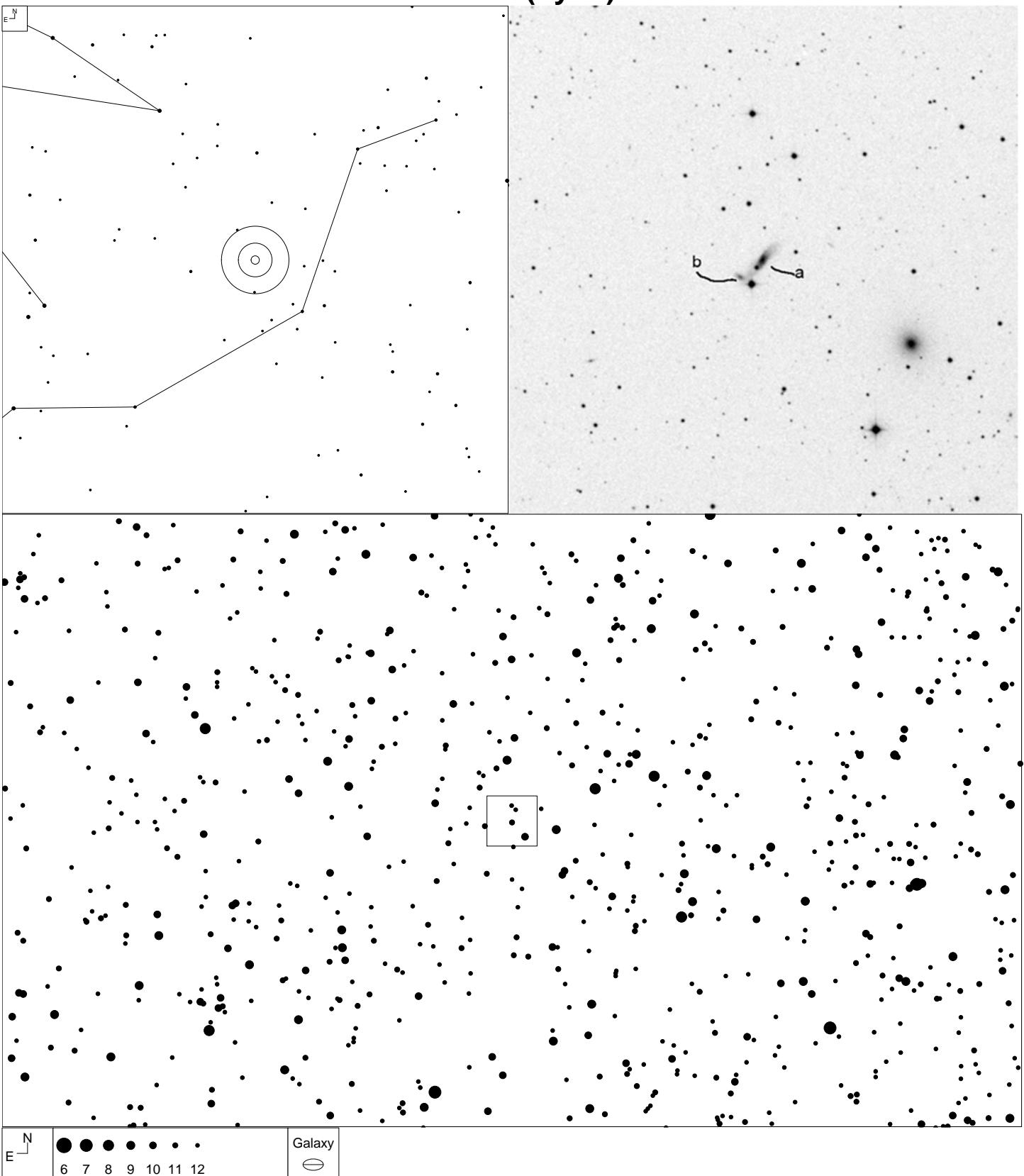
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 141 | 07 30 56.6 | +72 31 03 | GGroup | | | N |
| 141c | 07 30 54.6 | +72 30 42 | G | | | |
| 141b | 07 30 54.8 | +72 30 37 | G | | | |
| 141a | 07 30 57.0 | +72 31 02 | G | 14.80 | 12x12 | |
| 141d | 07 30 59.9 | +72 31 18 | G | | | |

VV 157 (Camelopardalis)



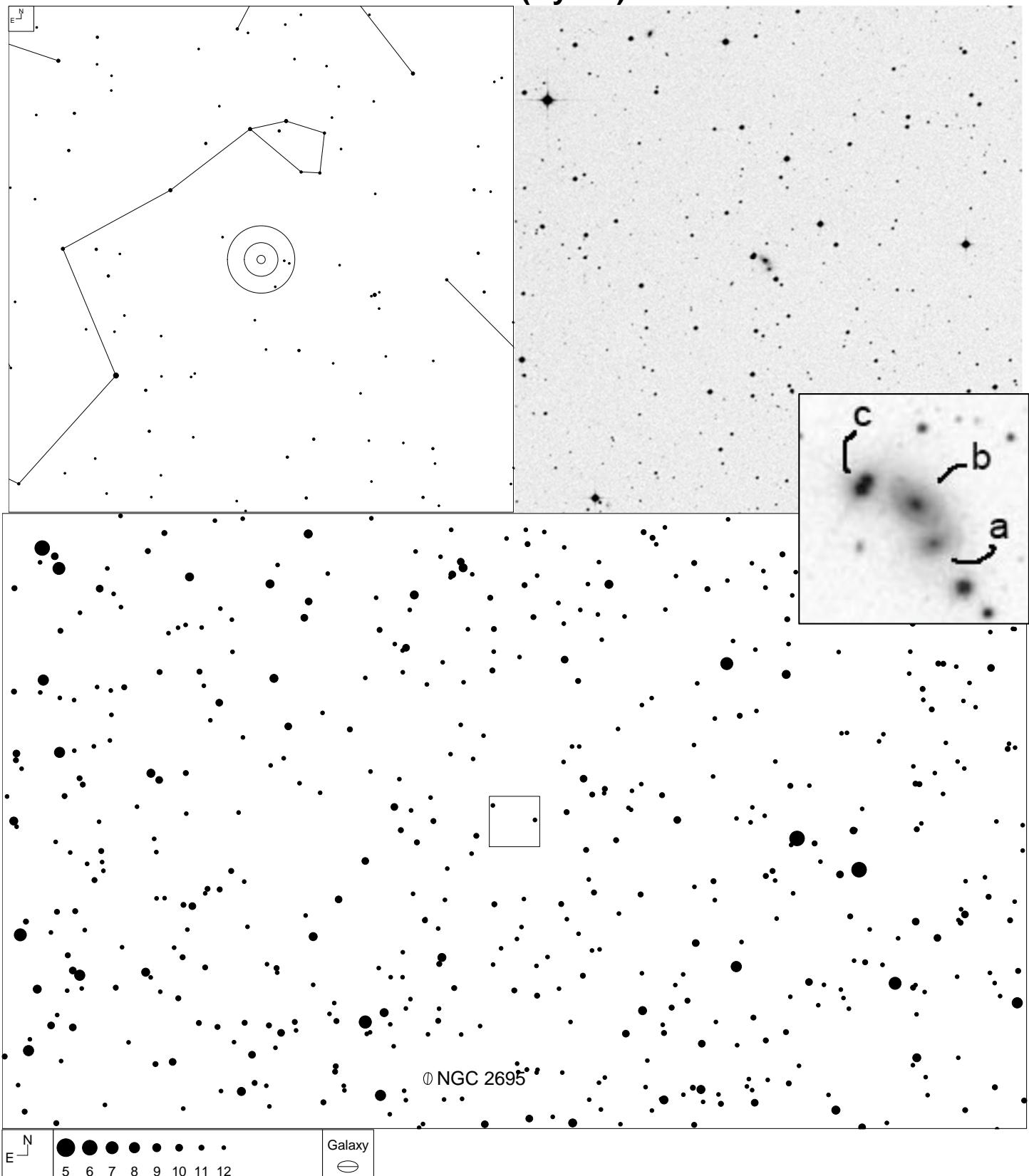
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|------|-------------|-----------|
| 157 | 08 27 48.9 | +73 39 01 | G | 15.5 | 14x7 | N |
| 157a | 08 27 48.1 | +73 39 05 | G | 15.5 | 9x6 | |
| 157b | 08 27 50.1 | +73 39 02 | G | | | |
| 157c | 08 27 50.2 | +73 39 06 | G | | | |

VV 284 (Lynx)



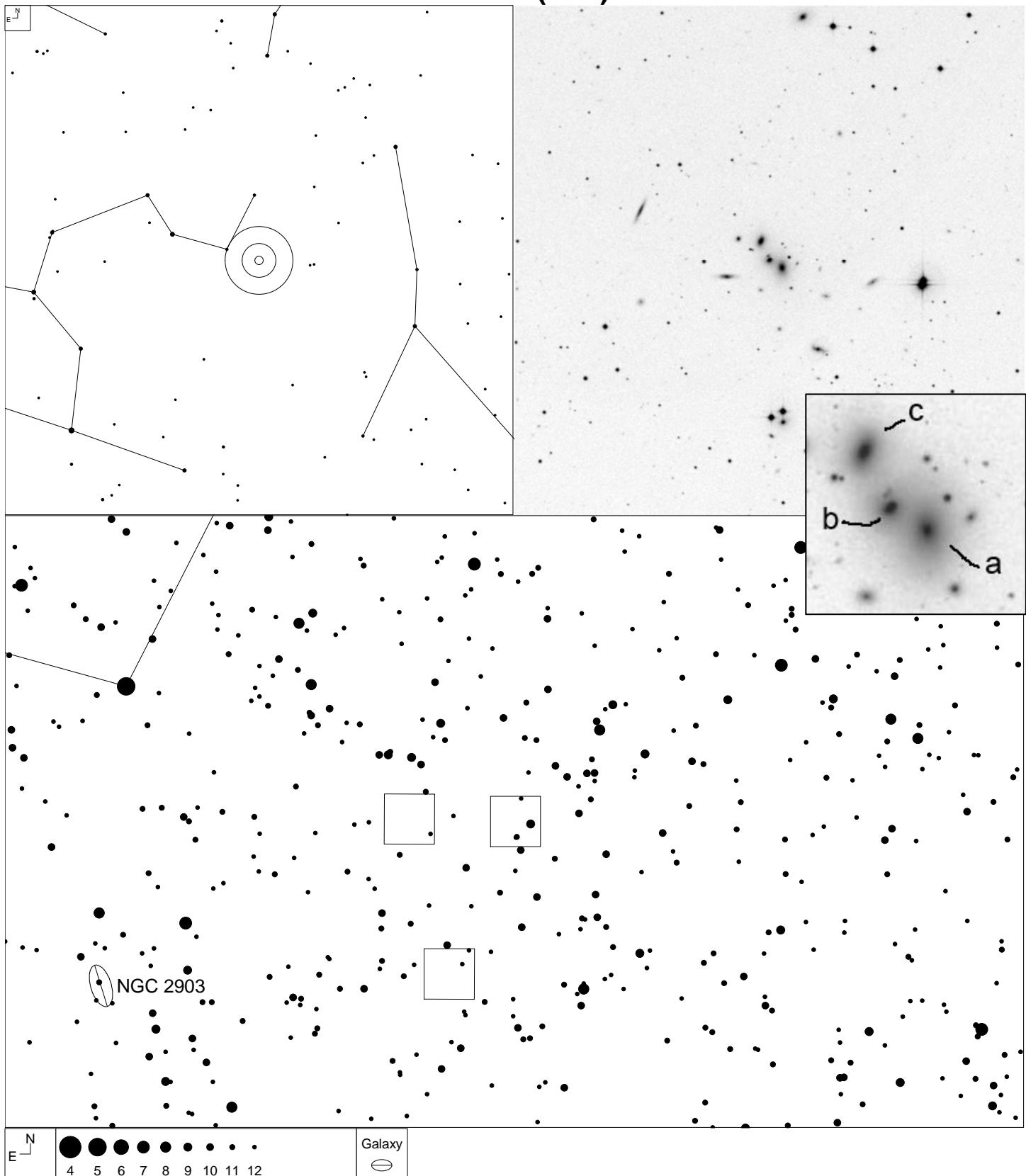
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|------|-------------|-----------|
| 284 | 07 43 49.7 | +52 21 11 | GPair | | | PDbt |
| 284a | 07 43 47.6 | +52 21 27 | G | 14.7 | 15x4 | |
| 284b | 07 43 51.8 | +52 20 54 | G | 15 | 4x2 | |

VV 168 (Hydra)



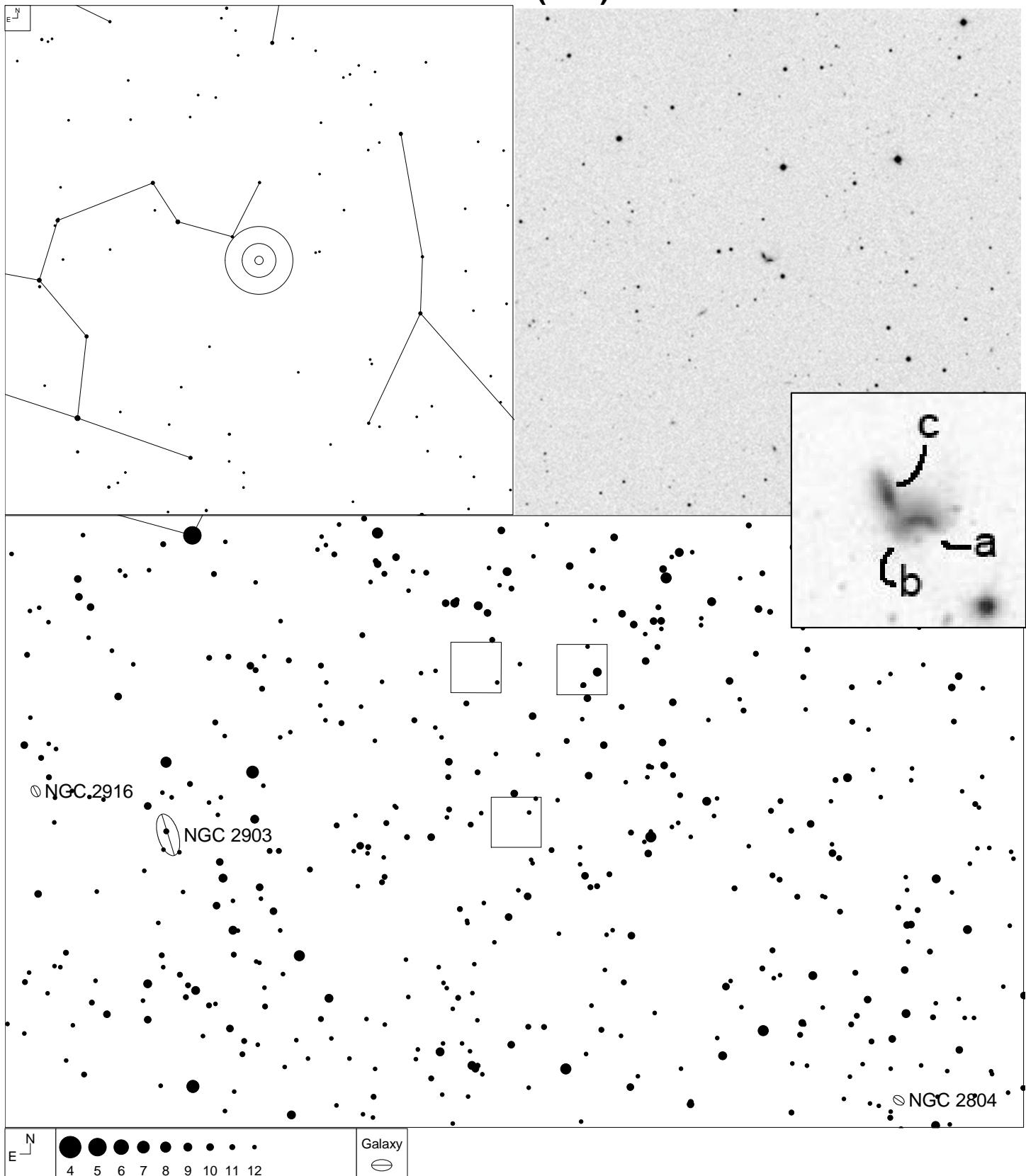
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|------|-------------|-----------|
| 168 | 08 52 45.4 | -01 49 02 | GPair | 15.1 | 9x5 | NNN |
| 168a | 08 52 45.1 | -01 49 10 | G | | | |
| 168b | 08 52 45.6 | -01 48 54 | G | | | |
| 168c | 08 52 47.0 | -01 48 45 | Dbl star | | | |

VV 171 (Leo)



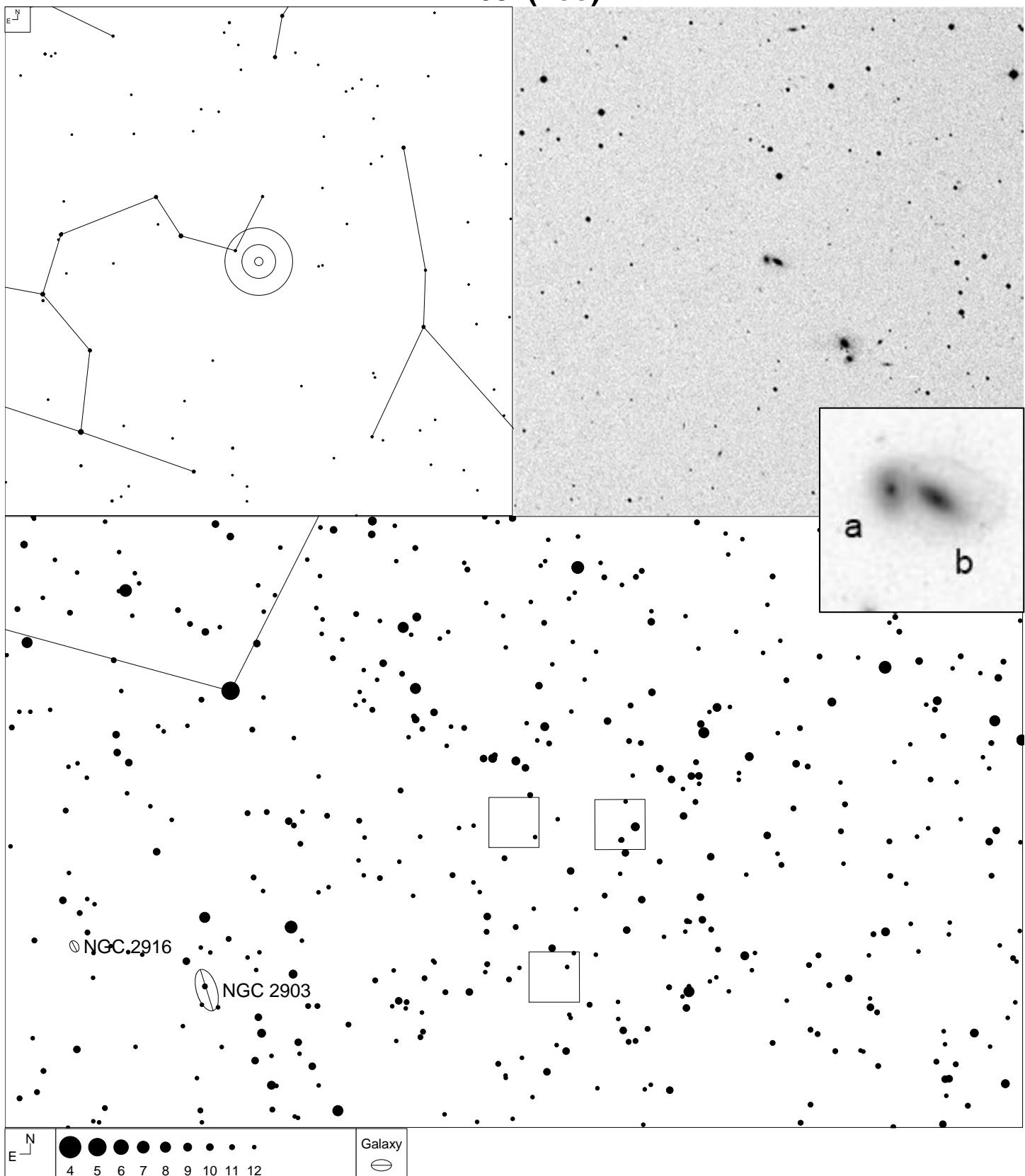
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 171 | 09 23 25.7 | +22 19 10 | GTrpl | | | Ch |
| 171a | 09 23 24.3 | +22 18 47 | G | 14.7g | 9x8 | |
| 171b | 09 23 25.9 | +22 19 00 | G | 16.2g | 6x4 | |
| 171c | 09 23 27.0 | +22 19 35 | G | 15.1 | 4x2 | |

VV 154 (Leo)



| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 154 | 09 24 49.9 | +21 34 21 | GTrpl | | | N |
| 154b | 09 24 49.4 | +21 34 18 | G | 17.0g | | |
| 154c | 09 24 49.8 | +21 34 18 | G | 16.0 | 4x1 | |
| 154a | 09 24 50.4 | +21 34 26 | G | 14.8 | 4x2 | |

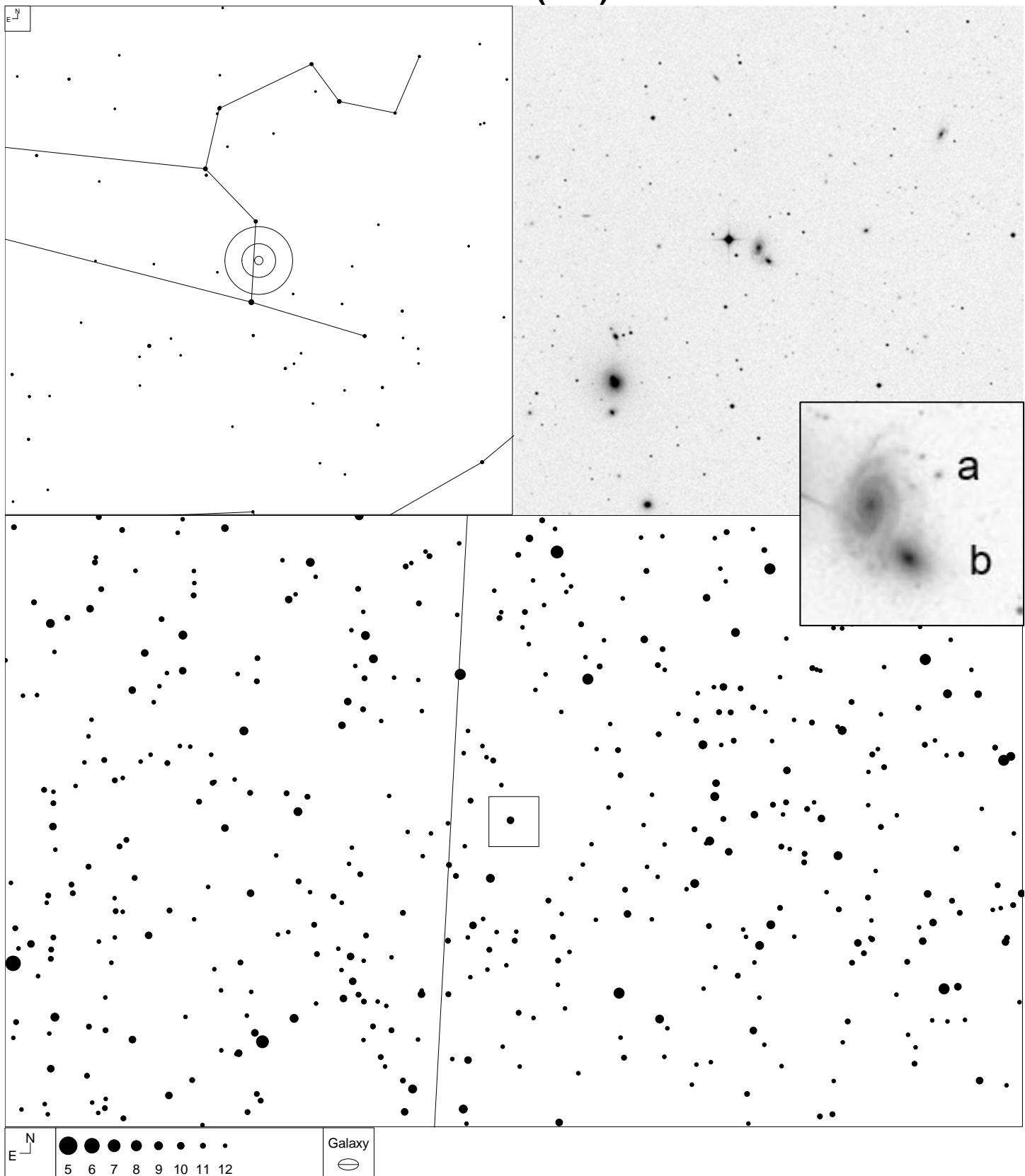
VV 63 (Leo)



| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|------|-------------|-----------|
| 63 | 09 25 50.3 | +22 22 11 | GPair | | | PDb |
| 63a | 09 25 50.4 | +22 22 10 | G | 15.5 | 9x5 | |
| 63b | 09 25 51.0 | +22 22 13 | G | 15.0 | 4x4 | |

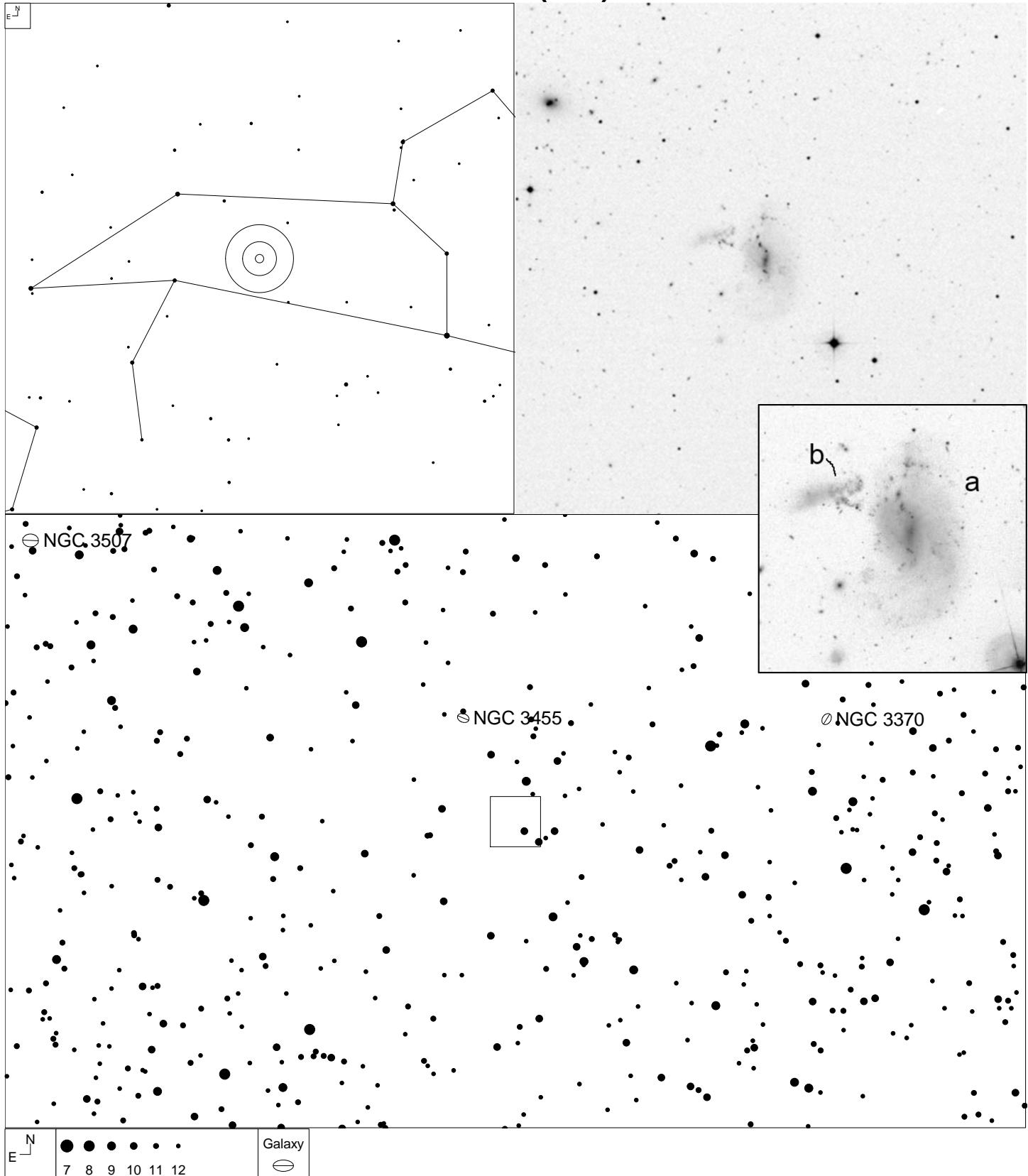
Megastar mislabeled CGCG 121-89 and VV63 - true location is 3.4' NE. Corrected in above chart.

VV 240 (Leo)



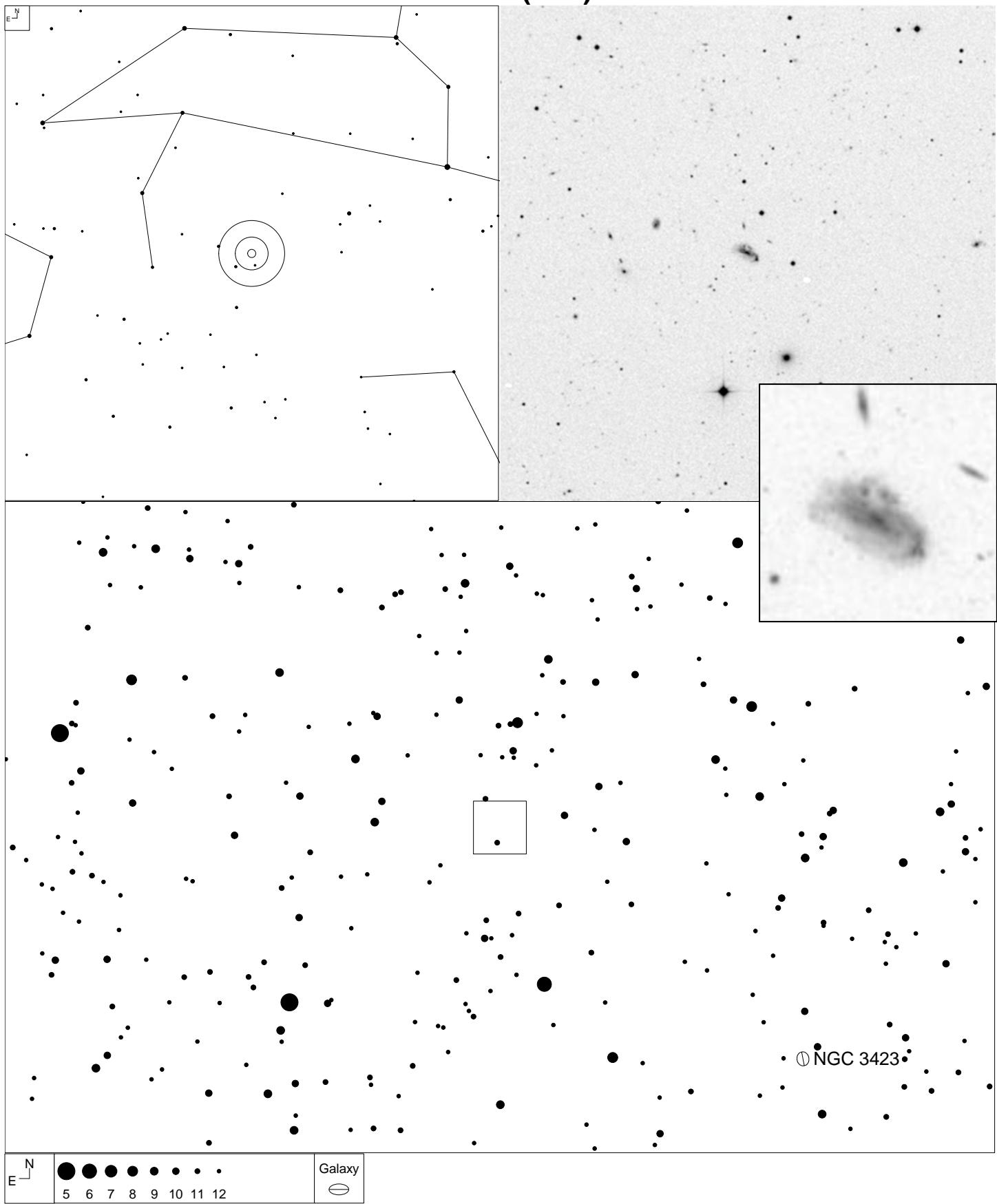
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|------|-------------|-----------|
| 240 | 10 06 33.8 | +14 26 12 | GPair | | | Pkb |
| 240b | 10 06 33.3 | +14 26 01 | G | 16.3 | 5x4 | |
| 240a | 10 06 34.4 | +14 26 25 | G | 15.0 | 10x8 | |

VV 252 (Leo)

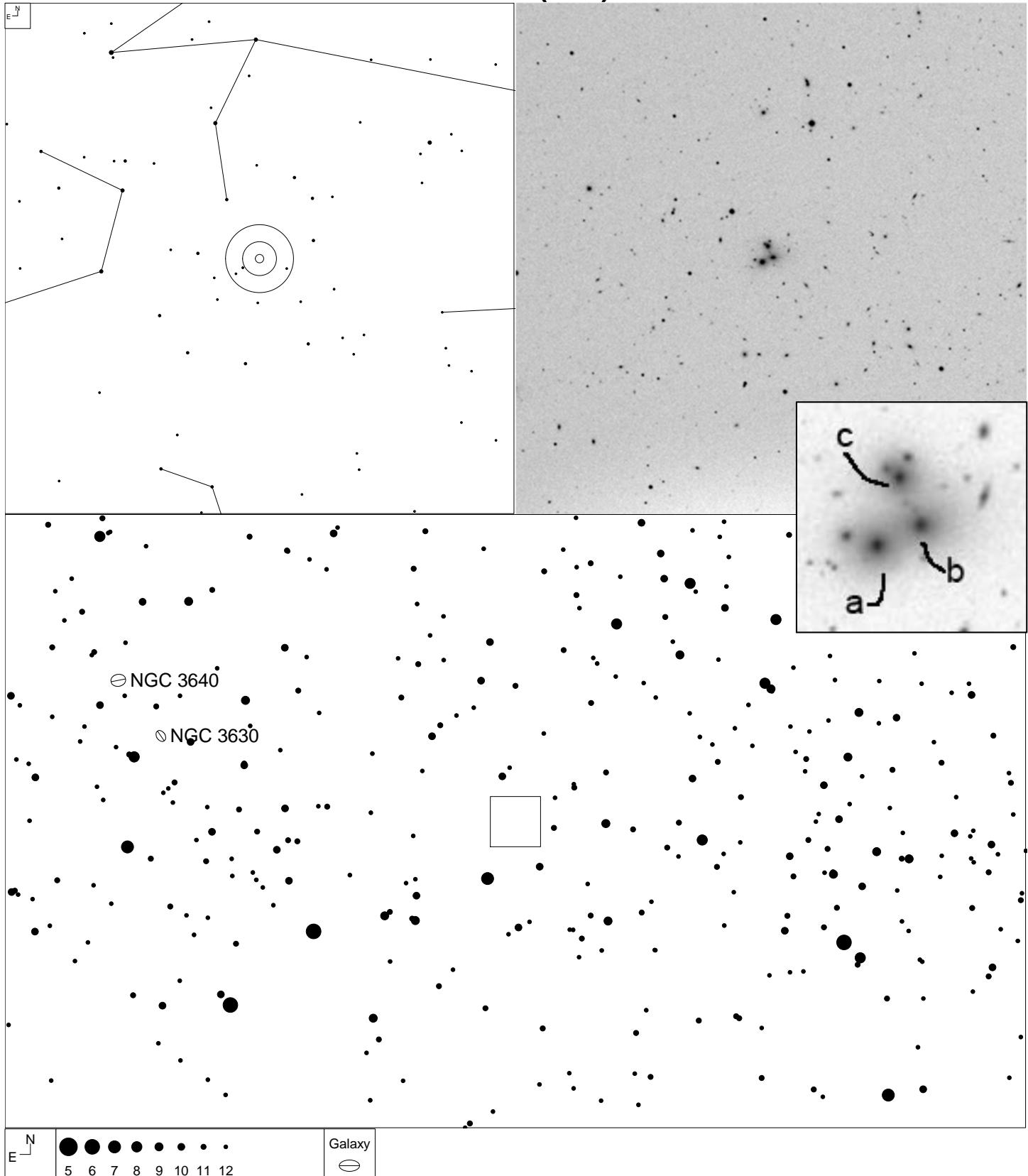


| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|------|-------------|-----------|
| 252 | 10 53 26.8 | +16 46 44 | GPair | | | PKdf |
| 252a | 10 53 24.0 | +16 46 21 | G | 13.1 | 37x21 | |
| 252b | 10 53 29.6 | +16 47 10 | G | 14.3 | 15x8 | |

VV 149 (Leo)

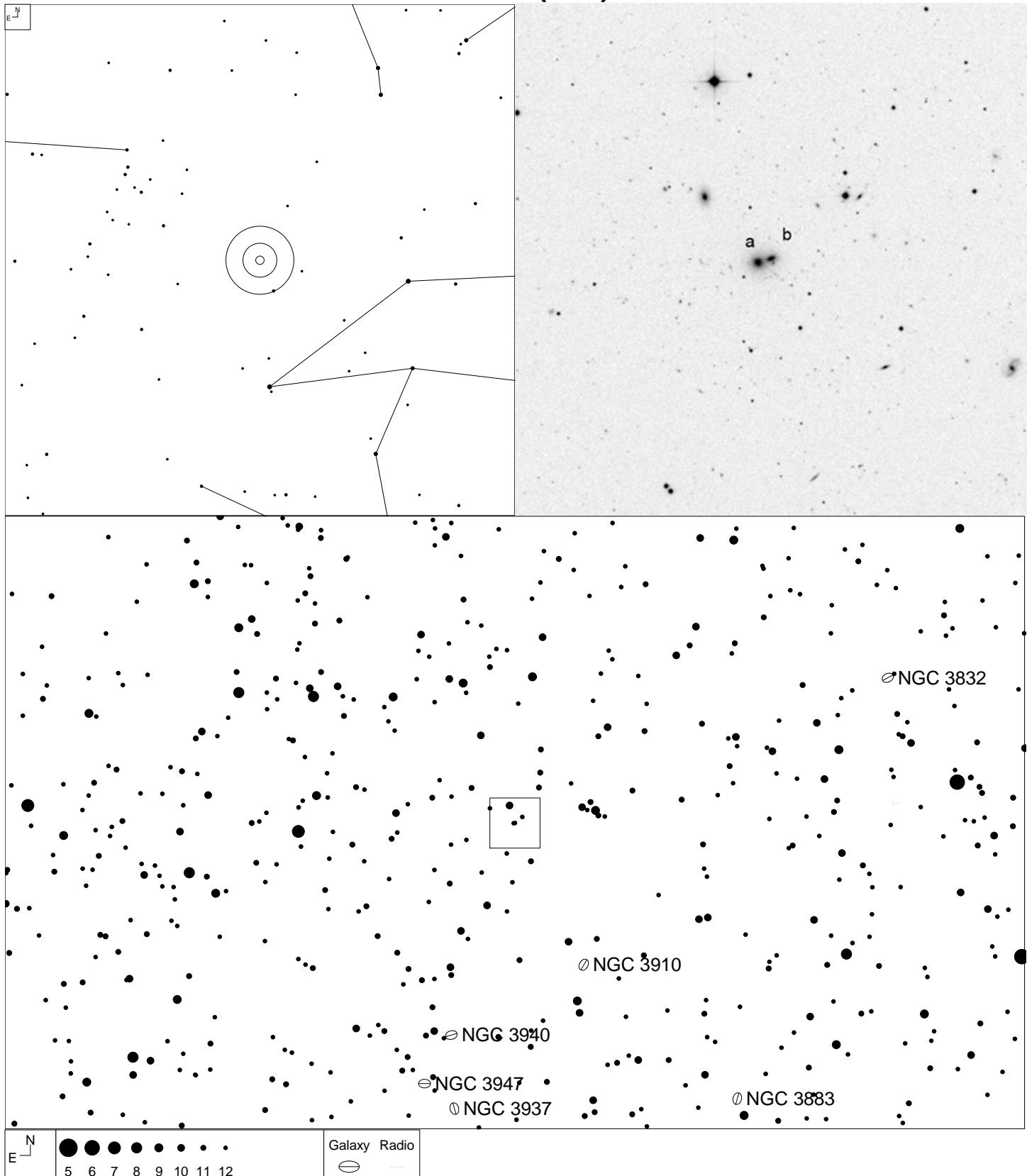


VV 145 (Leo)

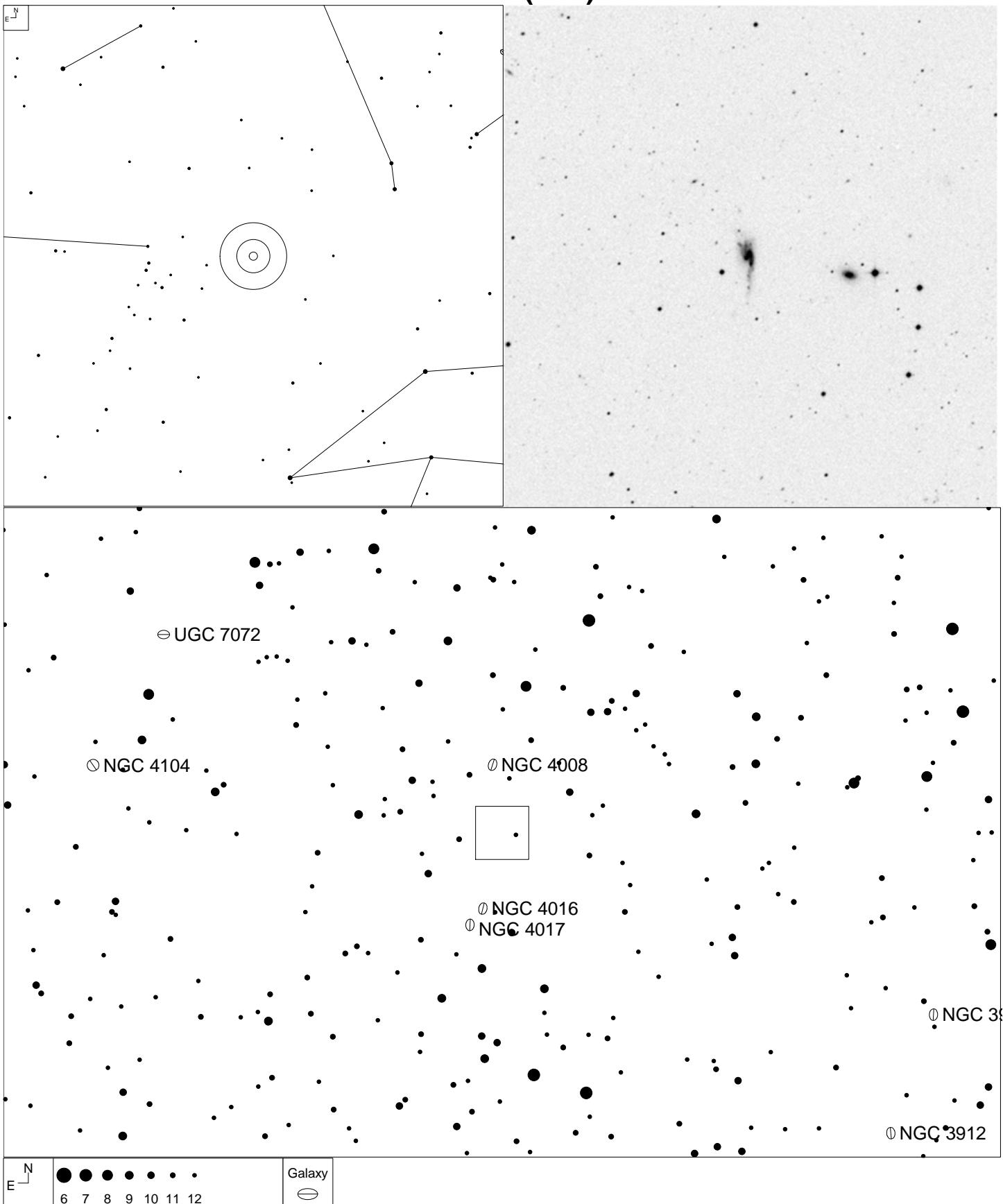


| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|------|-------------|-----------|
| 145 | 11 13 20.8 | +02 32 55 | GTrpl | | | NNN |
| 145b | 11 13 20.1 | +02 32 48 | G | 16.0 | - | |
| 145c | 11 13 20.7 | +02 33 09 | G | 15.6 | 4x4 | |
| 145a | 11 13 21.4 | +02 32 39 | G | 15.4 | 5x4 | |

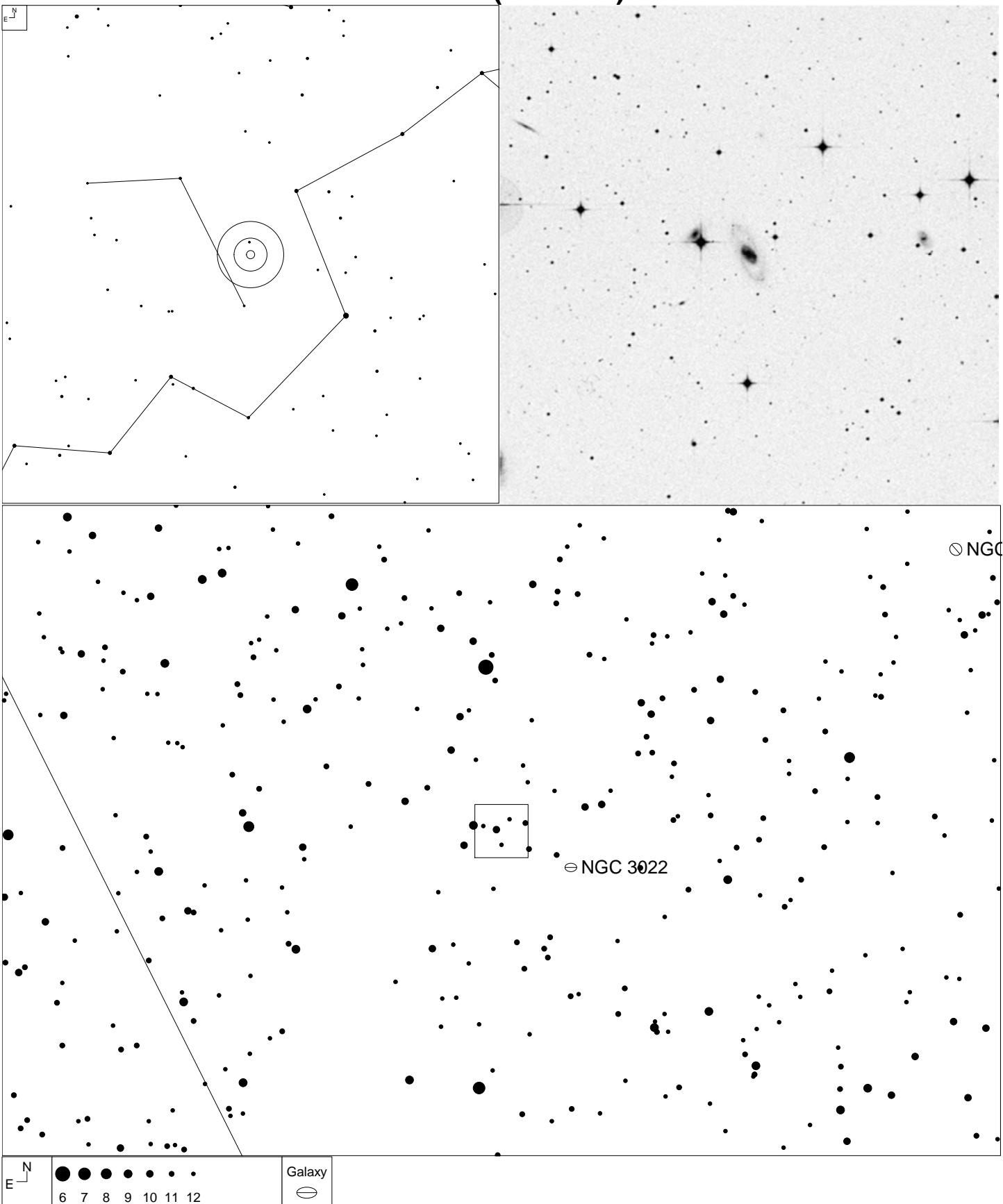
VV 218 (Leo)



VV 230 (Leo)

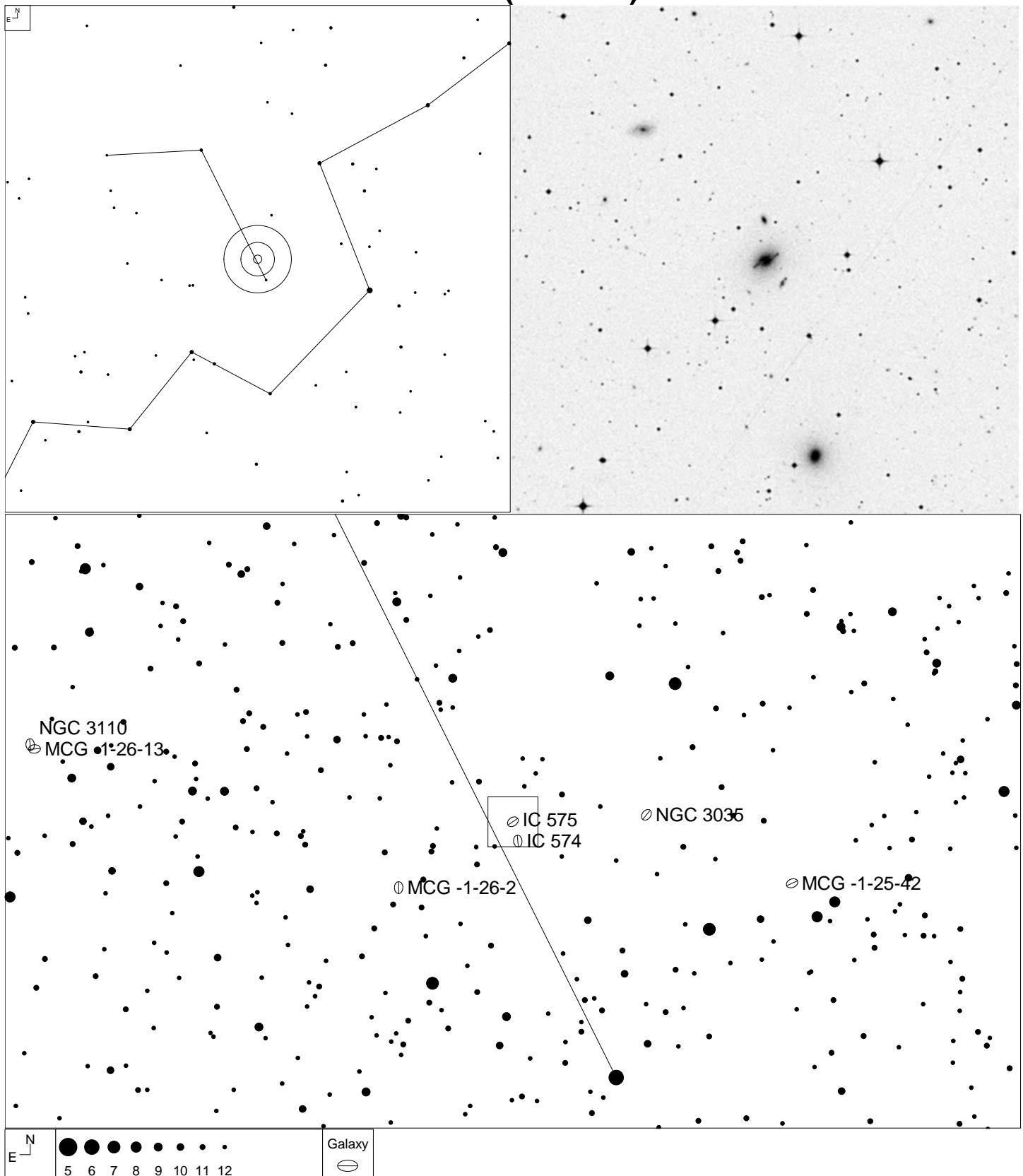


VV 110 (Sextans)



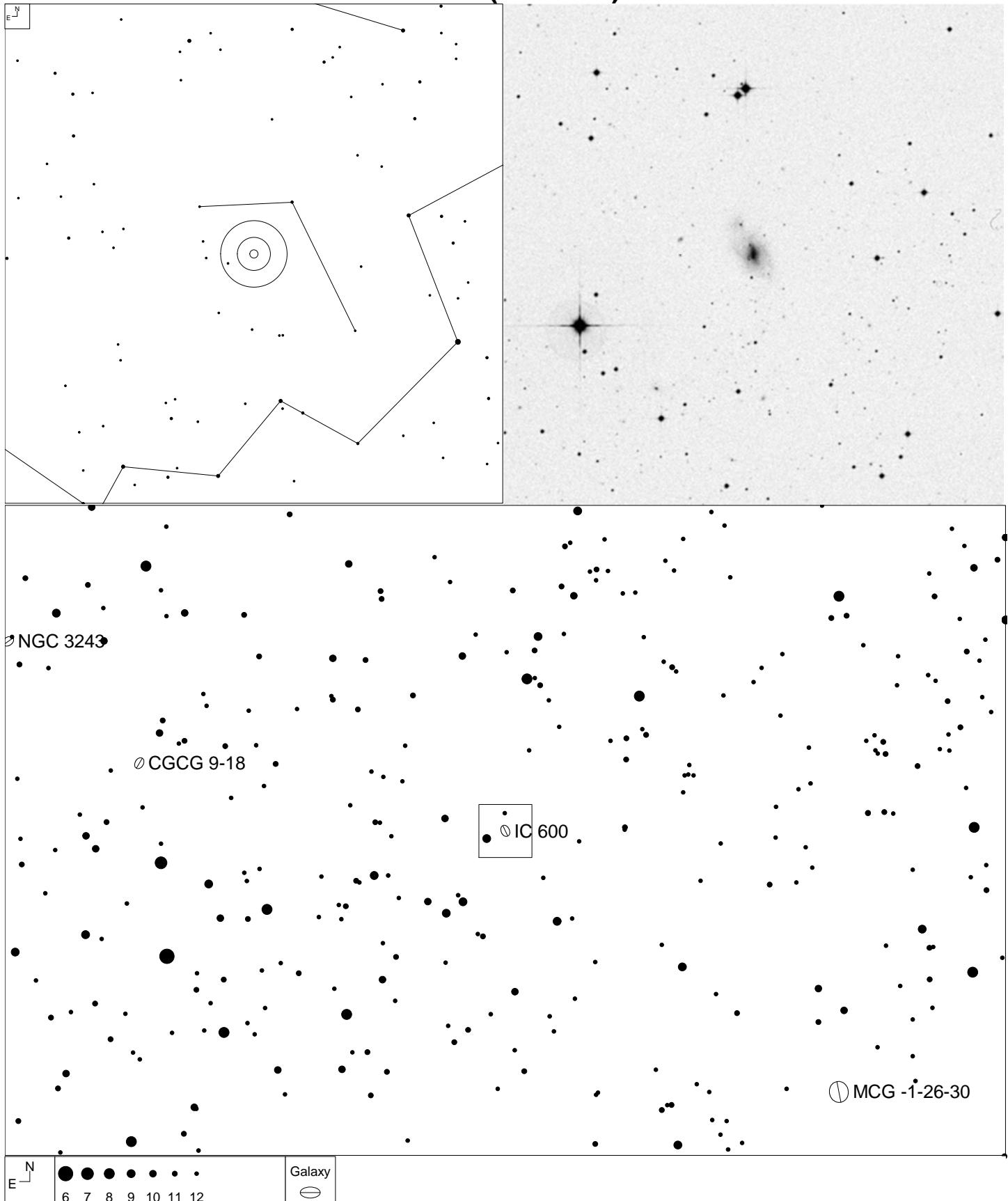
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 110 | 09 50 56.5 | -04 59 52 | G | 14.46 | 19x8 | PC |
| 110a | 09 50 55.9 | -04 59 57 | PofG | | | |
| 110b | 09 50 57.1 | -04 59 49 | PofG | | | |

VV 111 (Sextans)



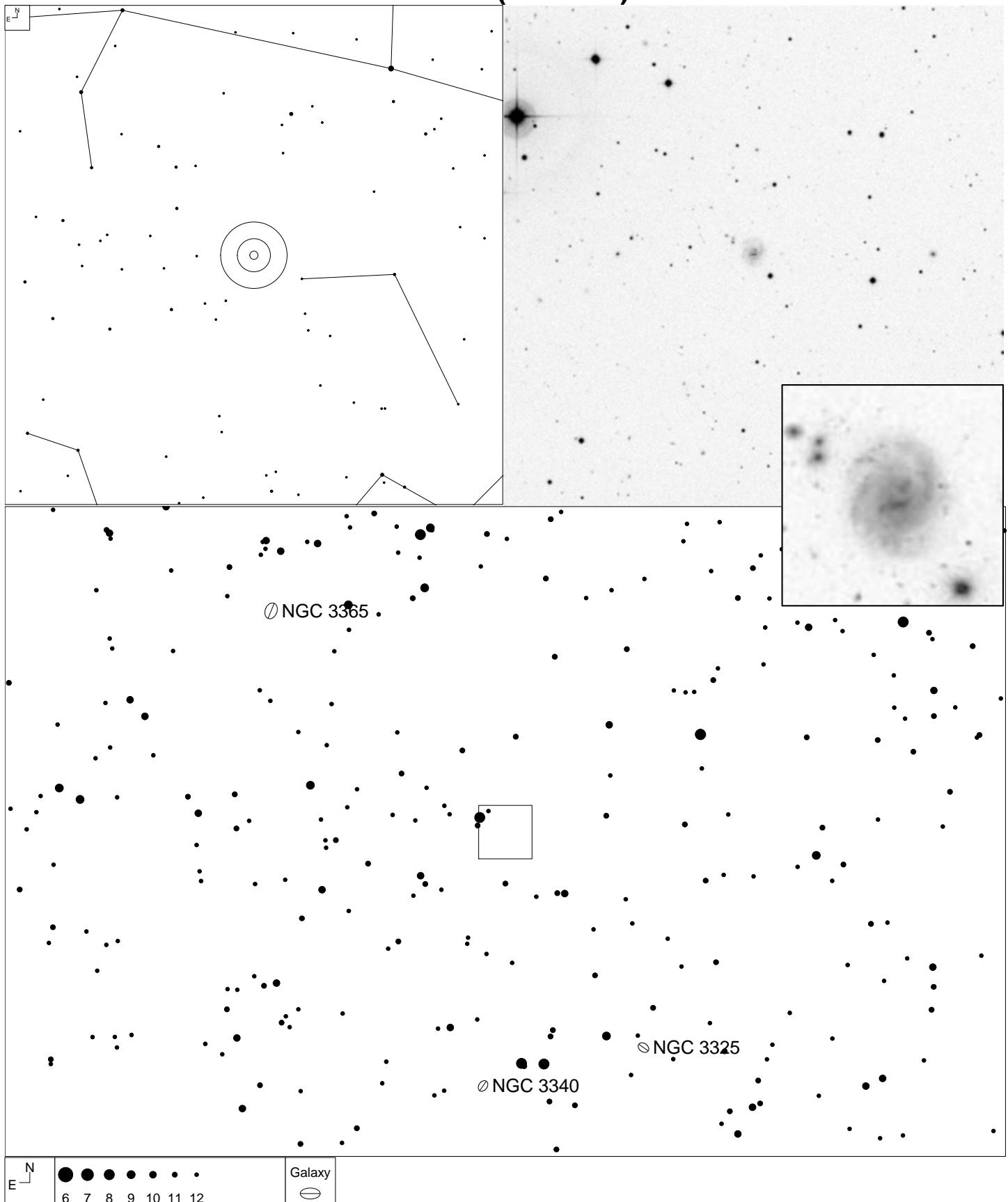
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 111 | 09 54 32.9 | -06 51 27 | G | 14.02 | 17x12 | PC |
| 111a | 09 54 32.9 | -06 51 30 | PofG | | | |
| 111b | 09 54 33.2 | -06 51 24 | PofG | | | |

VV 97 (Sextans)



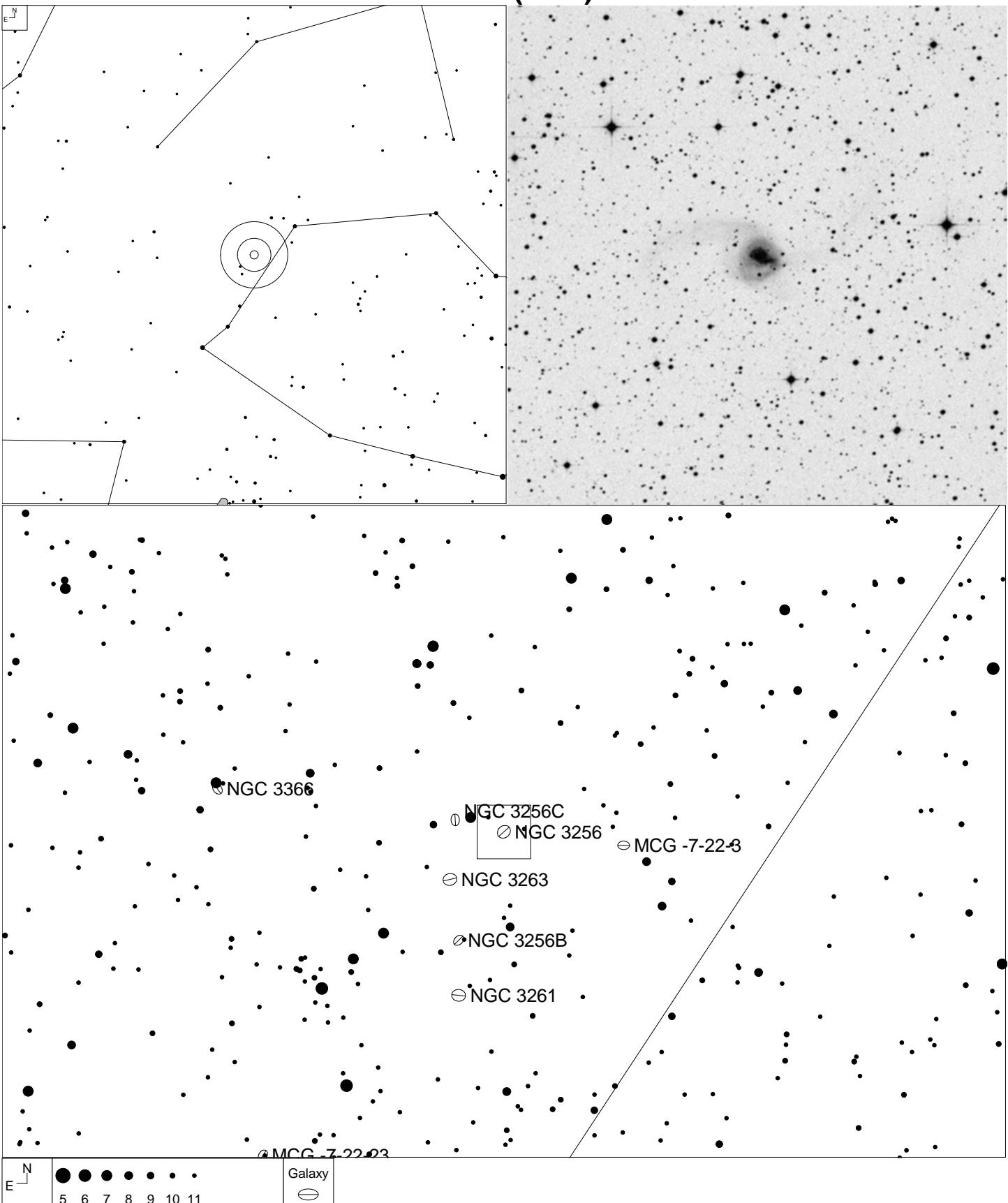
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|----|------------|-----------|----------|-------|-------------|-----------|
| 97 | 10 17 10.9 | -03 29 52 | G | 13.68 | 23x12 | PC |

VV 113 (Sextans)



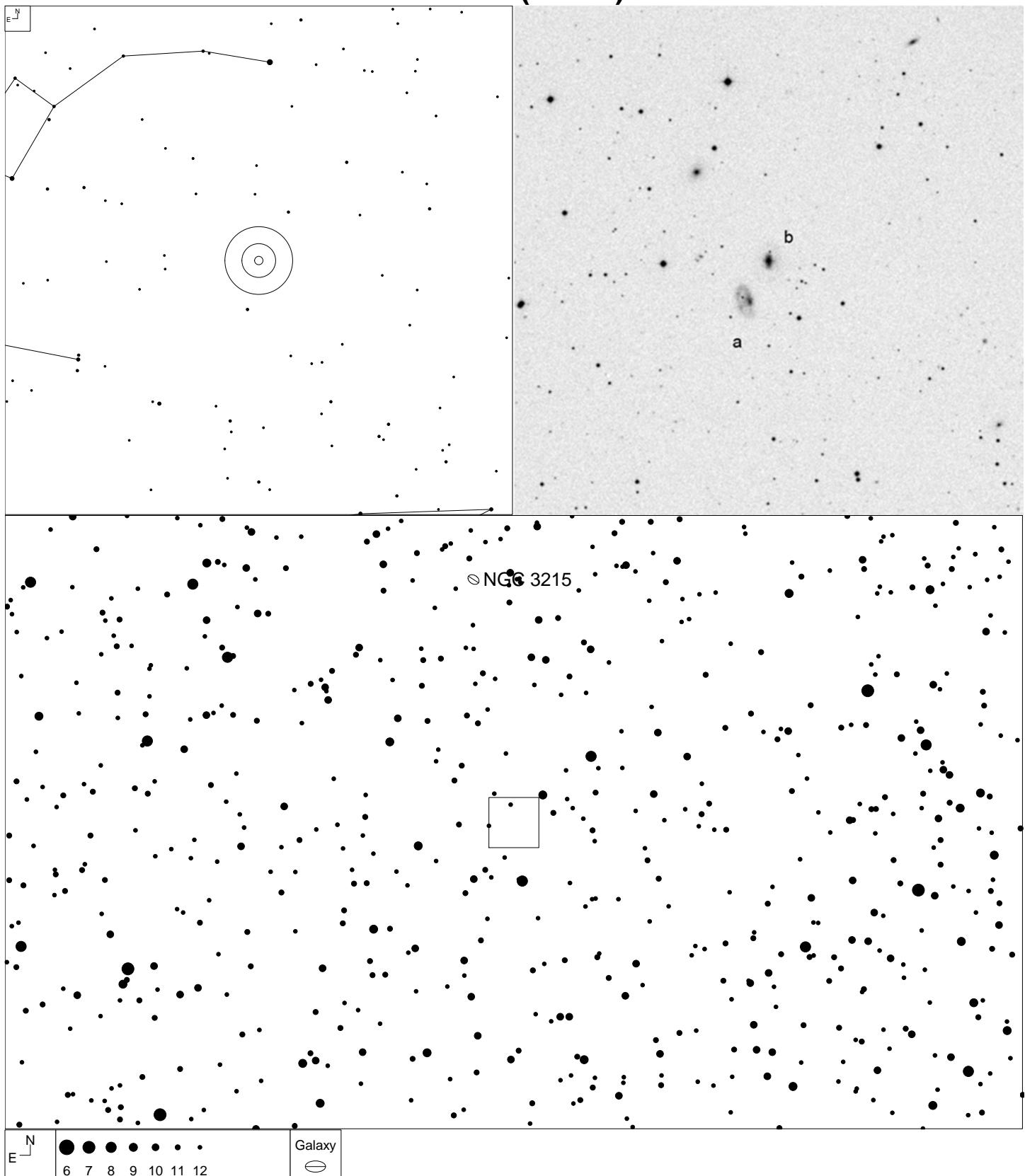
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|-------|-------------|-----------|
| 113 | 10 41 53.4 | +00 47 35 | G | 14.9g | 9x8 | PC |

VV 65 (Vela)



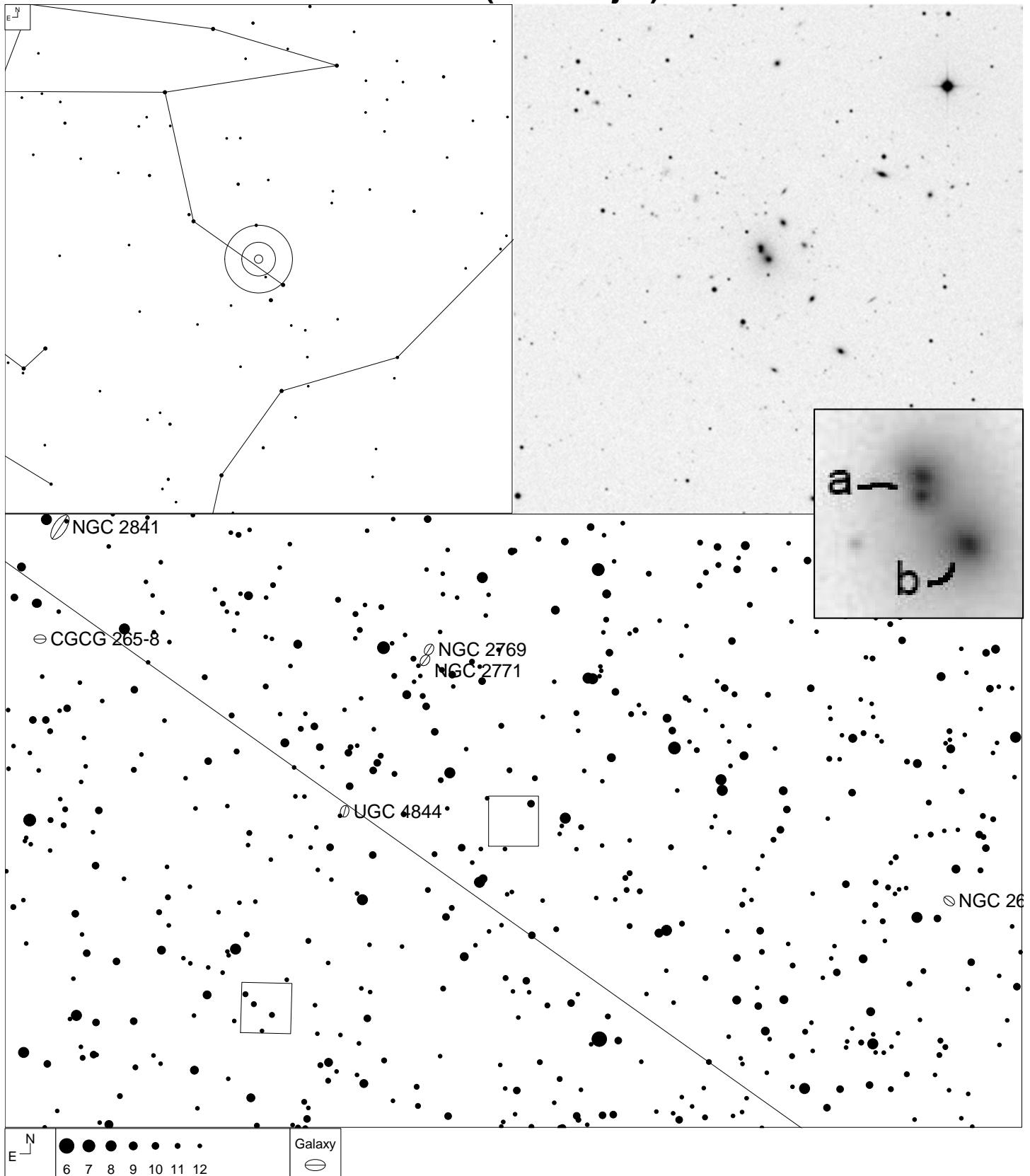
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|----|------------|-----------|----------|-------|-------------|-----------|
| 65 | 10 27 51.3 | -43 54 13 | G | 12.15 | 38x21 | PC |

VV 330 (Draco)

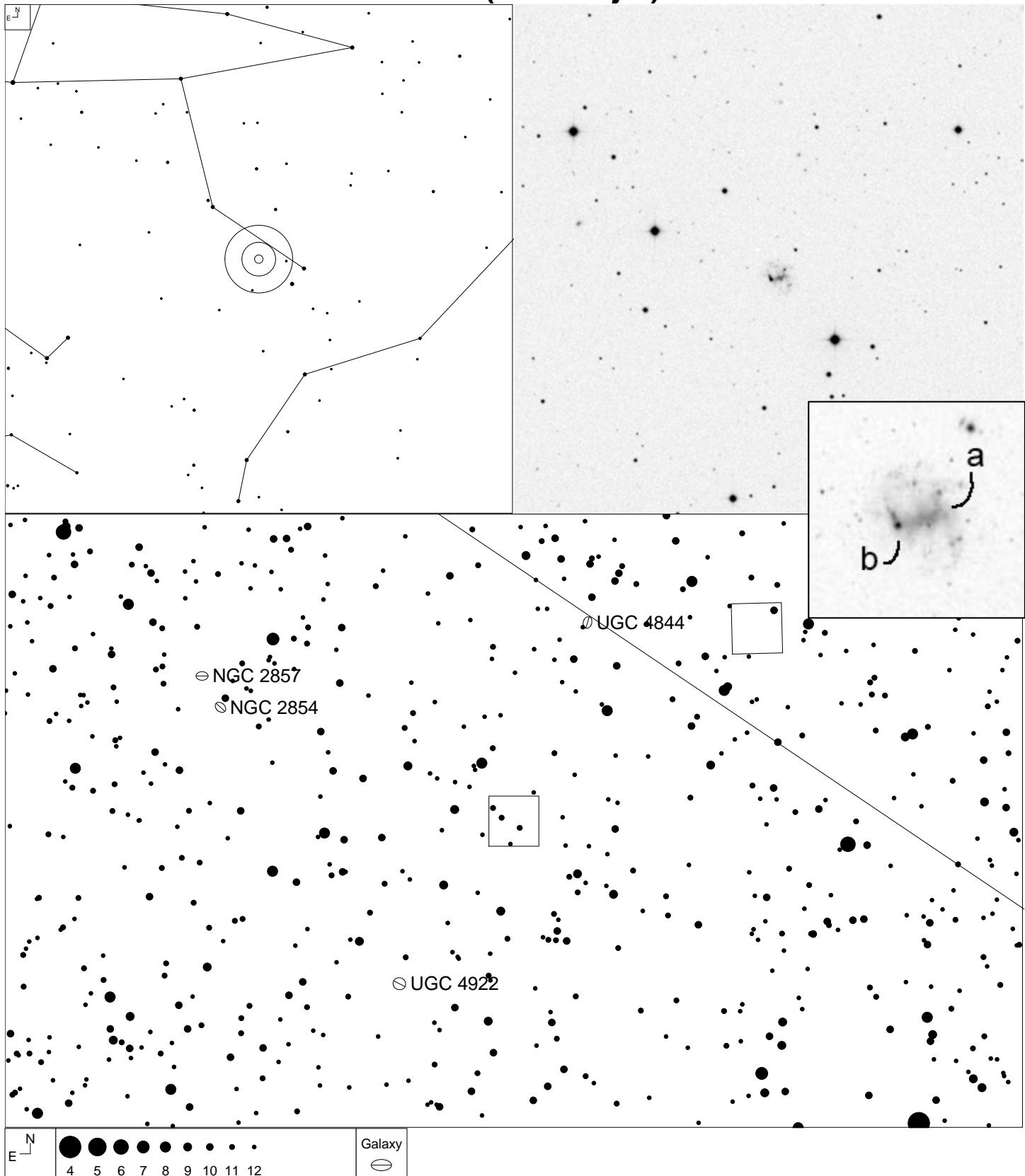


| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 330 | 10 24 16.4 | +78 37 08 | GPair | | | PD |
| 330b | 10 24 09.9 | +78 37 44 | G | 14.19 | 14x10 | |
| 330a | 10 24 22.3 | +78 36 33 | G | 14.40 | 13x8 | |

VV 196 (Ursa Major)

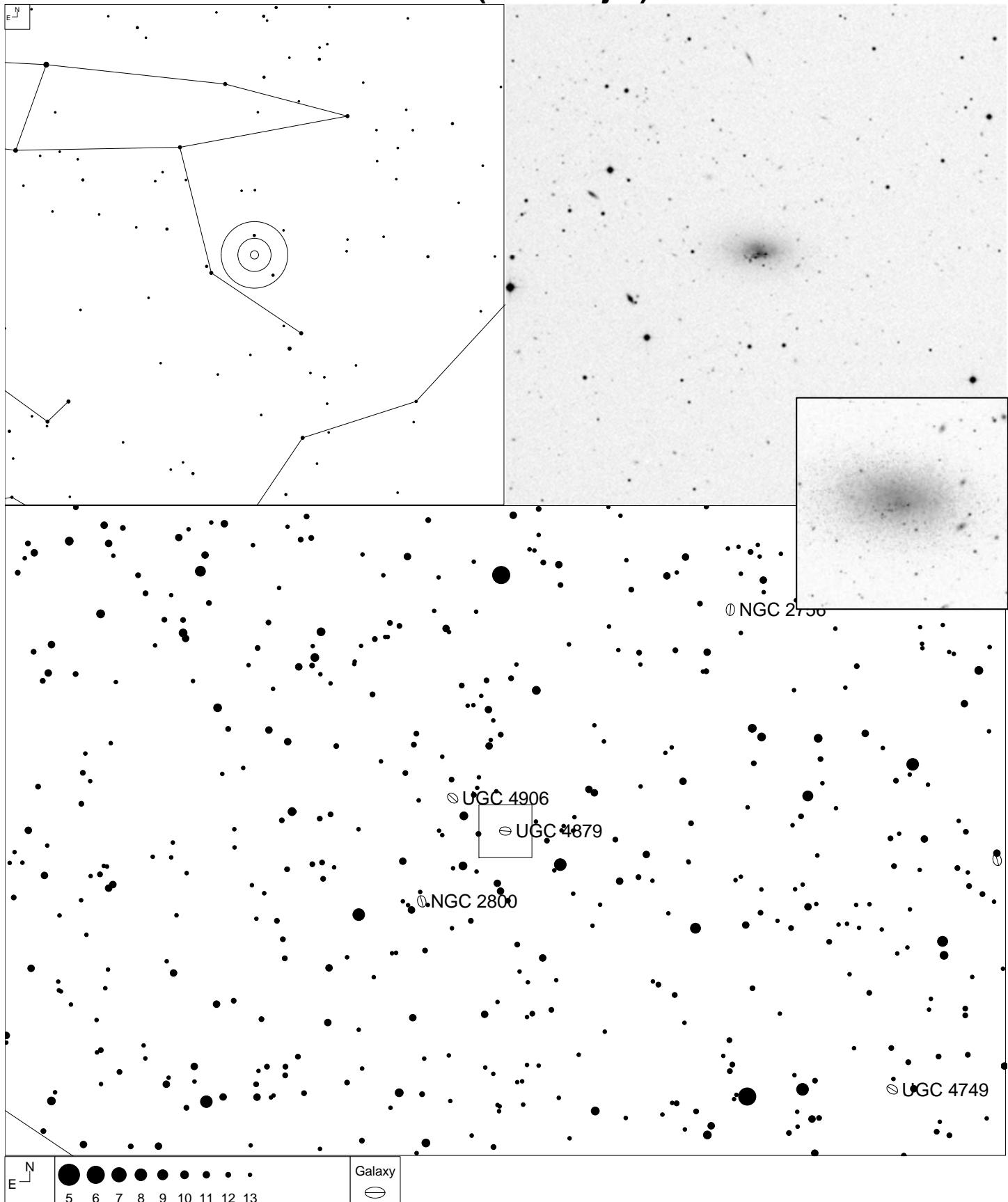


VV 131 (Ursa Major)



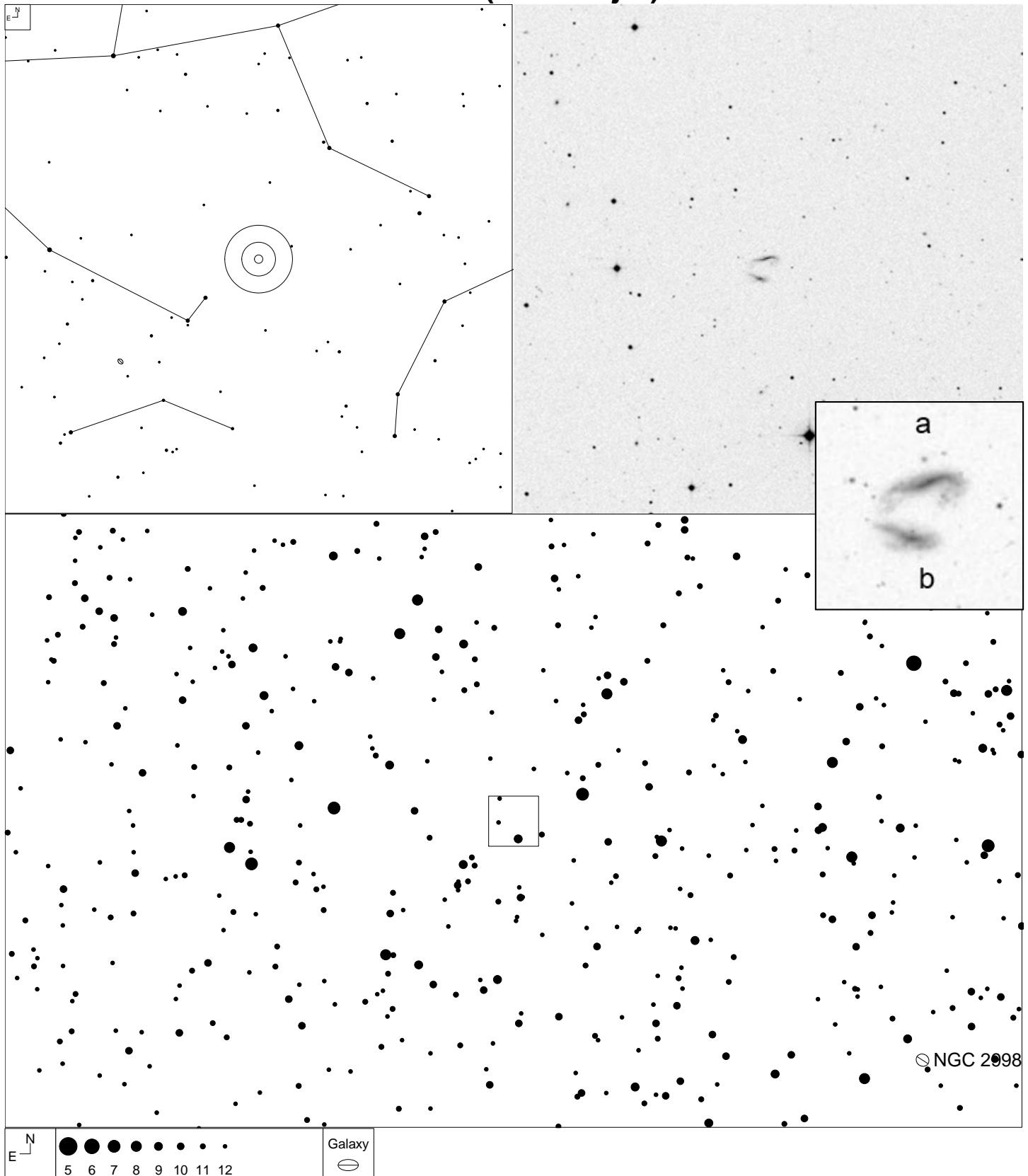
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|------|-------------|-----------|
| 131 | 09 15 16.3 | +48 40 03 | GPair | | | N |
| 131a | 09 15 15.1 | +48 40 12 | G | 16.5 | 11x9 | |
| 131b | 09 15 17.4 | +48 39 54 | star | 15.1 | | |

VV 124 (Ursa Major)



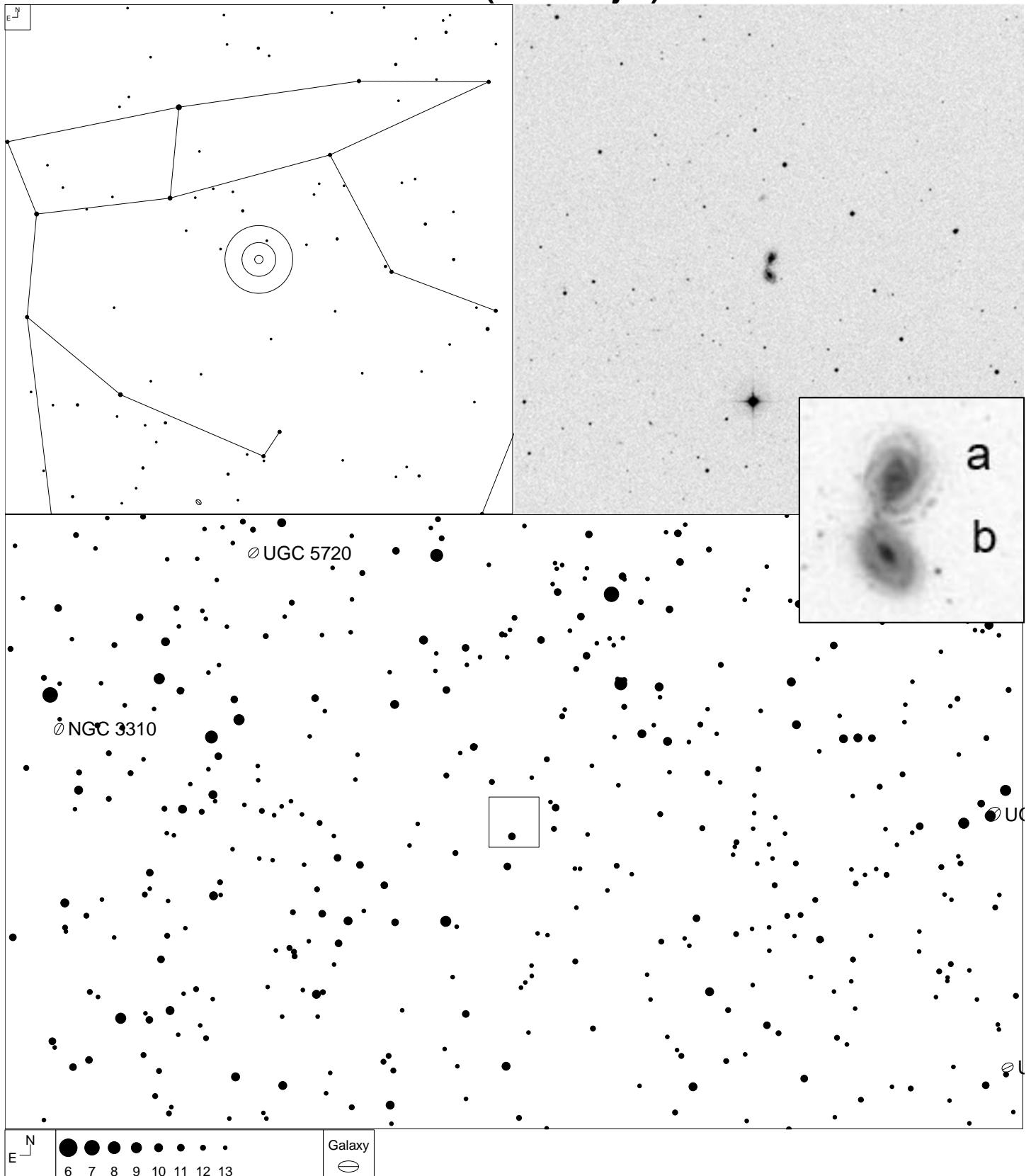
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|-------|-------------|-----------|
| 124 | 09 16 02.2 | +52 50 24 | G | 13.78 | 17x13 | N |

VV 321 (Ursa Major)



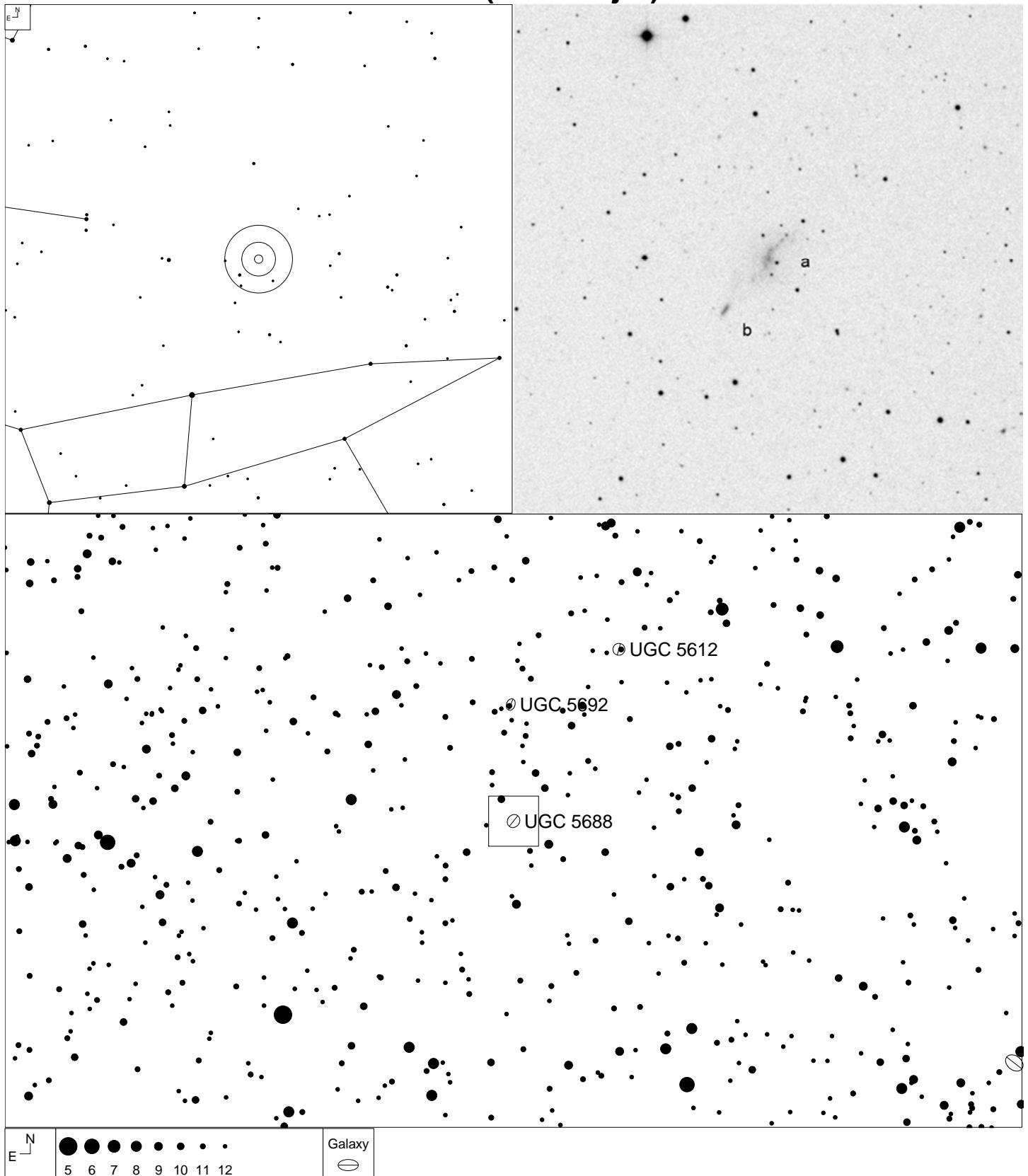
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-------------|
| 321 | 09 59 52.8 | +45 16 41 | GPair | | | PD b |
| 321a | 09 59 52.4 | +45 16 59 | G | 15.8g | 11x3 | |
| 321b | 09 59 53.4 | +45 16 22 | G | 16.1g | 7x3 | |

VV 312 (Ursa Major)



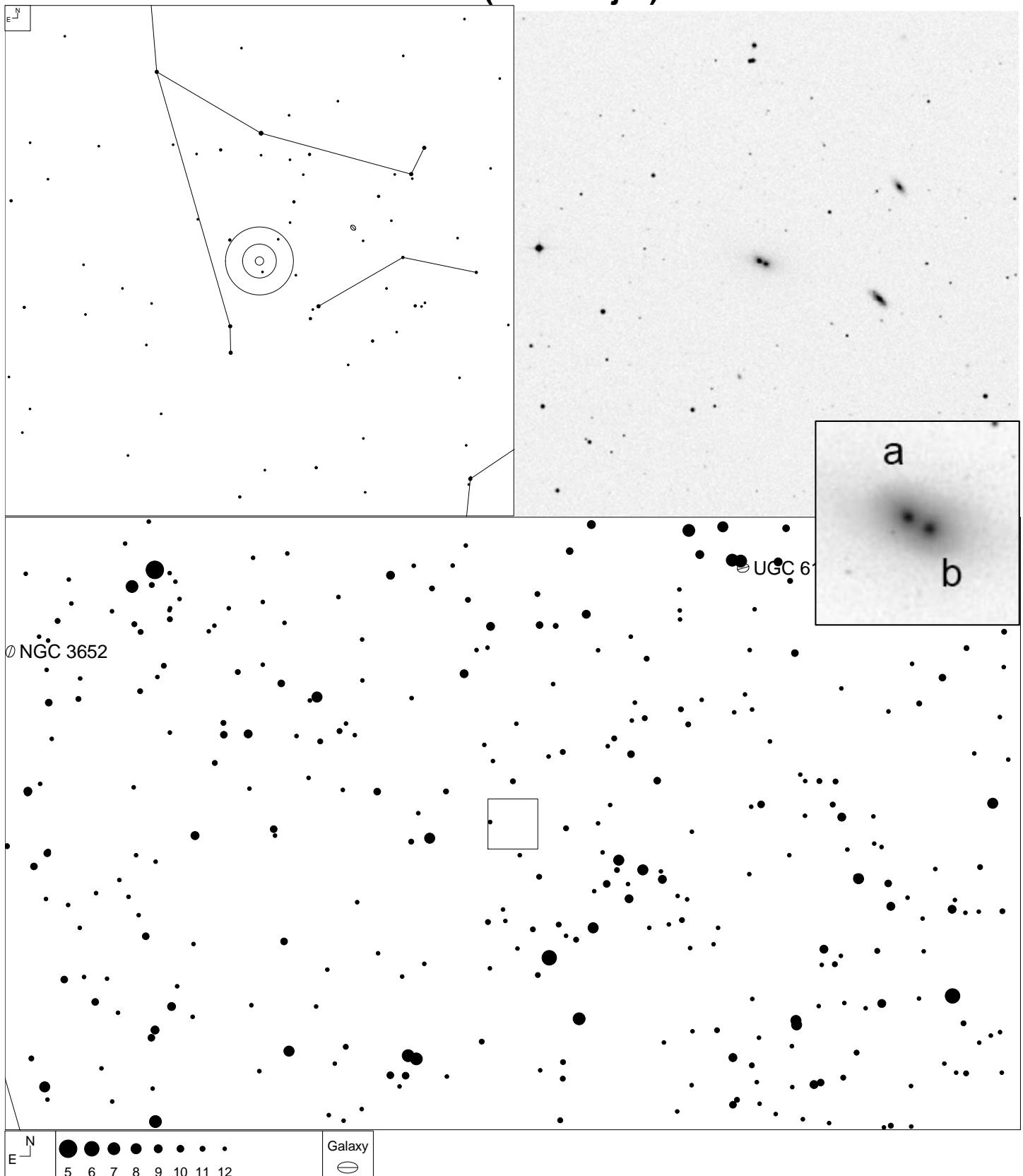
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|------|-------------|-----------------|
| 312 | 10 23 47.1 | +53 06 12 | GPair | | | PD _b |
| 312a | 10 23 46.9 | +53 06 28 | G | 13.8 | 8x7 | |
| 312b | 10 23 47.3 | +53 05 57 | G | 13.5 | 7x5 | |

VV 294 (Ursa Major)



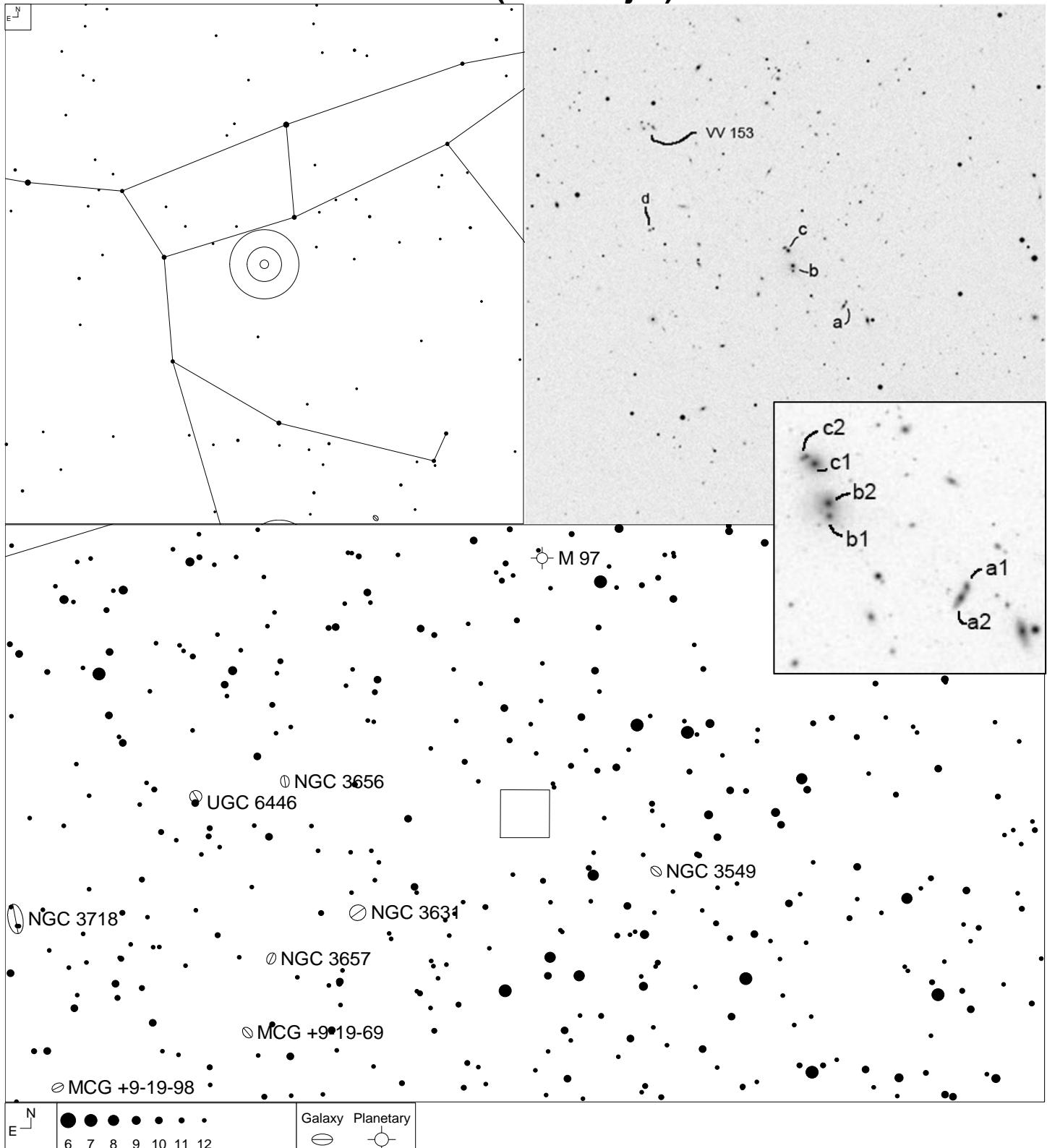
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|------|-------------|-------------|
| 294 | 10 30 32.1 | +70 02 16 | GPair | | | PD b |
| 294a | 10 30 24.8 | +70 03 01 | G | 13.8 | 40x19 | |
| 294b | 10 30 39.4 | +70 01 32 | G | 14.6 | 5x1 | |

VV 182 (Ursa Major)

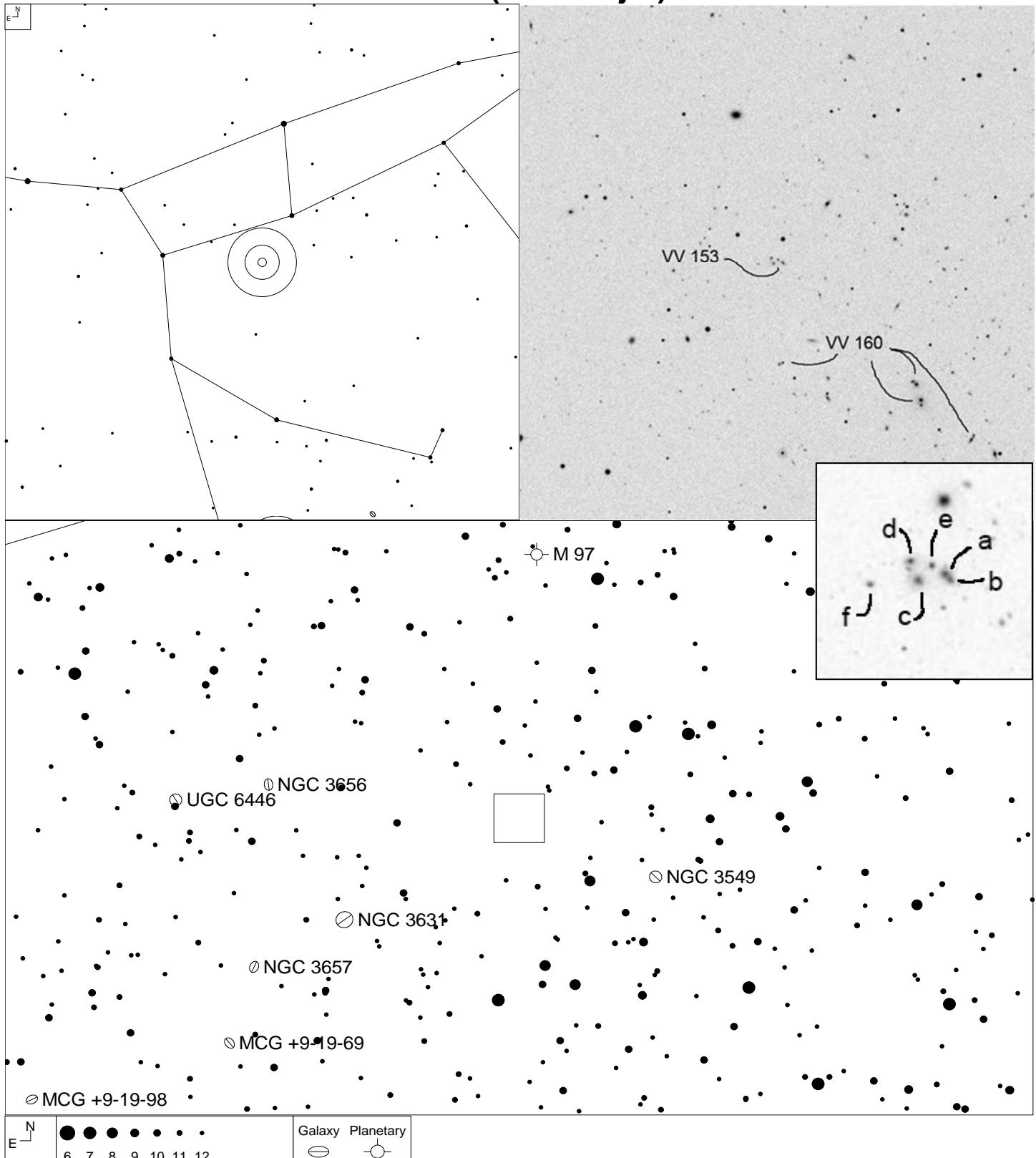


| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 182 | 11 10 12.7 | +36 57 56 | GPair | | | PKb |
| 182b | 11 10 12.2 | +36 57 53 | G | 15.2g | 9x6 | |
| 182a | 11 10 13.2 | +36 58 00 | G | 15.0g | 9x6 | |

VV 160 (Ursa Major)

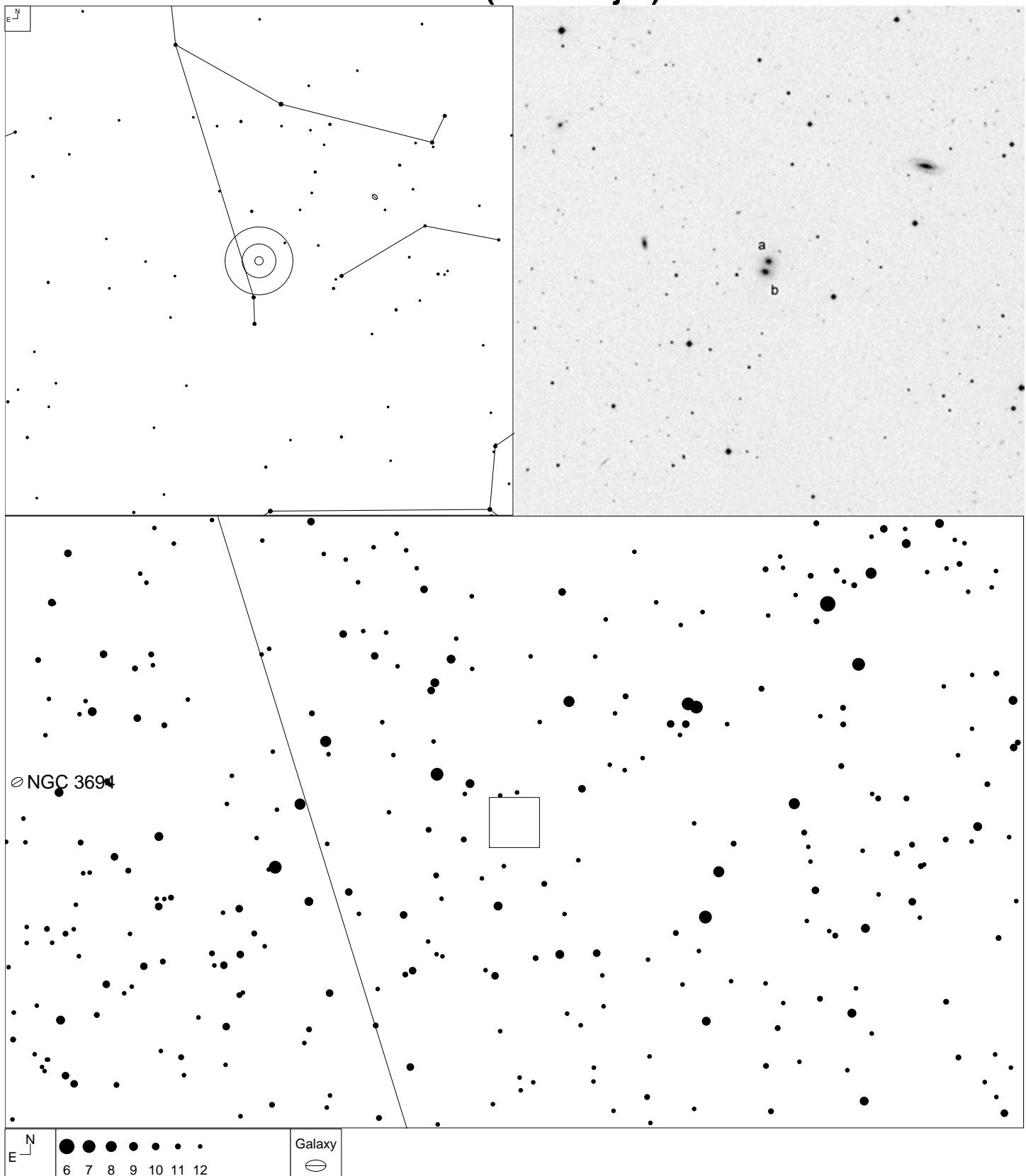


VV 153 (Ursa Major)



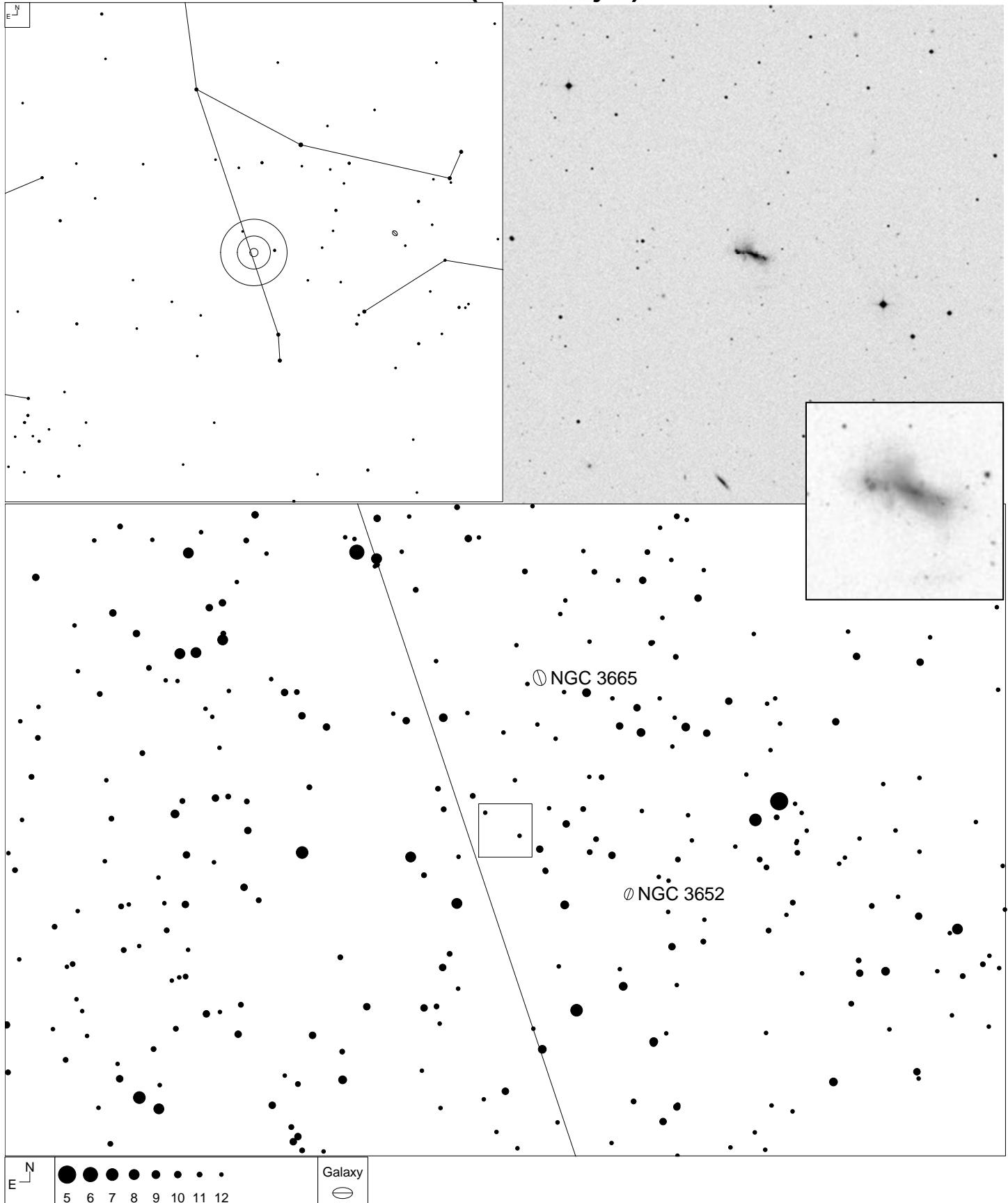
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 153 | 11 15 53.2 | +53 45 12 | GGroup | | | N |
| 153b | 11 15 51.8 | +53 45 10 | G | | | |
| 153a | 11 15 52.1 | +53 45 12 | G | 18.7g | | |
| 153e | 11 15 52.9 | +53 45 17 | G | 19.5g | | |
| 153c | 11 15 53.8 | +53 45 08 | G | 18.7g | | |
| 153d | 11 15 54.1 | +53 45 20 | G | | | |
| 153f | 11 15 56.8 | +53 45 06 | G | 20.0g | | |

VV 198 (Ursa Major)

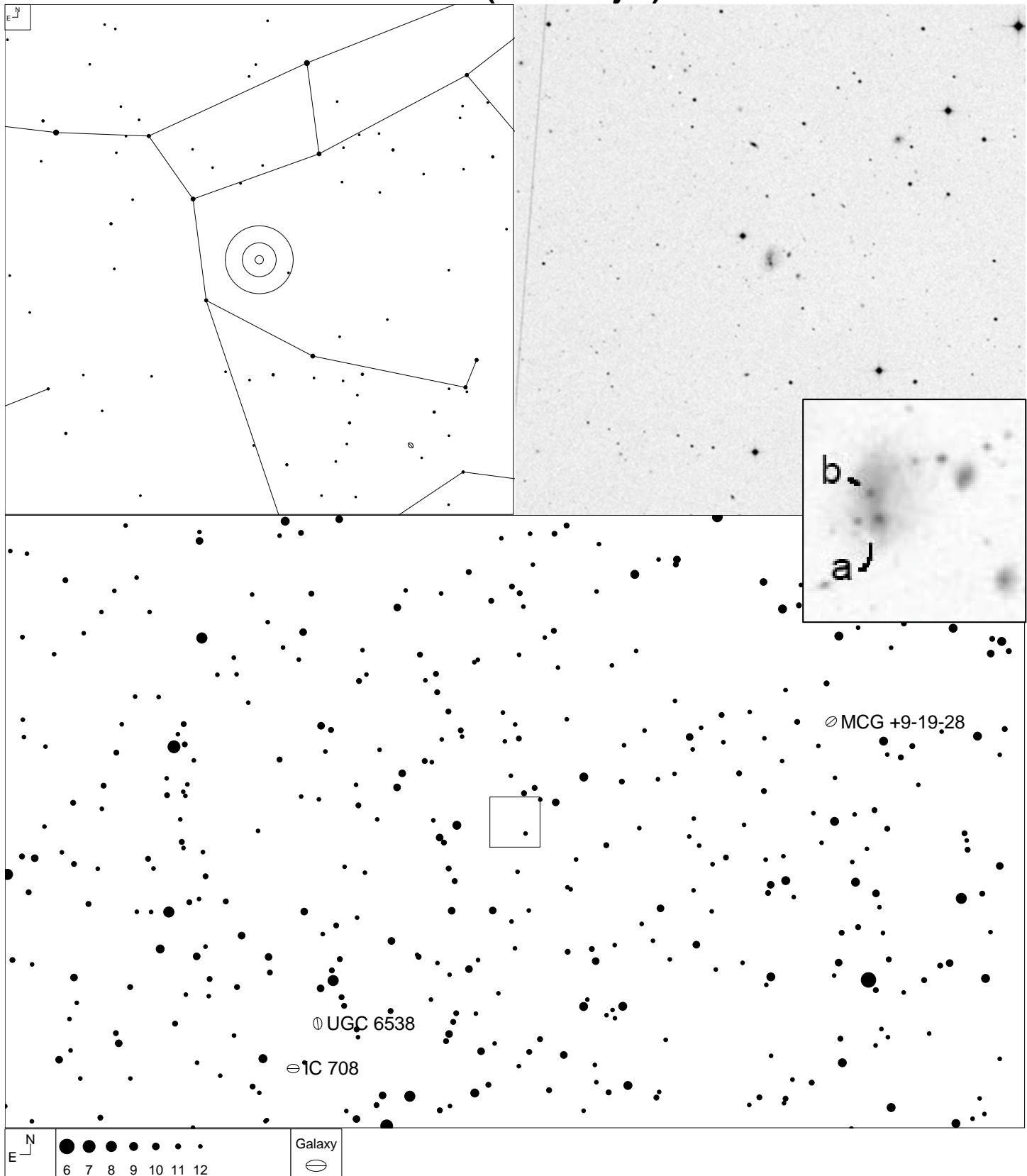


| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-------------|
| 198 | 11 16 56.0 | +35 15 23 | GPair | | | PD b |
| 198a | 11 16 55.8 | +35 15 33 | G | 15.6g | 6x5 | |
| 198b | 11 16 56.3 | +35 15 14 | G | 15.5g | 6x5 | |

VV 87 (Ursa Major)

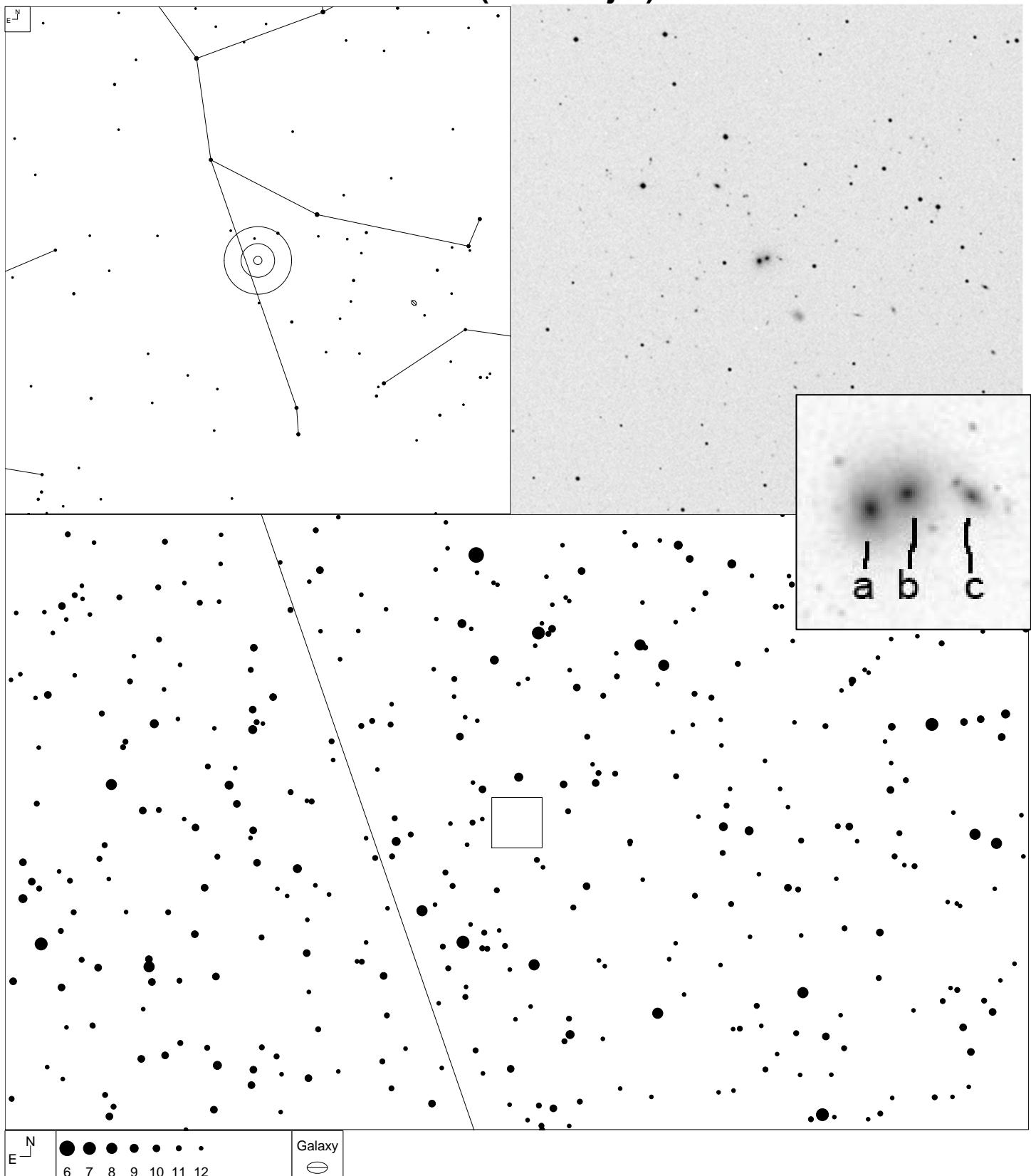


VV 265 (Ursa Major)



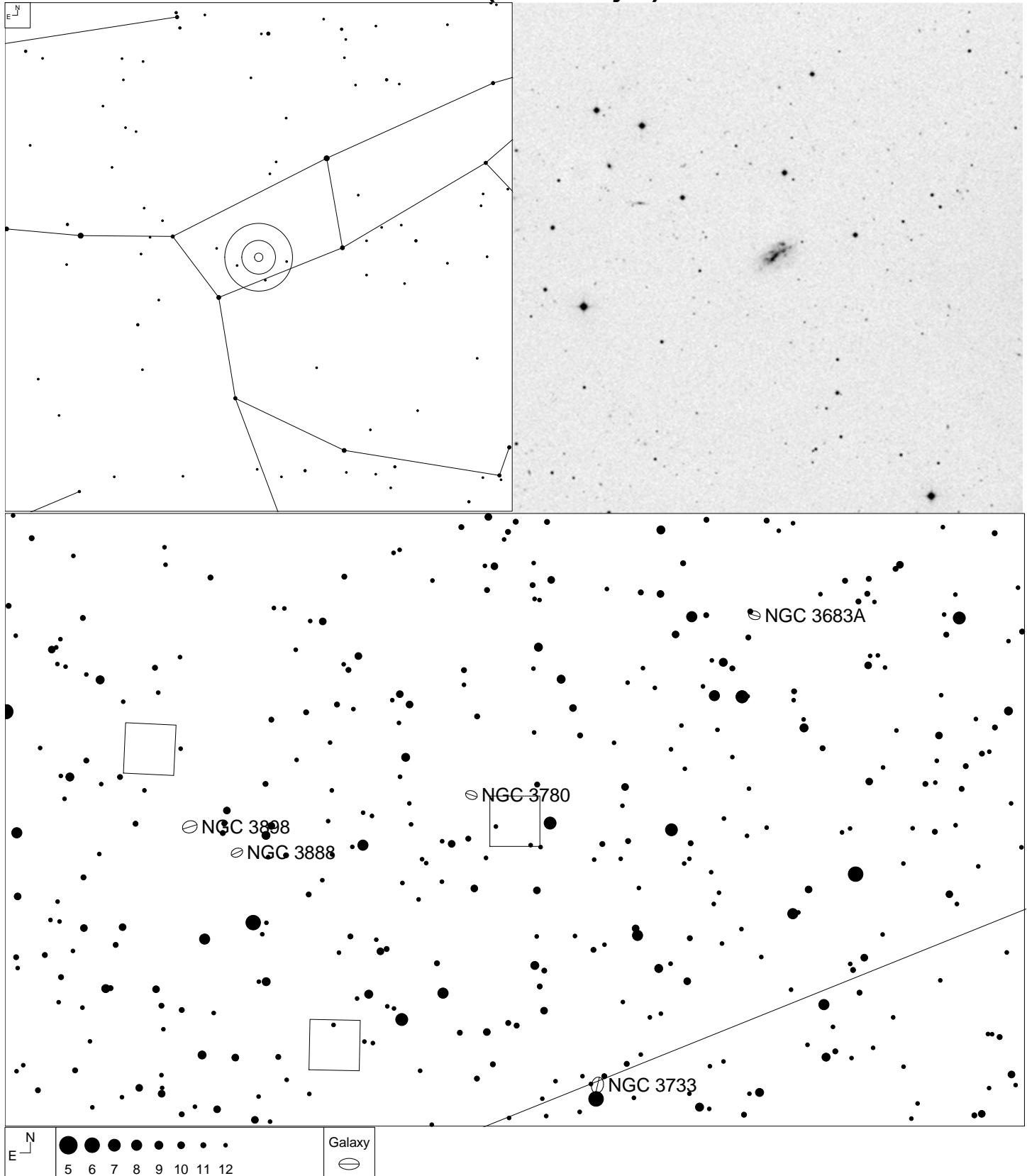
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 265 | 11 27 21.3 | +50 16 39 | GPair | | | PK |
| 265a | 11 27 21.1 | +50 16 33 | G | 16.8g | 7x4 | |
| 265b | 11 27 21.5 | +50 16 44 | G | | | |

VV 60 (Ursa Major)



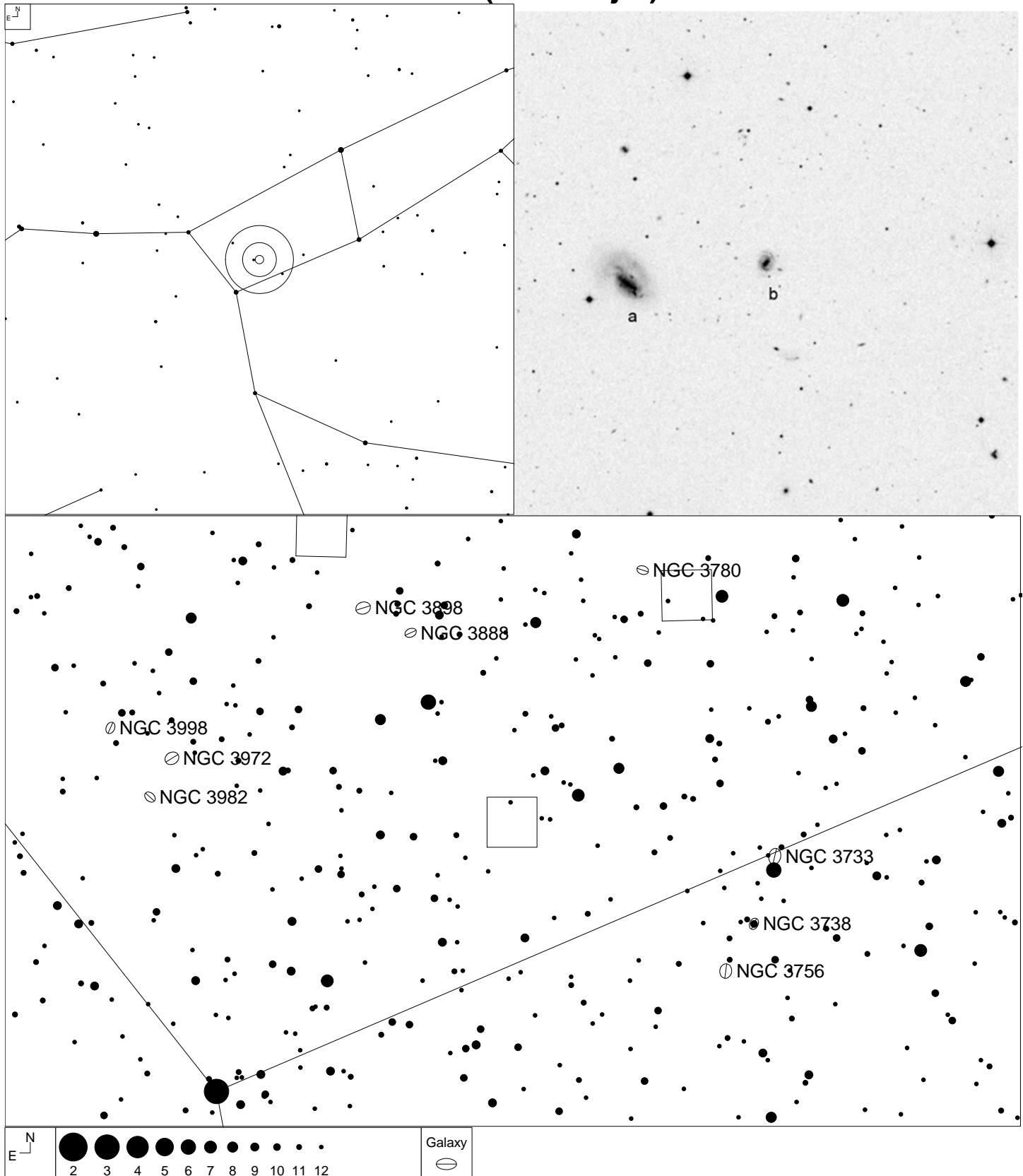
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|------|-------------|-----------|
| 60 | 11 29 23.9 | +41 52 16 | GTrpl | | | NNN |
| 60c | 11 29 22.2 | +41 52 18 | G | 16.5 | 2x1 | |
| 60b | 11 29 24.3 | +41 52 19 | G | 15.0 | 6x5 | |
| 60a | 11 29 25.5 | +41 52 14 | G | 14.9 | 5x4 | |

VV 148 (Ursa Major)



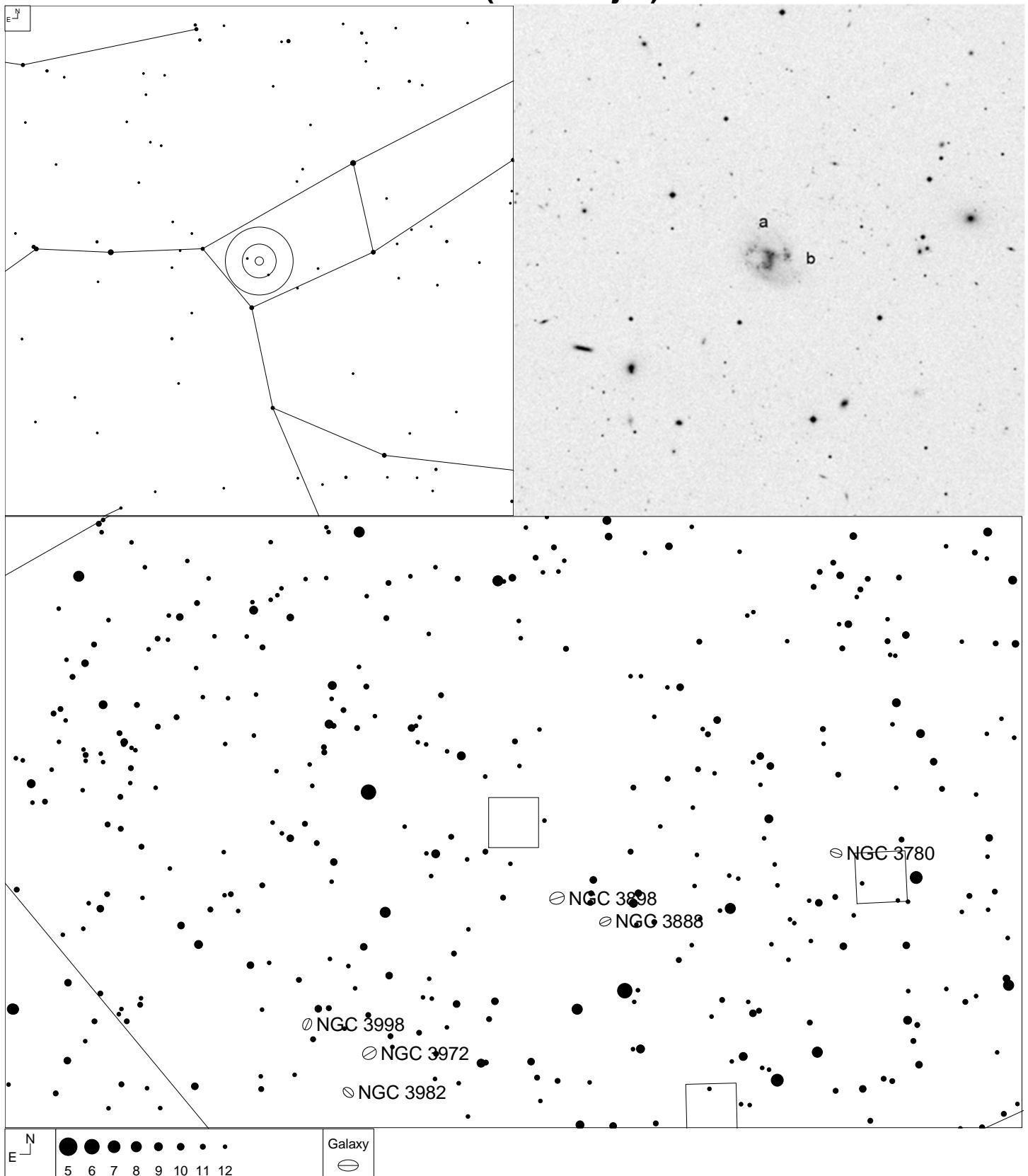
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|-------|-------------|-----------|
| 148 | 11 37 50.3 | +56 08 42 | G | 15.20 | 11x7 | N |

VV 320 (Ursa Major)



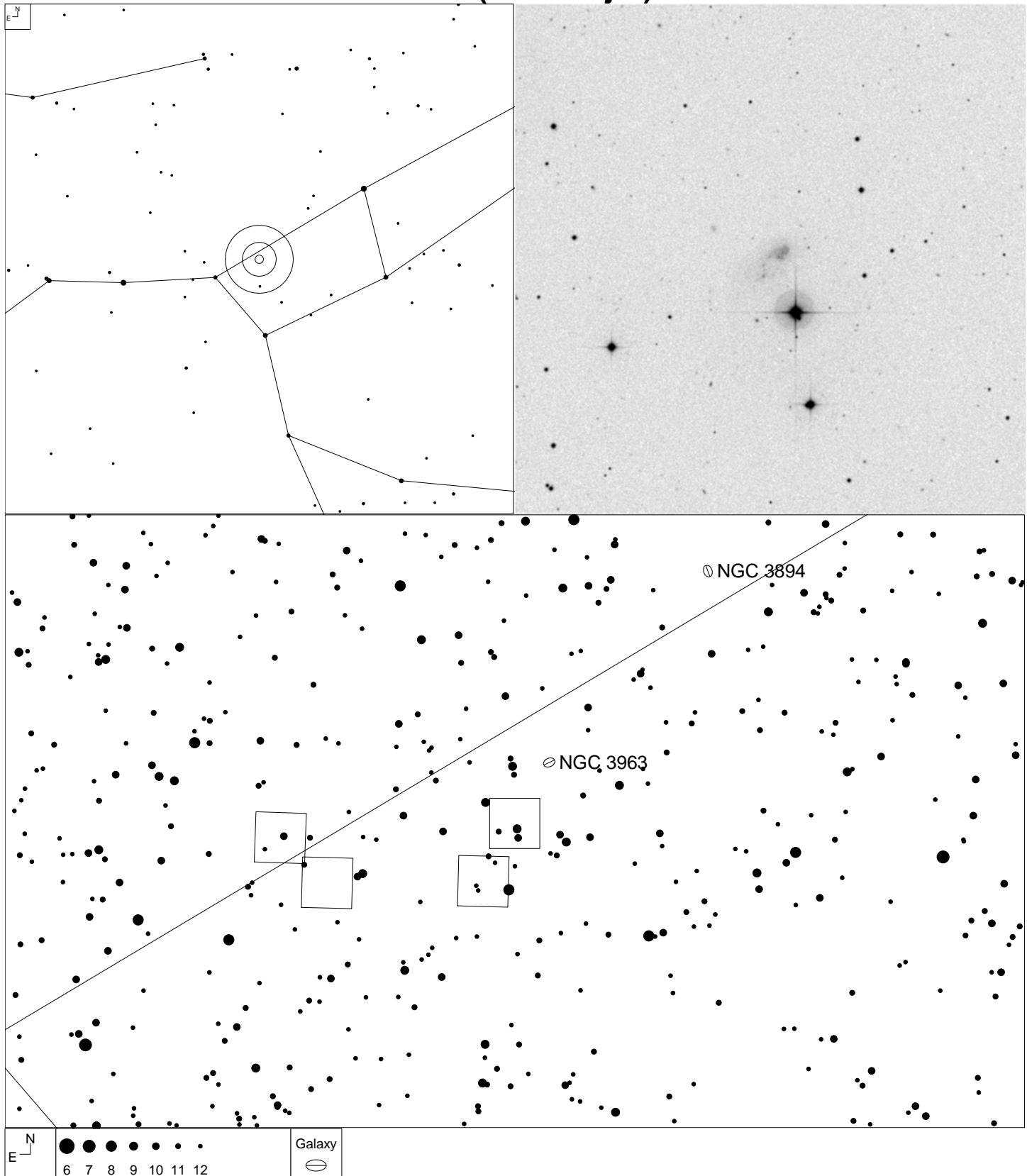
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 320 | 11 44 00.6 | +55 02 28 | GPair | | | PK |
| 320b | 11 43 46.4 | +55 02 51 | G | 15.2p | 7x6 | |
| 320a | 11 44 14.8 | +55 02 06 | G | 13.8p | 19x1 | |

VV 273 (Ursa Major)



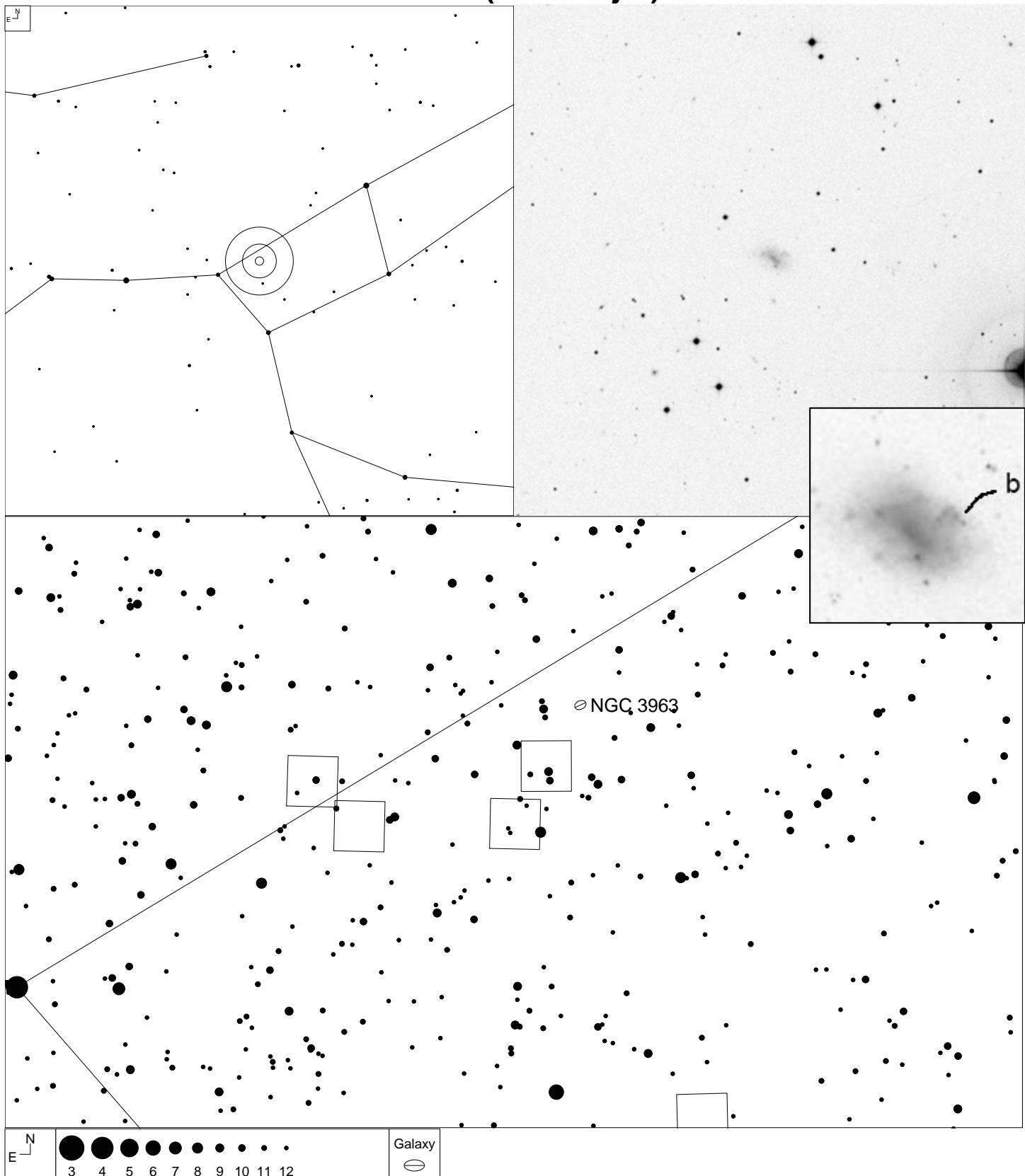
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 273 | 11 50 47.7 | +56 27 21 | G | | | N |
| 273b | 11 50 43.7 | +56 27 28 | PofG | 18.0r | | |
| 273a | 11 50 47.7 | +56 27 21 | G | 14.12 | 15x13 | |

VV 57 (Ursa Major)



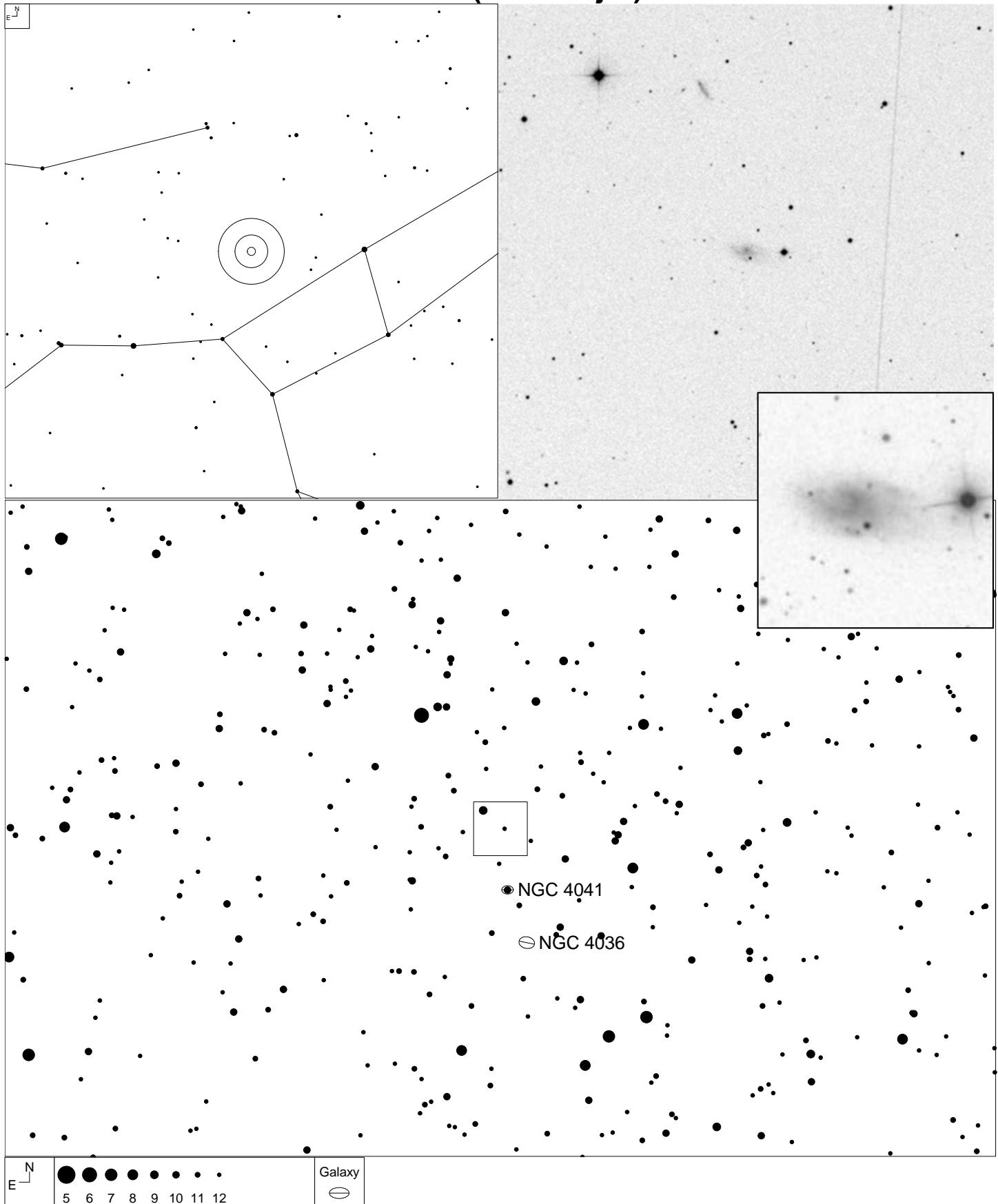
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|------|-------------|-----------|
| 57 | 11 56 14.4 | +58 11 49 | G | 14.6 | 21x14 | R |
| 57a | 11 56 13.8 | +58 12 01 | PofG | | | |
| 57b | 11 56 14.3 | +58 11 46 | PofG | | | |
| 57c | 11 56 18.4 | +58 11 16 | PofG | | | |

VV 241 (Ursa Major)

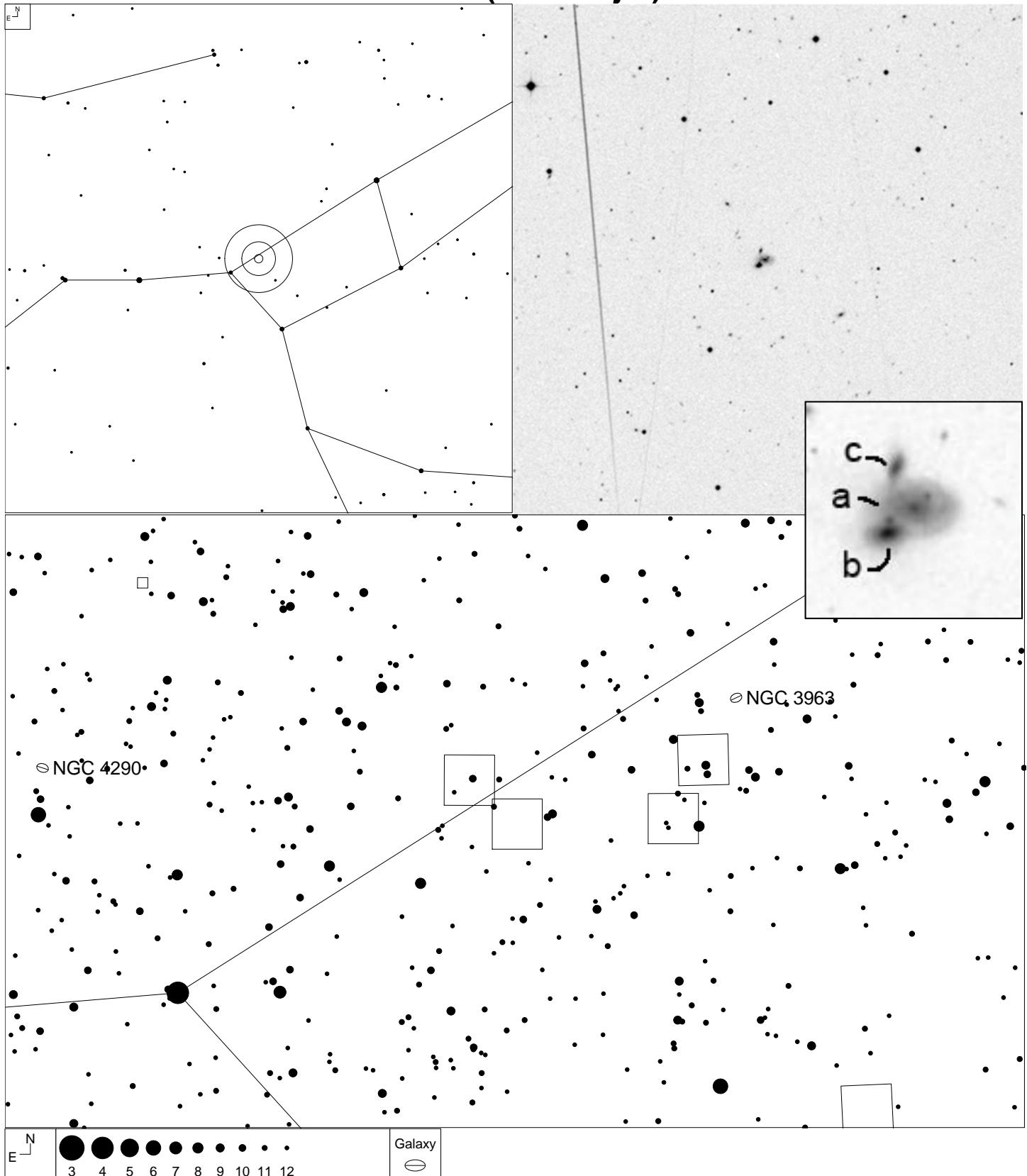


| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 241 | 11 57 24.9 | +57 55 48 | G | 14.31 | 14x10 | PKdf |
| 241b | 11 57 22.4 | +57 55 52 | PofG | 20.6g | 1x1 | |
| 241a | 11 57 25.2 | +57 55 50 | PofG | | | |

VV 259 (Ursa Major)

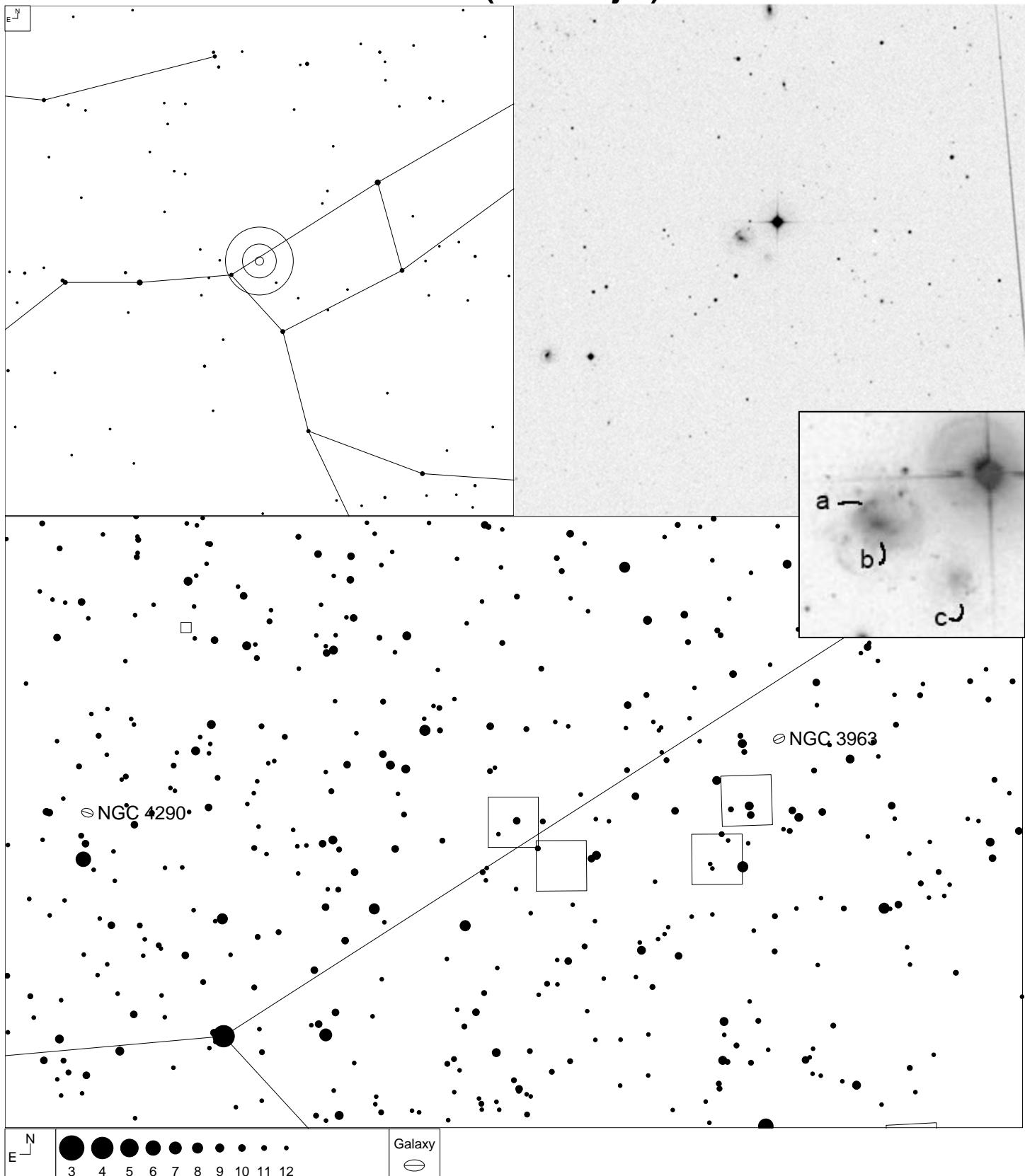


VV 136 (Ursa Major)

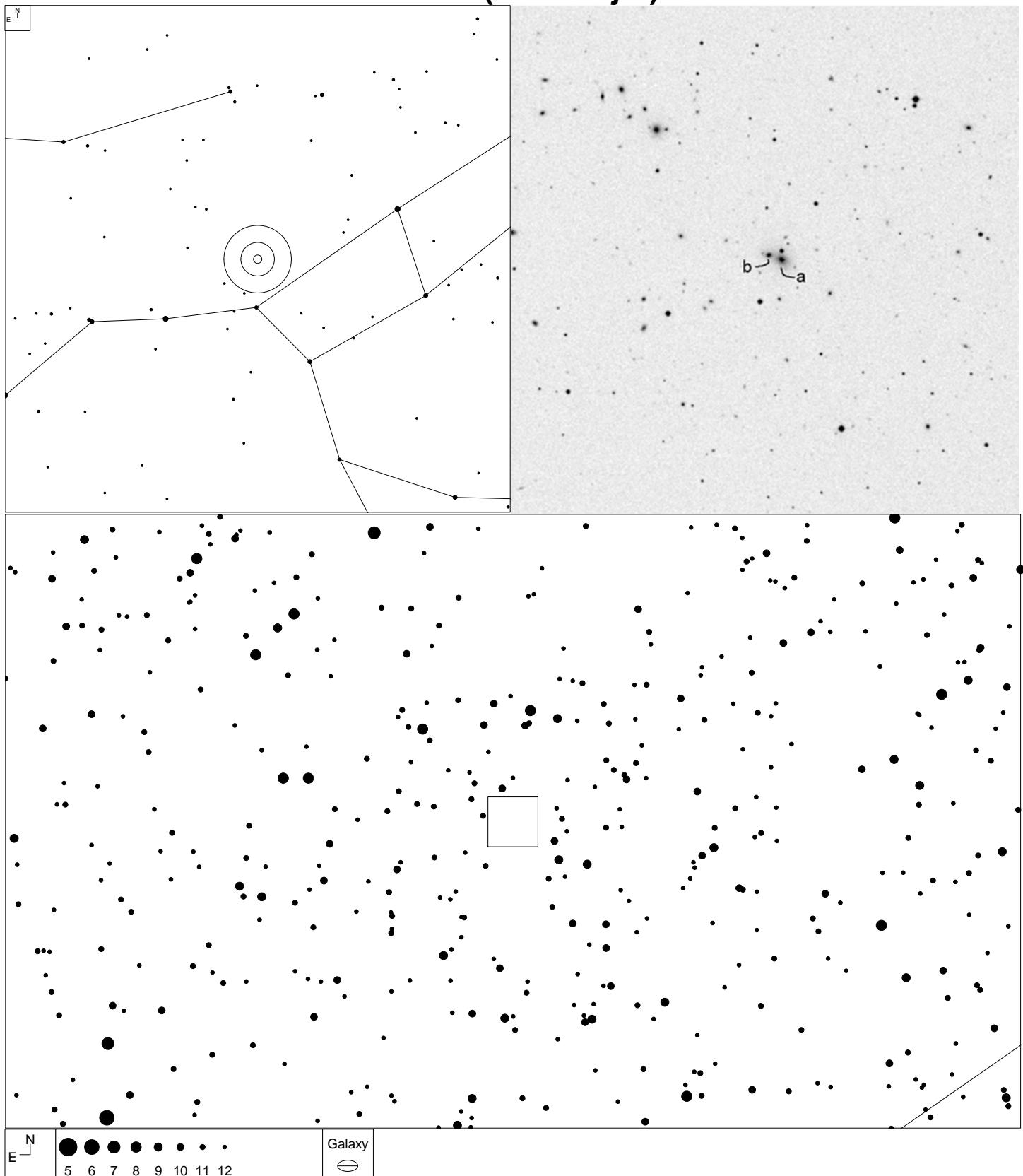


| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 136 | 12 03 13.1 | +57 53 40 | GTrpl | 15.2 | | N |
| 136a | 12 03 12.4 | +57 53 36 | G | 15.2 | 7x4 | |
| 136c | 12 03 13.4 | +57 53 53 | G | 17.2g | 3x2 | |
| 136b | 12 03 13.8 | +57 53 26 | G | 15.6g | 5x3 | |

VV 270 (Ursa Major)

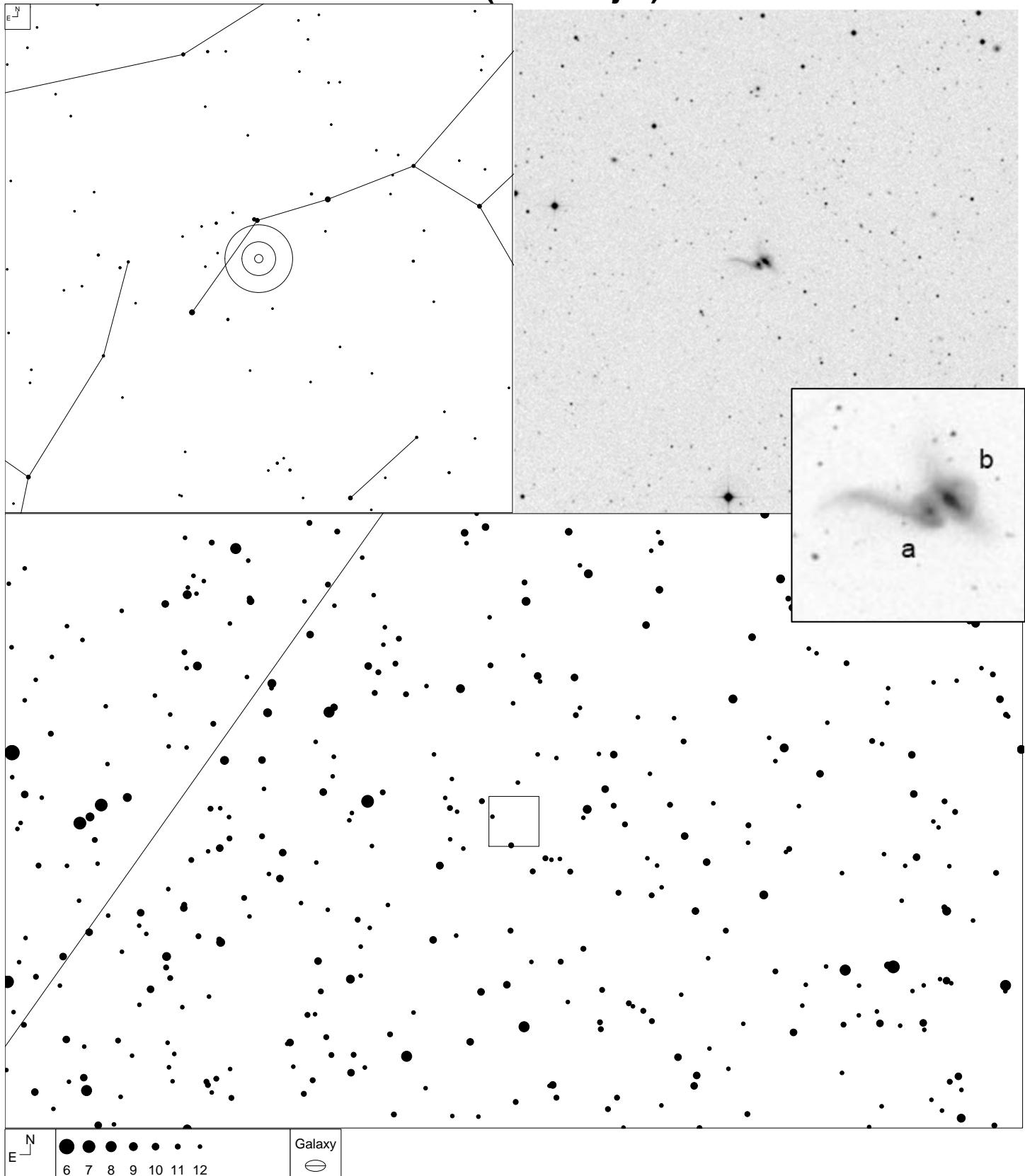


VV 183 (Ursa Major)



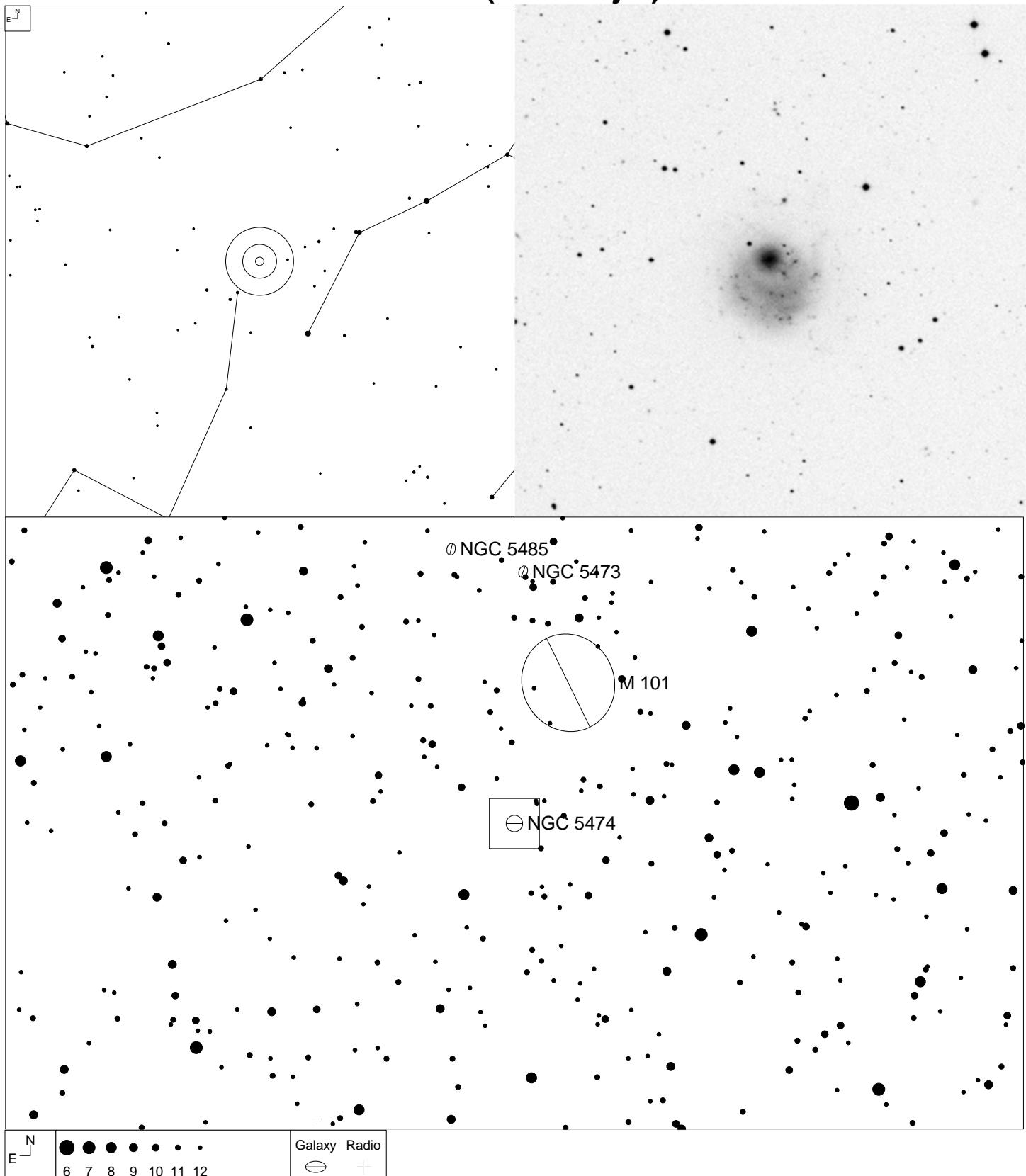
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 183 | 12 14 50.2 | +59 54 27 | GPair | | | PD |
| 183a | 12 14 48.6 | +59 54 22 | G | 15.2g | 9x6 | |
| 183b | 12 14 51.7 | +59 53 30 | G | 17 | 7x3 | |

VV 235 (Ursa Major)



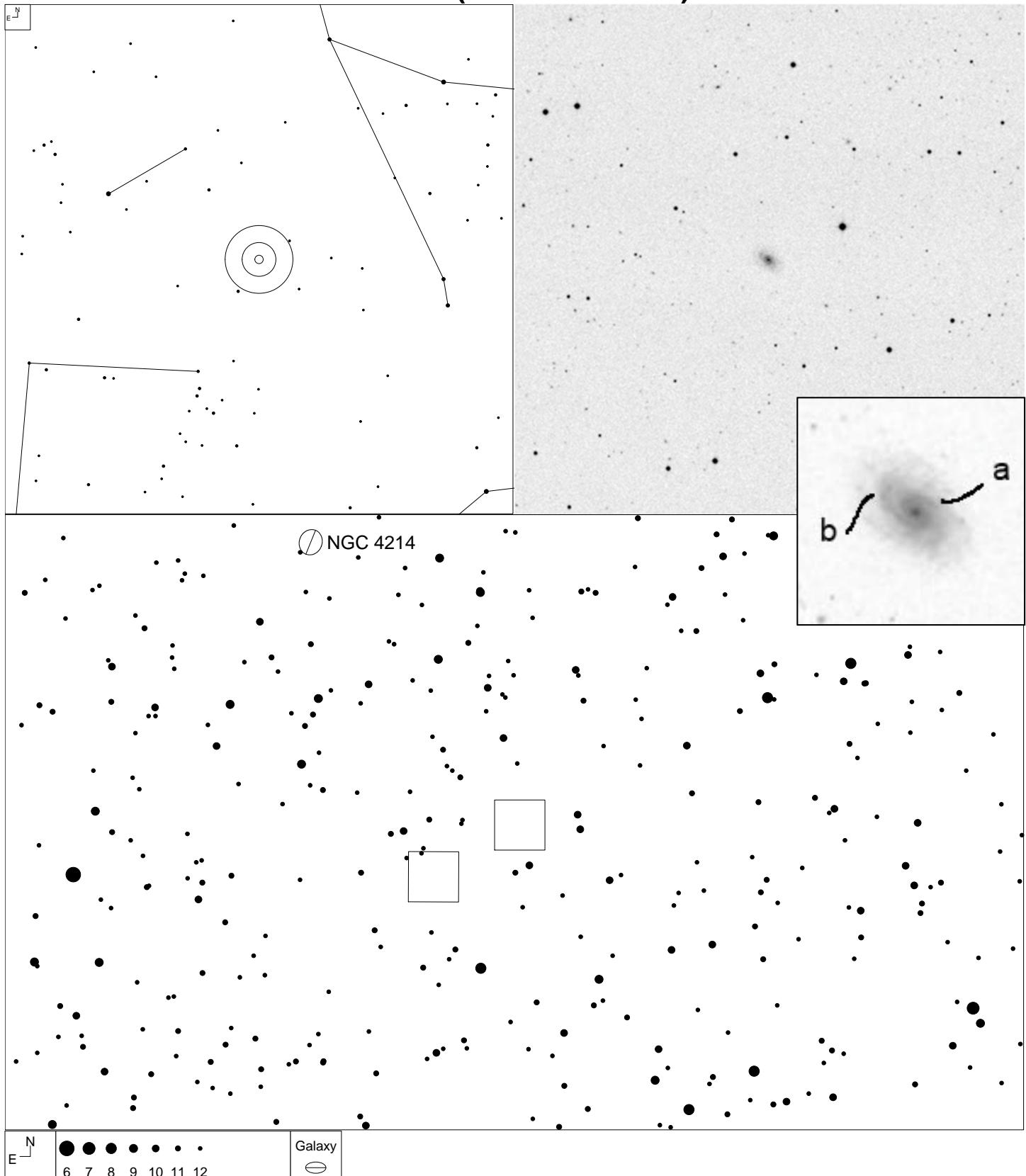
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|------|-------------|-----------|
| 235 | 13 23 17.4 | +52 39 10 | GPair | | | PKt |
| 235b | 13 23 16.7 | +52 39 13 | G | 15.2 | 6x5 | |
| 235a | 13 23 18.0 | +52 39 07 | G | 15.6 | 11x4 | |

VV 344 (Ursa Major)



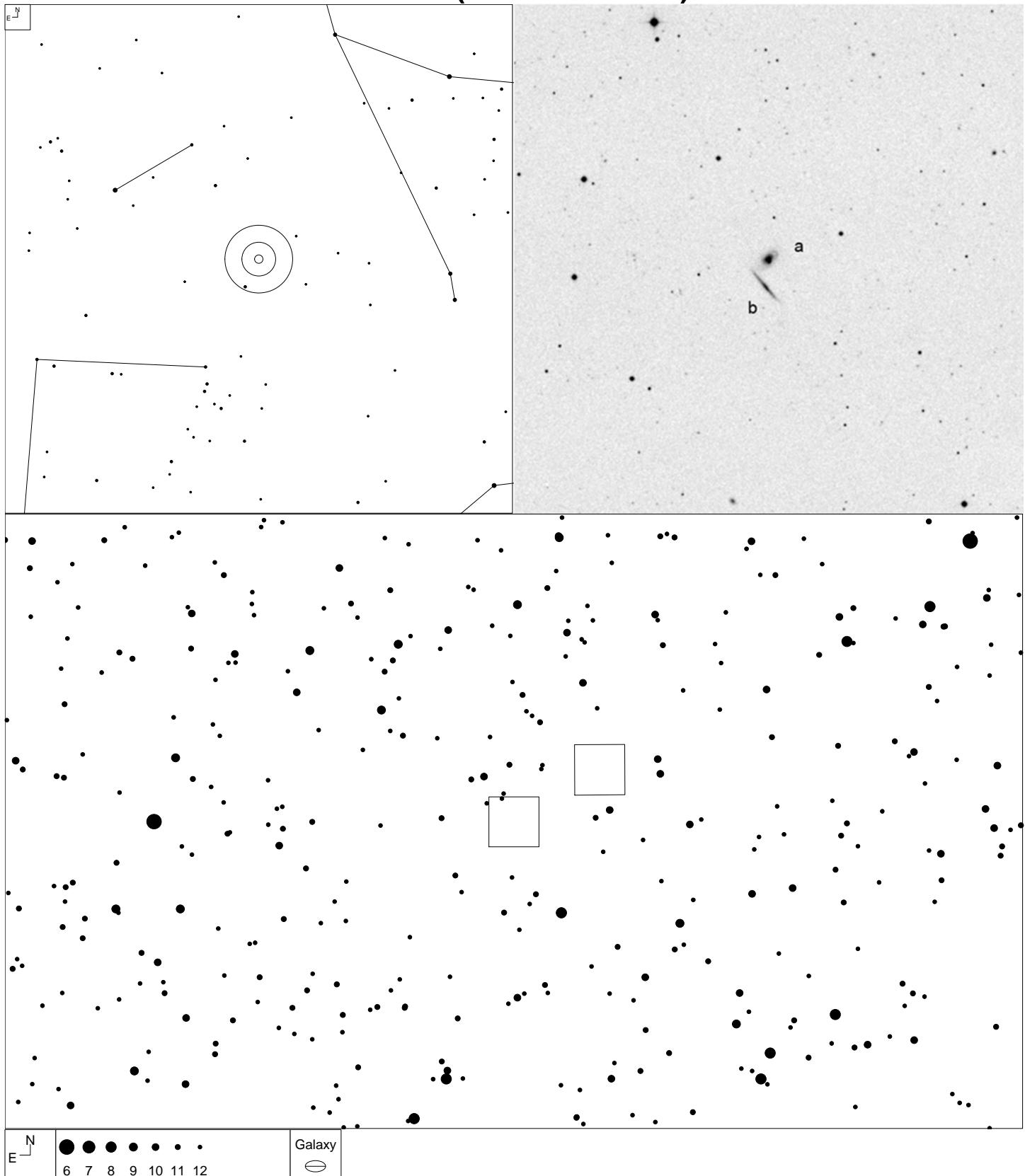
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 344 | 14 04 07.4 | +54 00 24 | GPair | | | PD |
| 344a | 14 03 12.5 | +54 20 55 | G | 8.3b | 289x269 | |
| 344b | 14 05 01.3 | +53 39 44 | G | 11.3b | 47x47 | |

VV 236 (Canes Venatici)



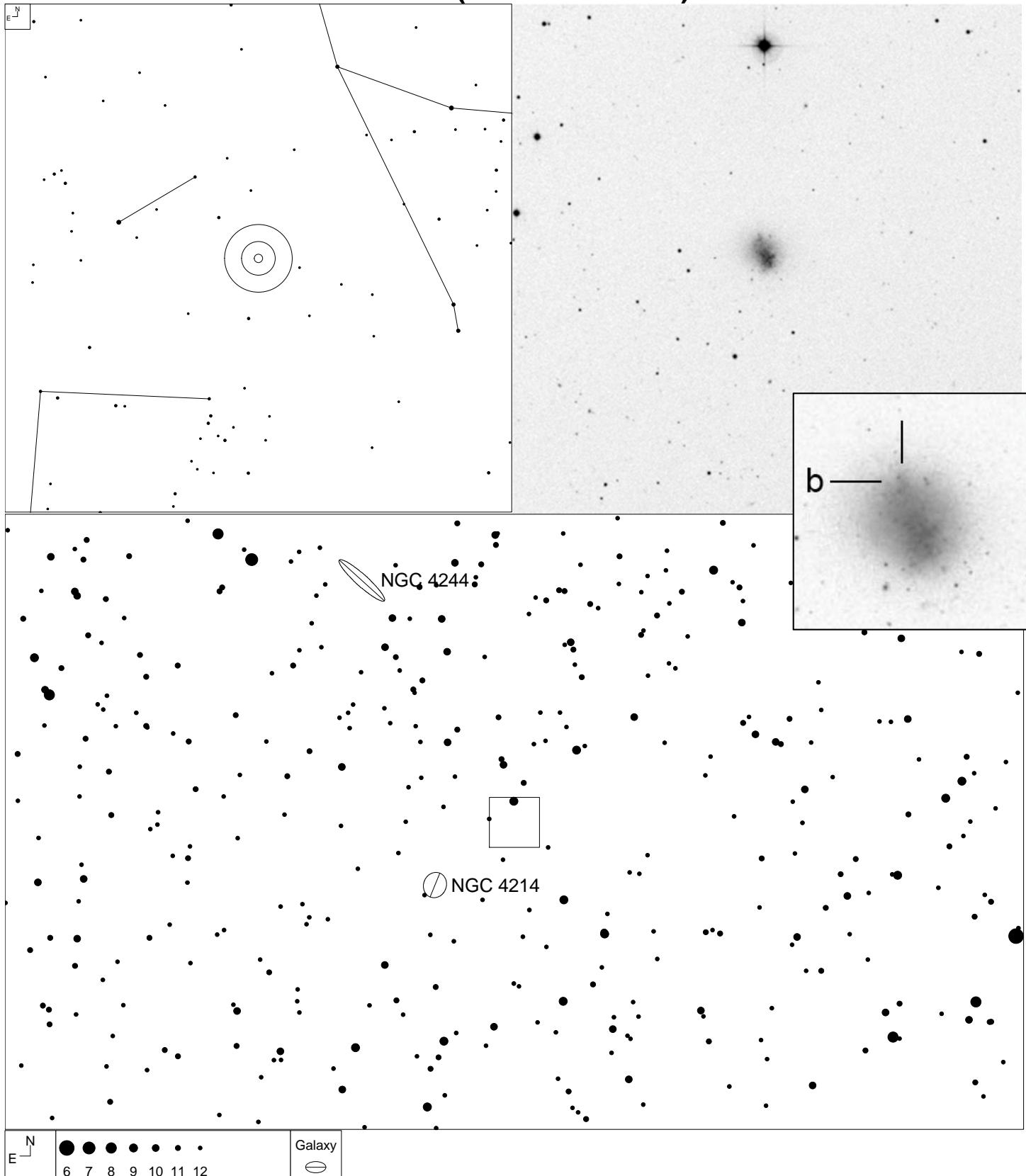
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 236 | 12 10 36.7 | +34 57 24 | G | 15.7g | 8x6 | PK |
| 236a | 12 10 36.3 | +34 57 18 | PofG | | | |
| 236b | 12 10 37.0 | +34 57 28 | PofG | | | |

VV 345 (Canes Venatici)



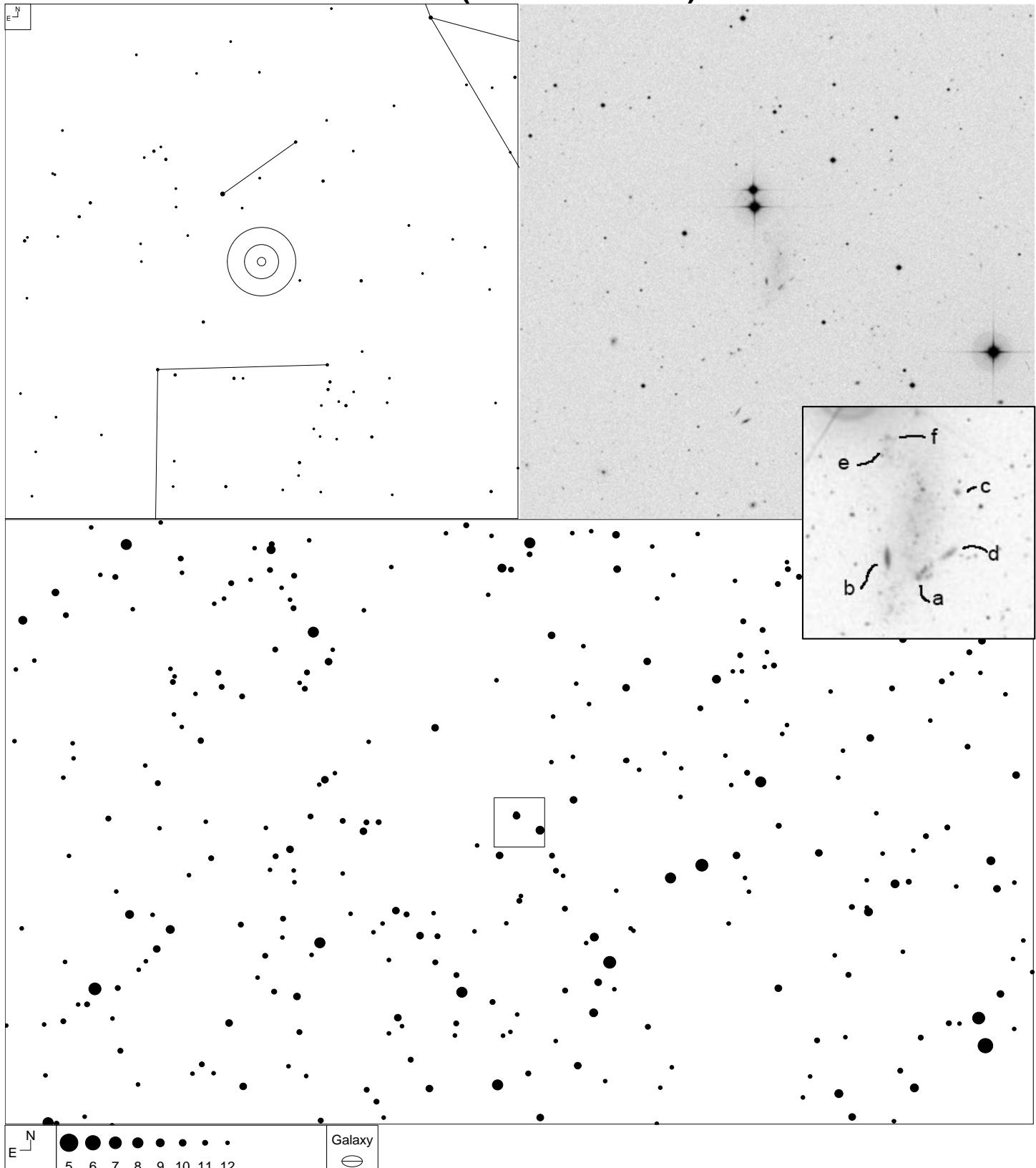
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 345 | 12 12 39.5 | +34 41 48 | GPair | | | PD |
| 345a | 12 12 39.2 | +34 42 13 | G | 15.5g | 7x4 | |
| 345b | 12 12 39.4 | +34 41 25 | G | 16.0g | 15x2 | |

VV 104 (Canes Venatici)



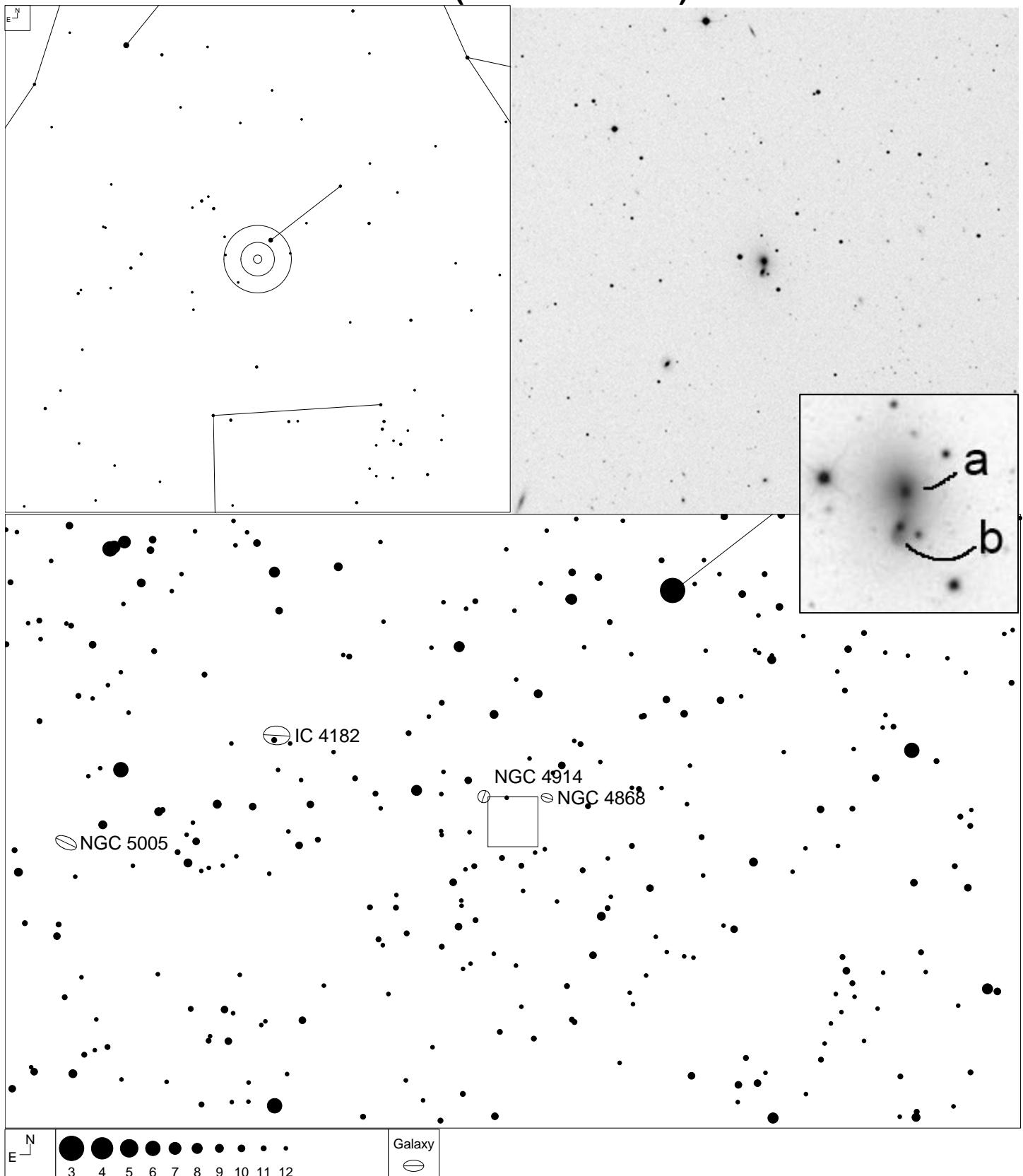
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 104 | 12 13 44.8 | +36 38 03 | G | 13.4g | 15x12 | PC |
| 104a | 12 13 44.1 | +36 37 53 | PoG | | | |
| 104b | 12 13 45.5 | +36 38 40 | Star Cl | | | |

VV 127 (Canes Venatici)



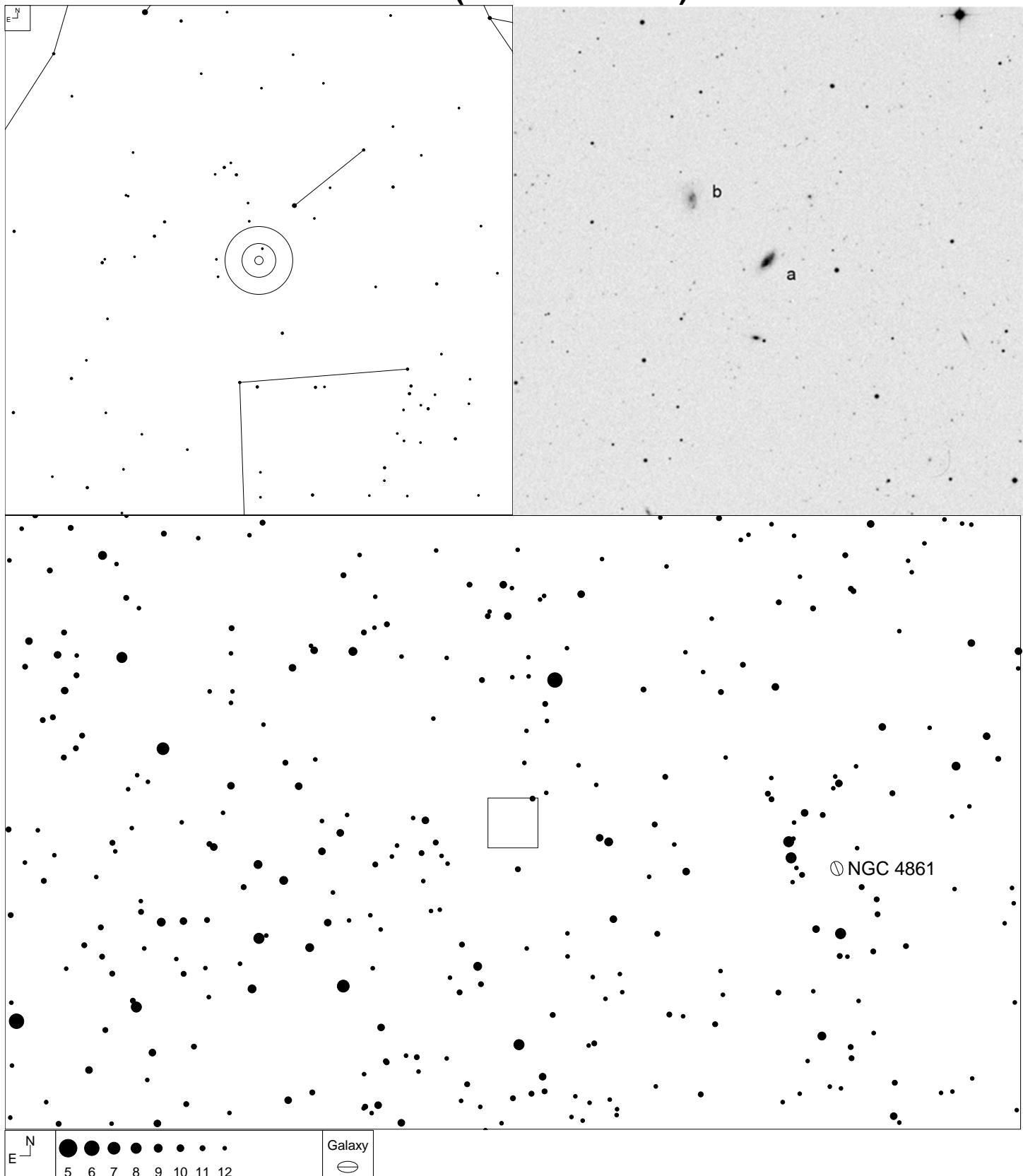
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 127 | 12 44 25.1 | +34 23 12 | G | 14.7 | 24x16 | PD |
| 127d | 12 44 23.1 | +34 22 49 | PofG | 19.64 | | |
| 127c | 12 44 24.5 | +34 23 36 | PofG | 19.8g | 1x1 | |
| 127a | 12 44 24.6 | +34 22 37 | PofG | 18.17 | | |
| 127f | 23 4 26.4 | +34 24 13 | PofG | 19.08 | | |
| 127b | 12 44 26.6 | +34 22 47 | G | 17.7g | 3x1 | |
| 127e | 12 44 26.9 | +34 24 01 | PofG | 20.00 | | |

VV 222 (Canes Venatici)



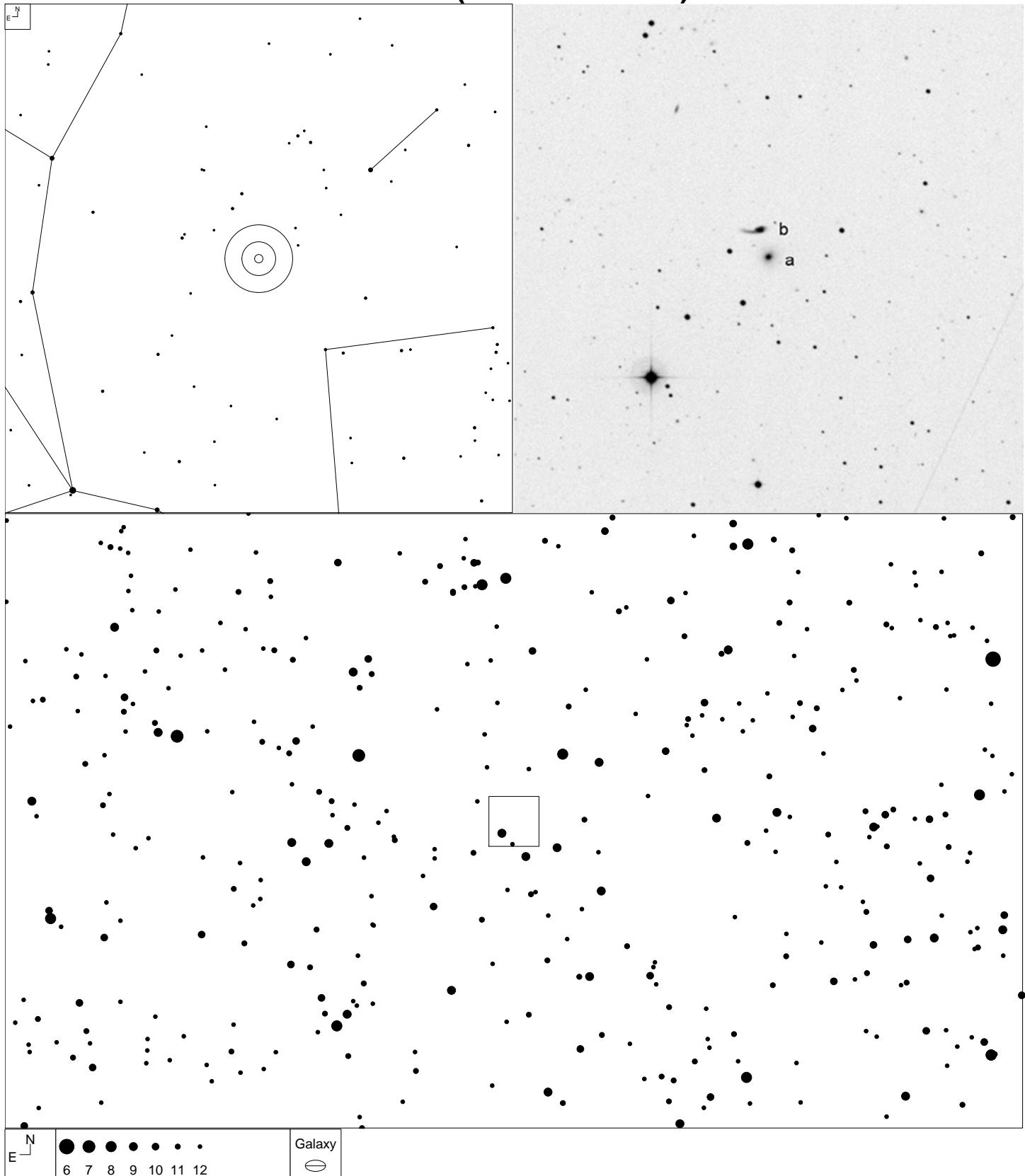
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|------|-------------|-----------|
| 222 | 12 59 59.7 | +37 11 26 | GPair | | | PK |
| 222b | 12 59 59.6 | +37 11 36 | G | 15.6 | 5x5 | |
| 222a | 12 59 59.8 | +37 11 16 | G | 16.9 | 4x4 | |

VV 292 (Canes Venatici)



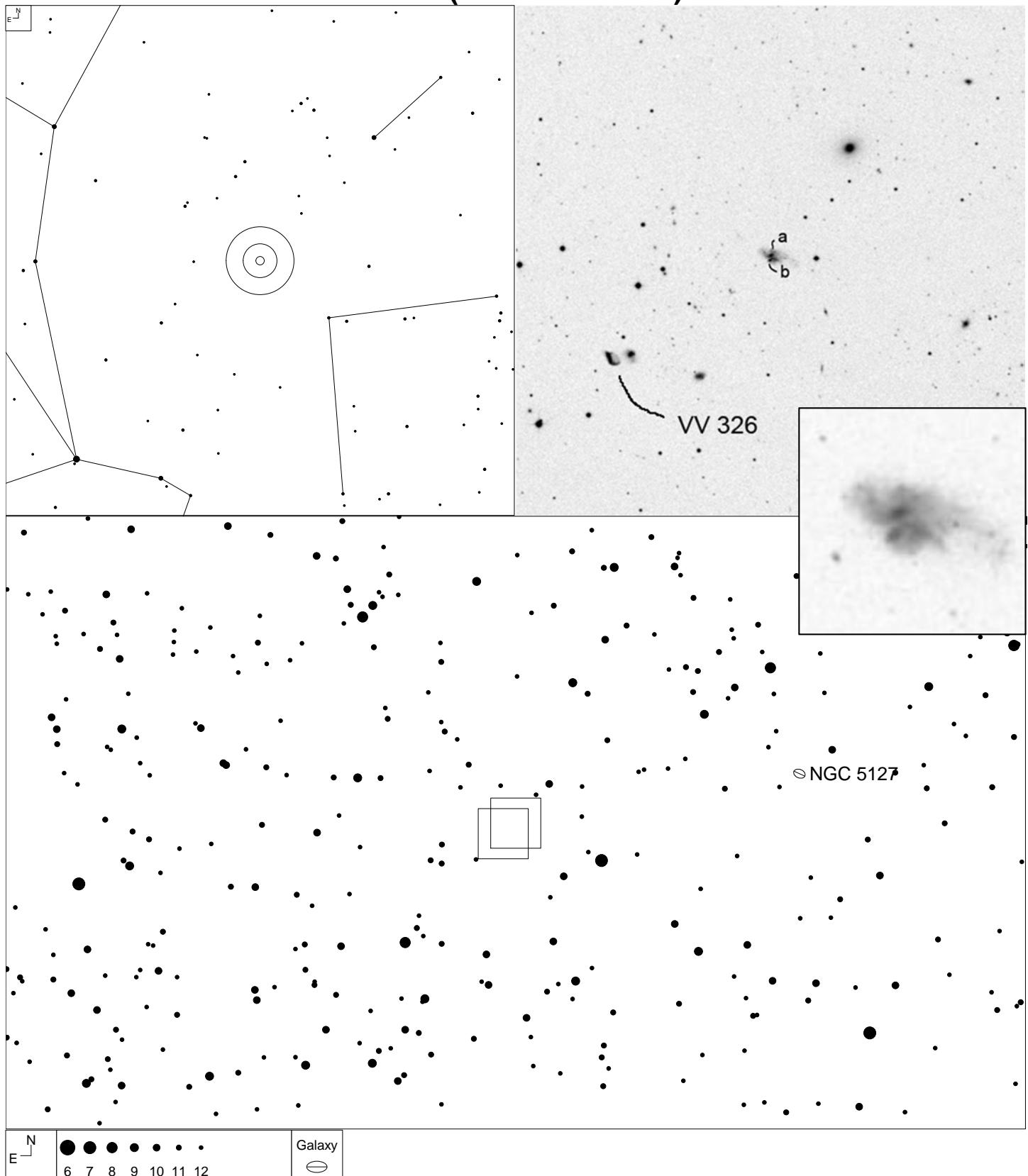
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-------------|
| 292 | 13 06 50.5 | +35 07 00 | GPair | | | PD b |
| 292a | 13 06 45.2 | +35 06 02 | G | 14.8p | 13x7 | |
| 292b | 13 06 55.9 | +35 07 57 | G | 15.6g | 9x5 | |

VV 325 (Canes Venatici)



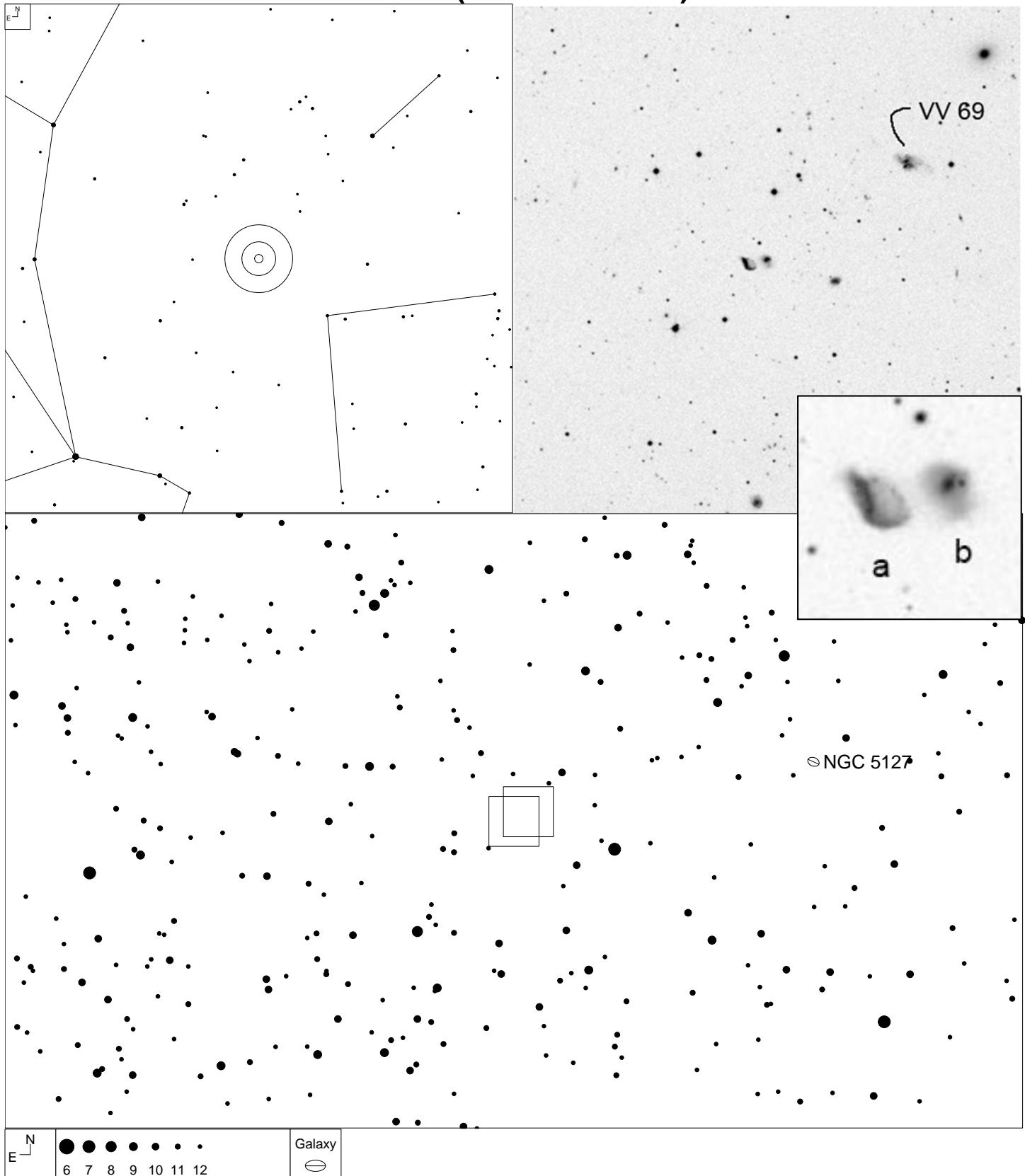
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 325 | 13 29 45.1 | +33 20 45 | GPair | | | PDt |
| 325a | 13 29 44.5 | +33 20 21 | G | 15.1g | 7x6 | |
| 325b | 13 29 45.7 | +33 21 09 | G | 15.7g | 7x2 | |

VV 69 (Canes Venatici)



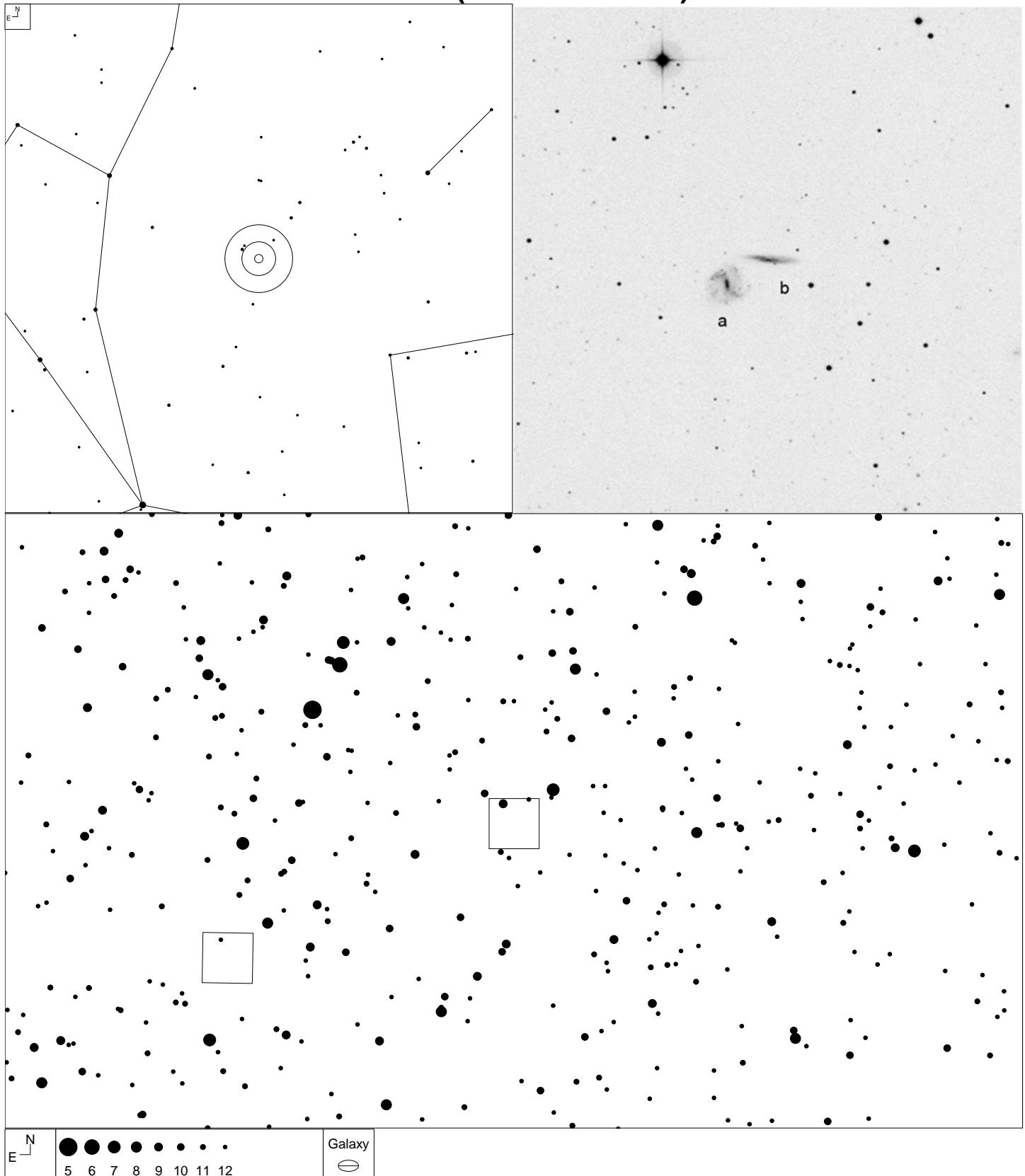
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|-------|-------------|-----------|
| 69 | 13 03 17.3 | +31 19 59 | GGroup | | | PC |
| 69a | 13 03 17.3 | +31 20 07 | G | 14.9 | | |
| 69b | 13 30 17.4 | +31 19 59 | G | 16.4g | 5x3 | |

VV 326 (Canes Venatici)



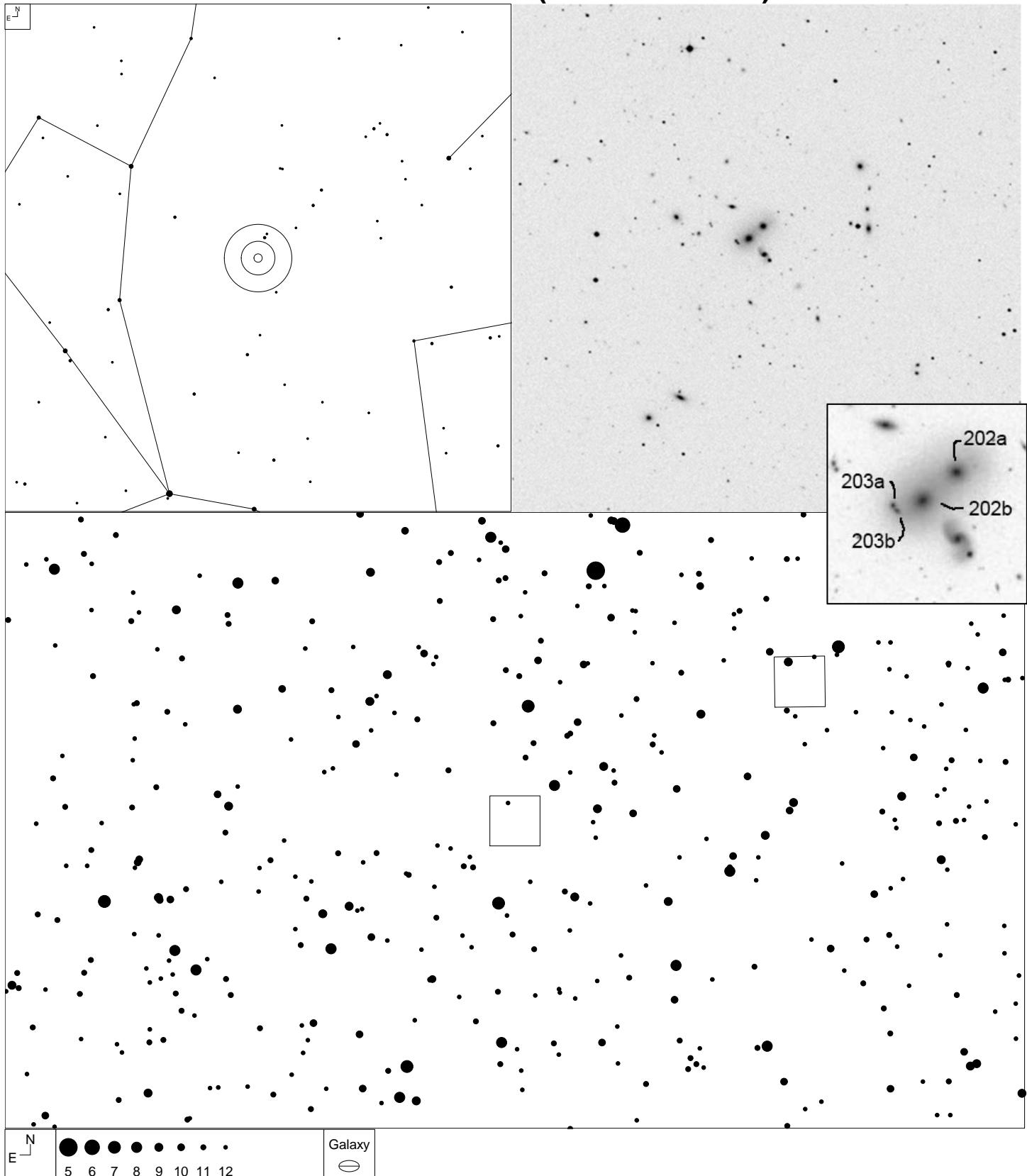
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|------|-------------|-----------|
| 326 | 10 30 38.0 | +31 17 07 | GPair | | | PD |
| 326b | 13 30 36.6 | +31 17 10 | G | 14.6 | 6x5 | |
| 326a | 13 30 39.4 | +31 17 04 | G | 14.6 | 7x4 | |

VV 317 (Canes Venatici)



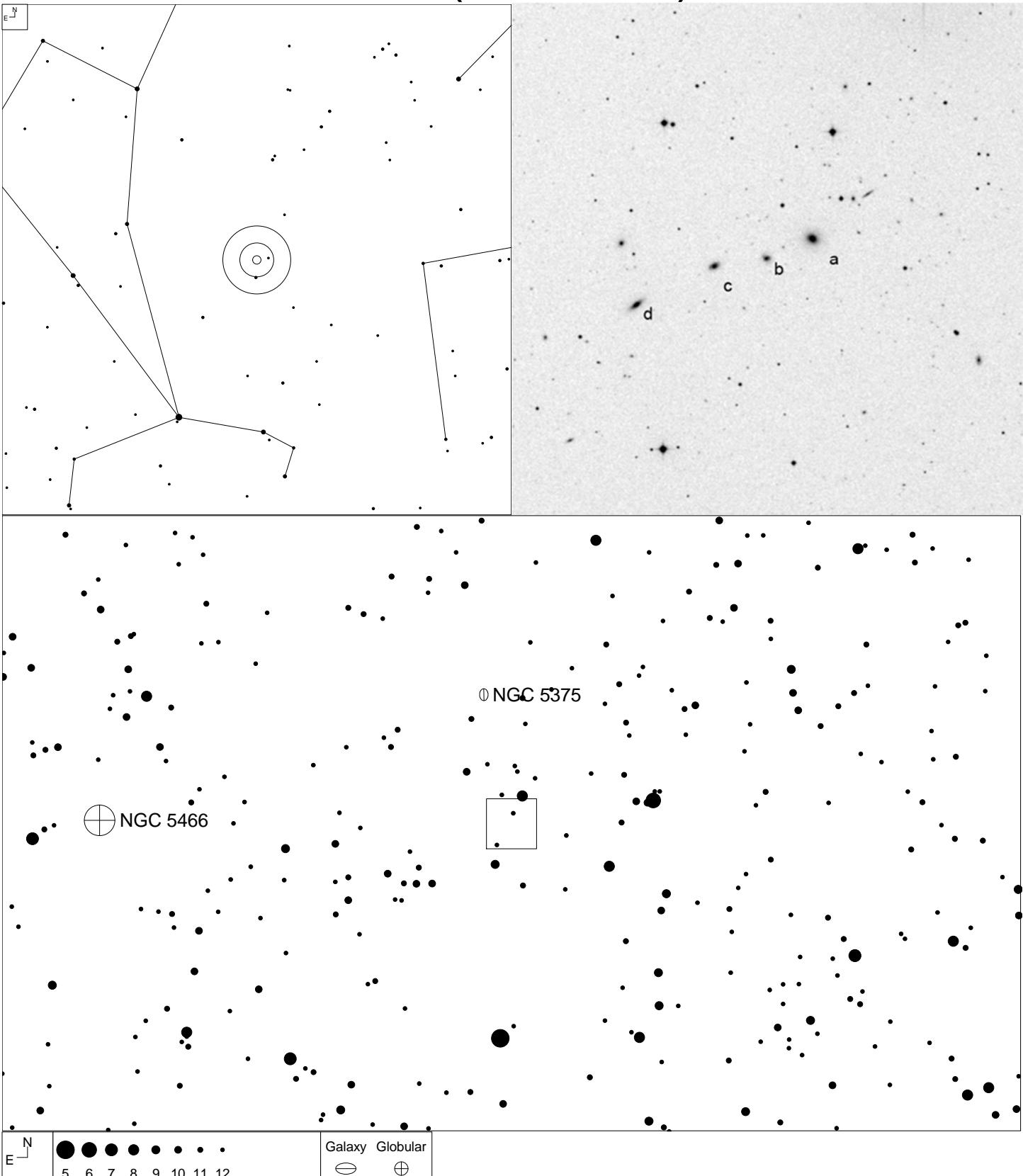
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 317 | 13 47 04.1 | +33 53 14 | GPair | | | PDdf |
| 317b | 13 47 01.2 | +33 53 37 | G | 15.3p | 18x14 | |
| 317a | 13 47 07.0 | +33 52 53 | G | 14.5p | 13x11 | |

VV 202 and VV 203 (Canes Venatici)



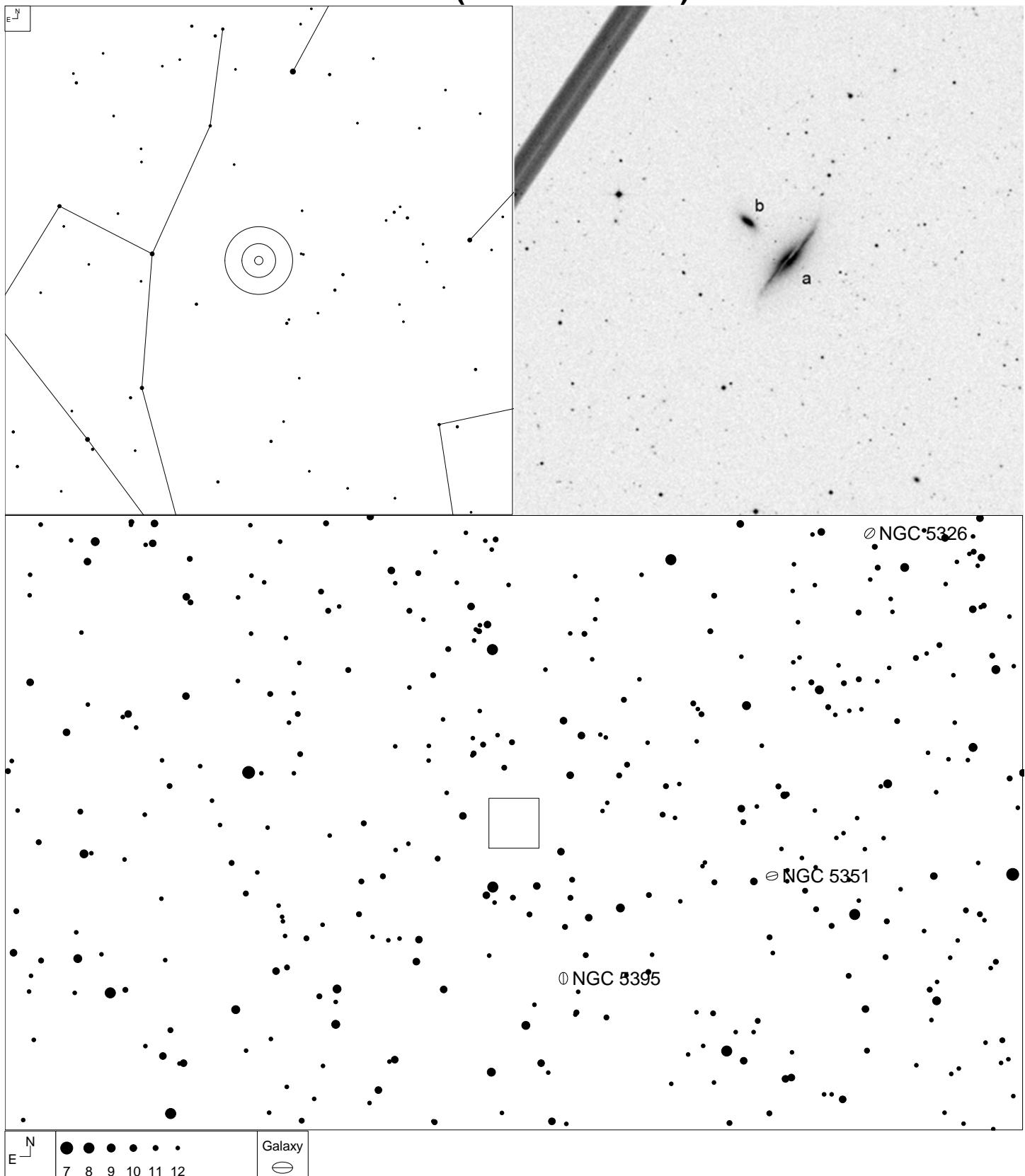
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|------|-------------|-----------|
| 202 | 13 53 52.3 | +33 11 32 | GPair | | | NN |
| 202a | 13 53 41.7 | +33 13 41 | G | 15.3 | 3x3 | |
| 202b | 13 53 43.8 | +33 13 20 | G | 15.5 | 4x4 | |
| 203 | 13 53 45.5 | +33 13 15 | GPair | | | PK |
| 203b | 13 53 45.4 | +33 13 12 | G | 18 | 1x1 | |
| 203a | 13 53 45.6 | +33 13 18 | G | 18 | 1x1 | |

VV 158 (Canes Venatici)



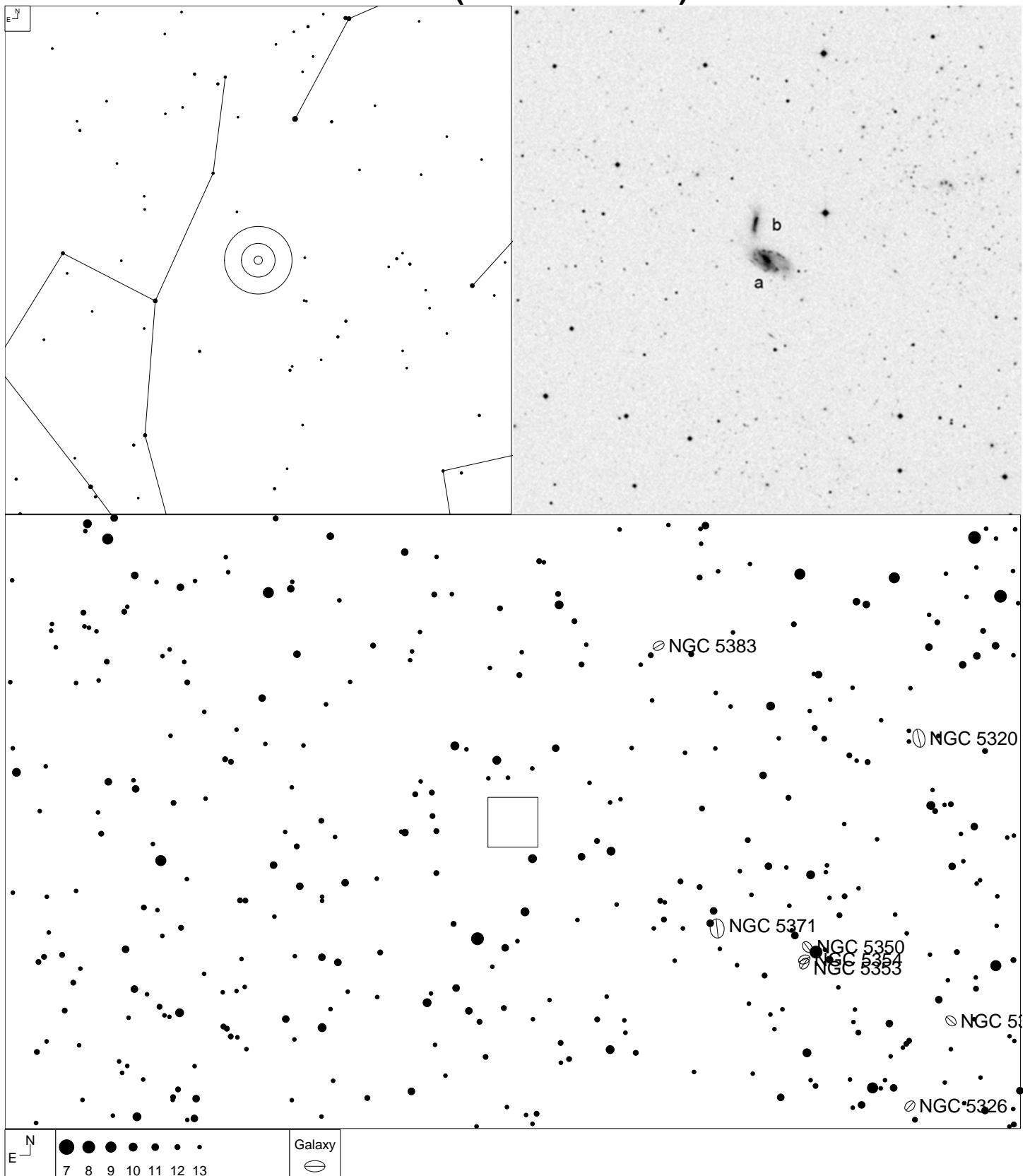
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|------|-------------|-----------|
| 158 | 13 56 20.7 | +28 31 22 | GGroup | | | Ch |
| 158a | 13 56 19.2 | +28 32 11 | G | 15.3 | 4x3 | |
| 158b | 13 56 25.3 | +28 31 35 | G | 15.8 | 3x3 | |
| 158c | 13 56 32.2 | +28 31 20 | G | 15.7 | 4x3 | |
| 158d | 13 56 42.6 | +28 30 10 | G | 15.6 | 7x2 | |

VV 310 (Canes Venatici)



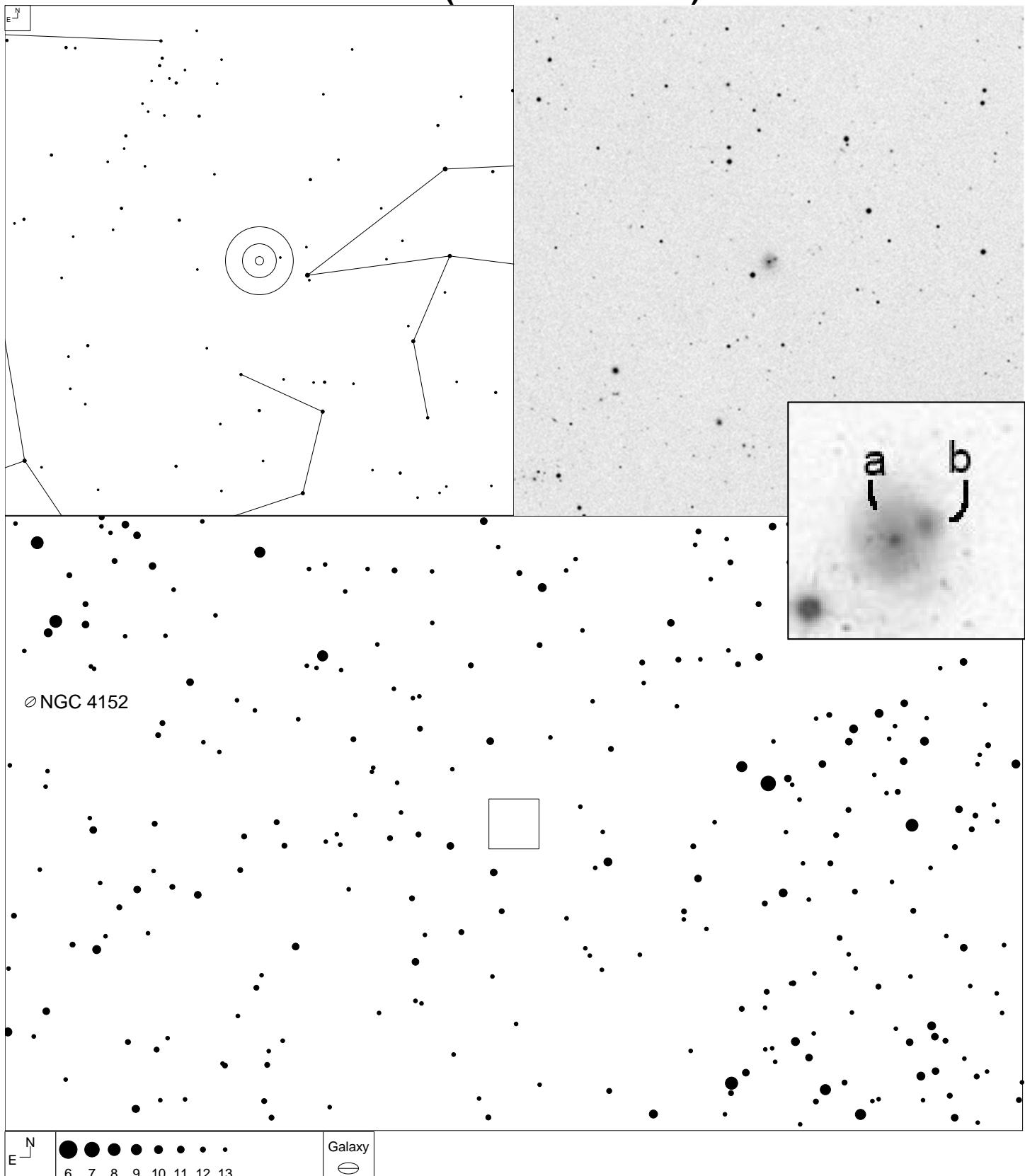
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 310 | 13 59 54.0 | +38 11 30 | GPair | | | PD |
| 310a | 13 59 50.9 | +38 10 55 | G | 14.4p | 34x6 | |
| 310b | 13 59 57.1 | +38 12 02 | G | 15.4 | 8x4 | |

VV 256 (Canes Venatici)



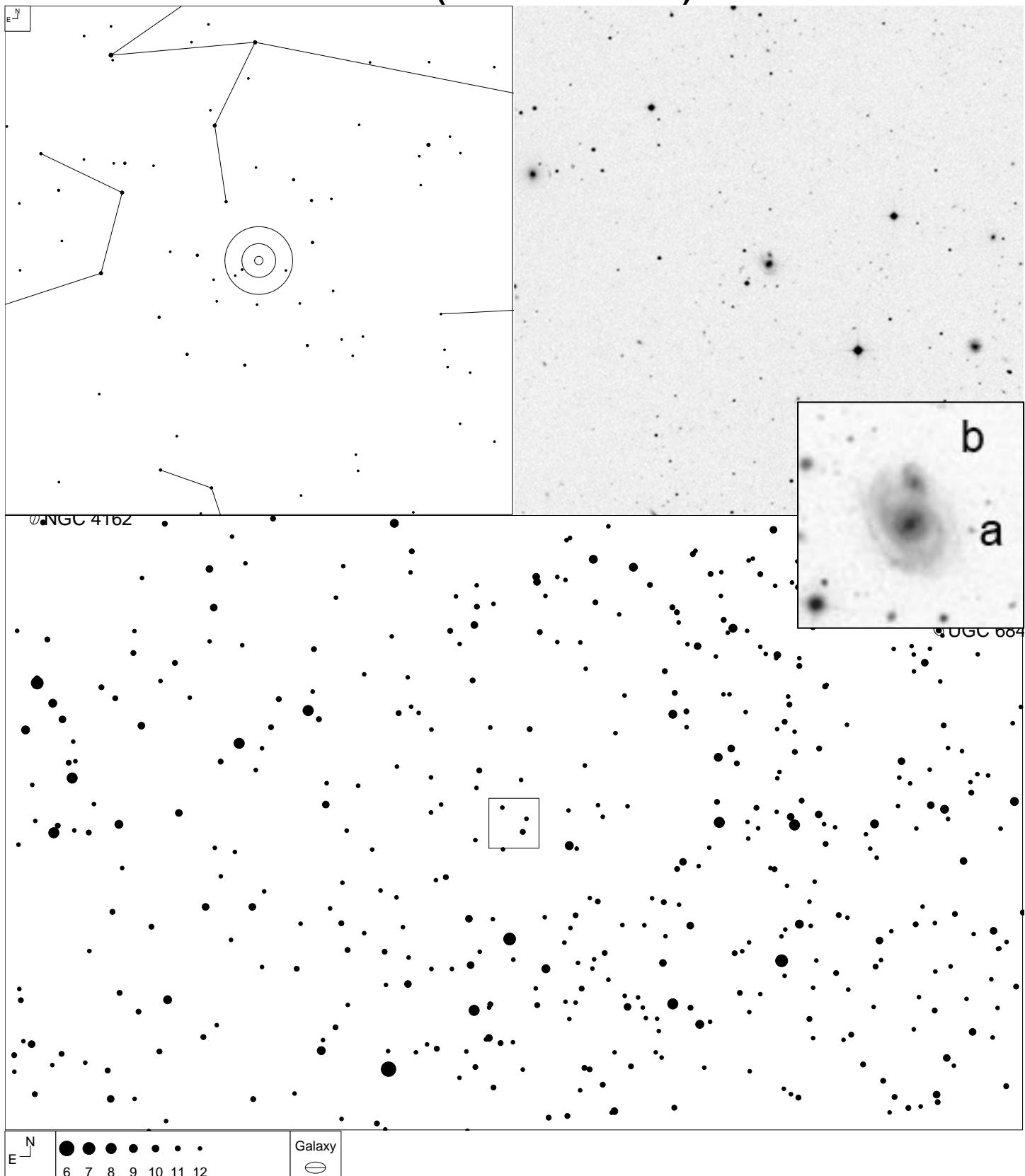
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 256 | 14 00 55.4 | +40 59 49 | GPair | | | PKdf |
| 256a | 14 00 54.5 | +40 59 17 | G | 14.03 | 15x8 | |
| 256b | 14 00 56.4 | +41 00 21 | G | 15.43 | 8x3 | |

VV 185 (Coma Berenices)



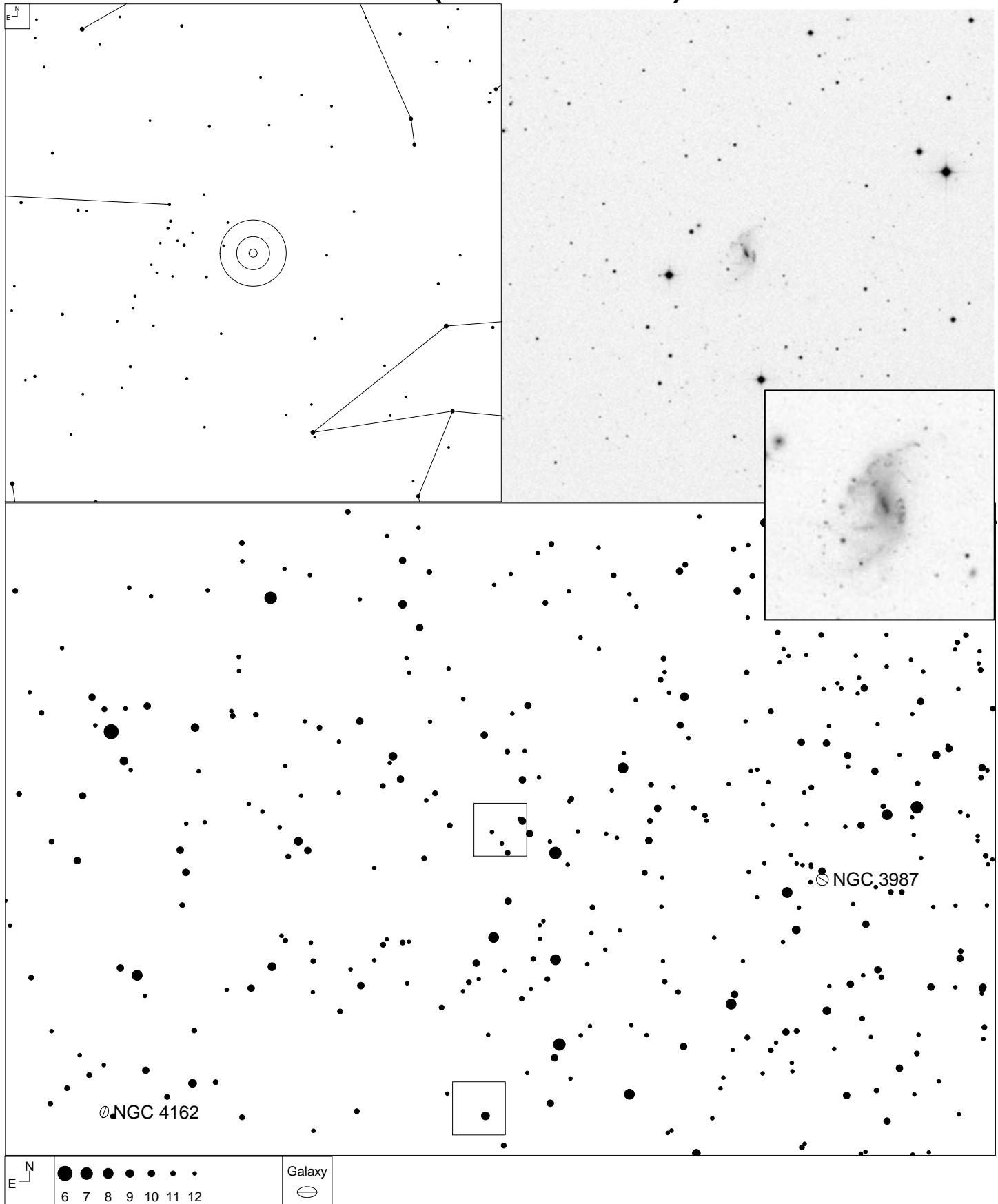
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 185 | 12 00 49.0 | +15 27 07 | GPair | | | PK |
| 185b | 12 00 48.6 | +15 27 10 | G | | | |
| 185a | 12 00 49.3 | +15 27 04 | G | 15.6g | 7x6 | |

VV 45 (Coma Berenices)

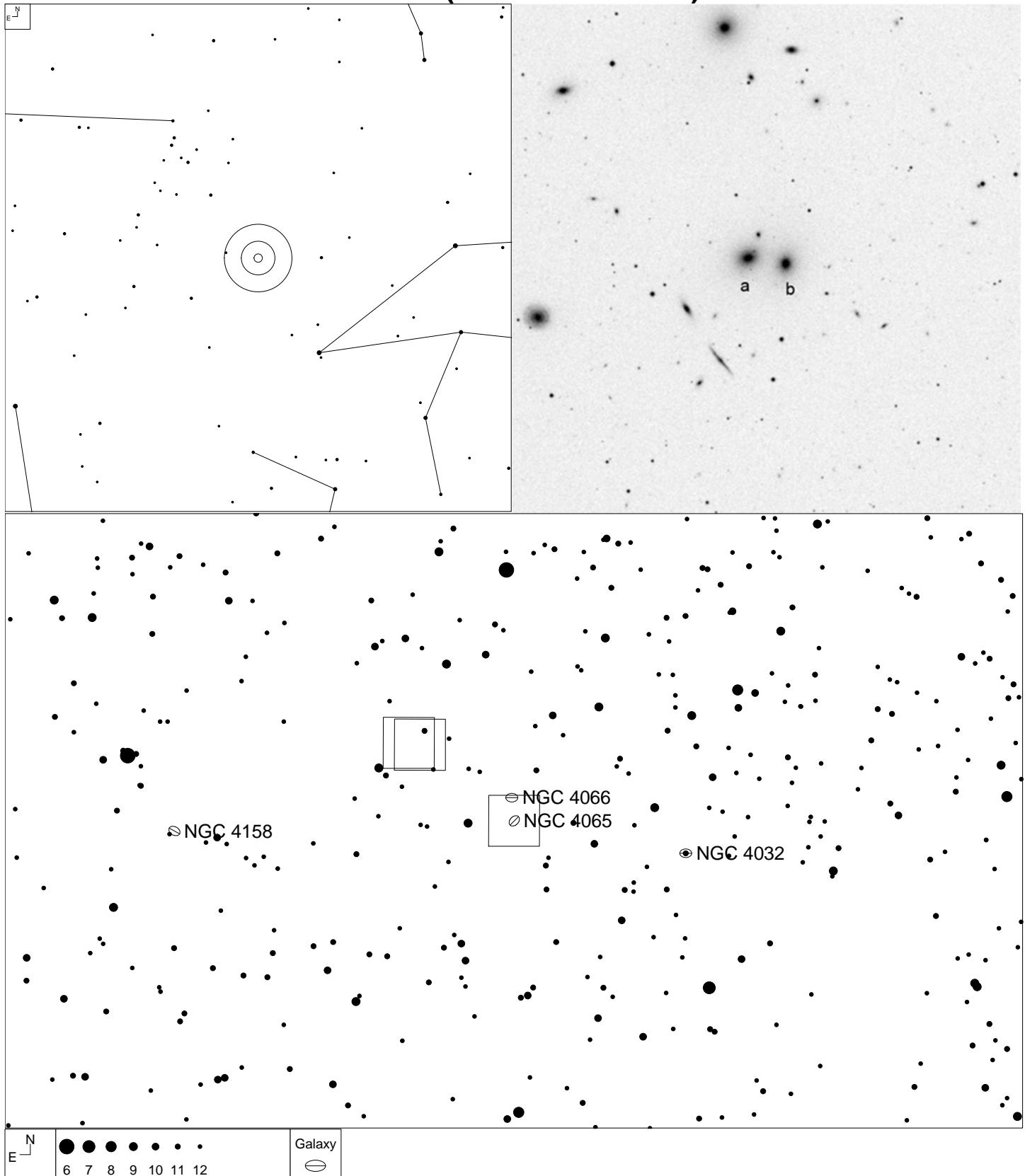


| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|-------|-------------|-----------|
| 45 | 12 01 38.7 | +22 39 41 | GPair | 15.5 | 8 | PDb |
| 45b | 12 01 38.6 | +22 39 50 | G | | | |
| 45a | 12 01 38.8 | +22 39 32 | G | 16.53 | 6x4 | |

VV 276 (Coma Berenices)

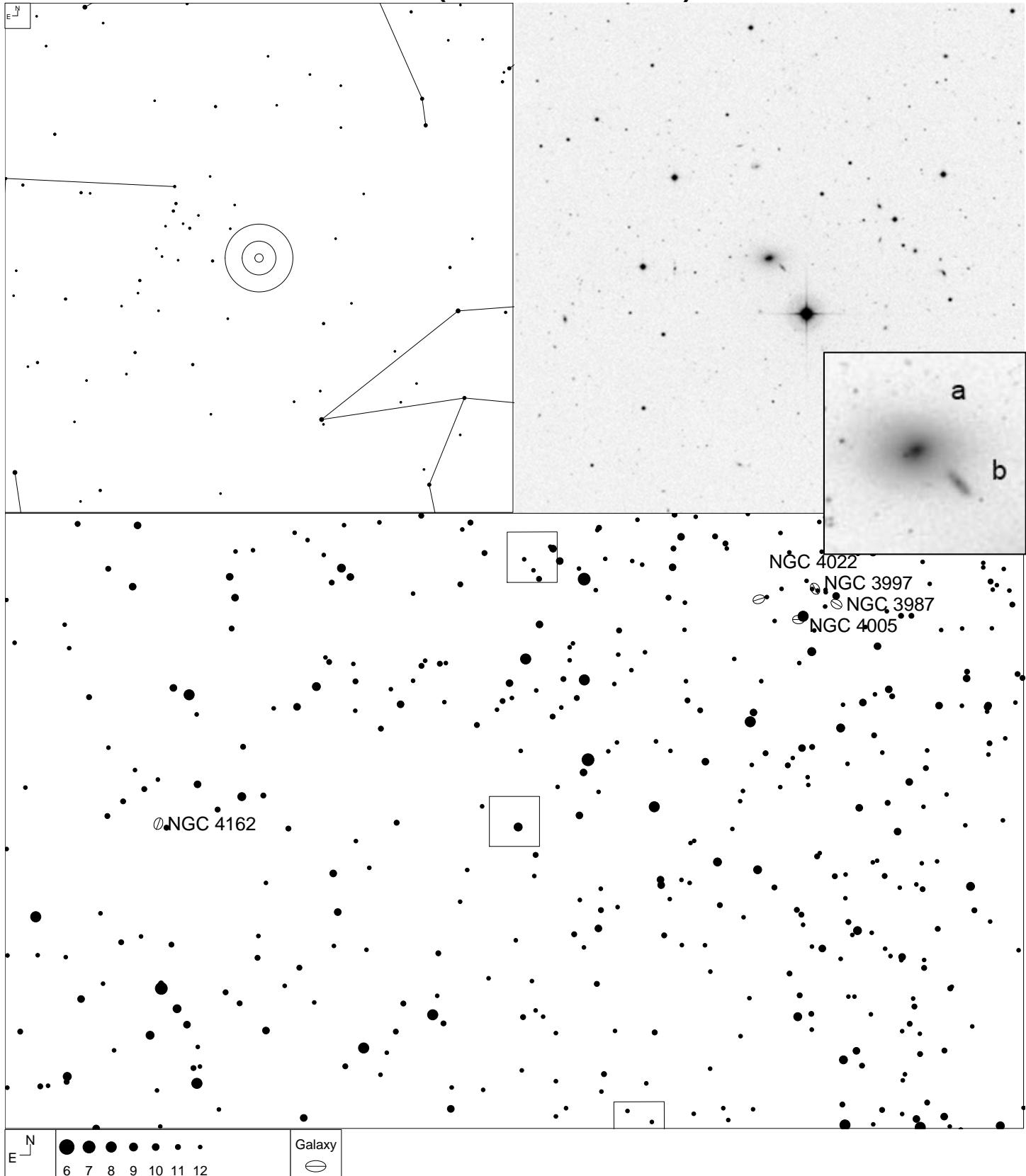


VV 179 (Coma Berenices)

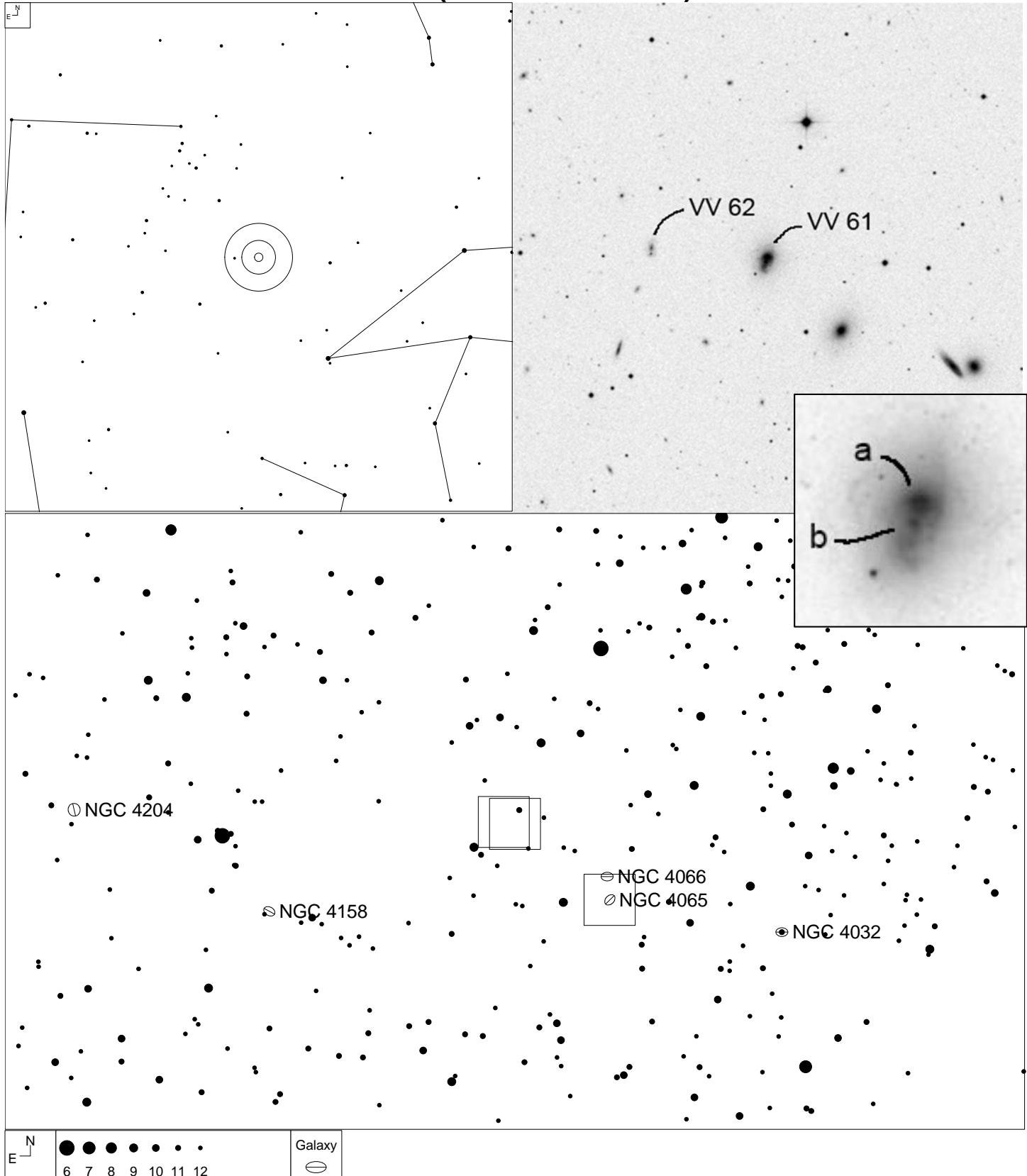


| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 179 | 12 04 03.8 | +20 14 01 | GPair | | | PD |
| 179b | 12 04 01.5 | +20 13 56 | G | 14.12 | 12x9 | |
| 179a | 12 04 06.2 | +20 14 06 | G | 13.58 | 11x10 | |

VV 46 (Coma Berenices)

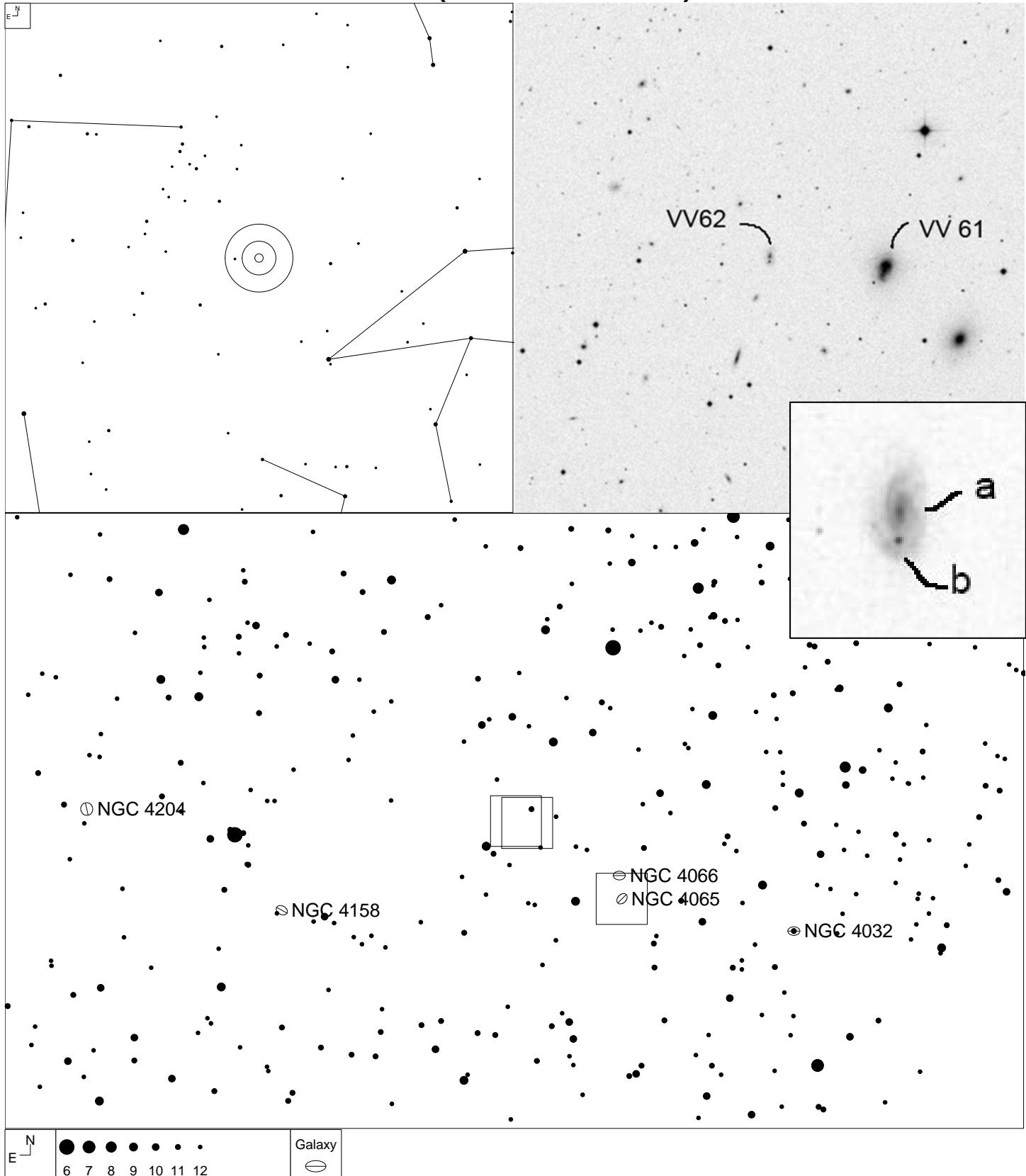


VV 61 (Coma Berenices)

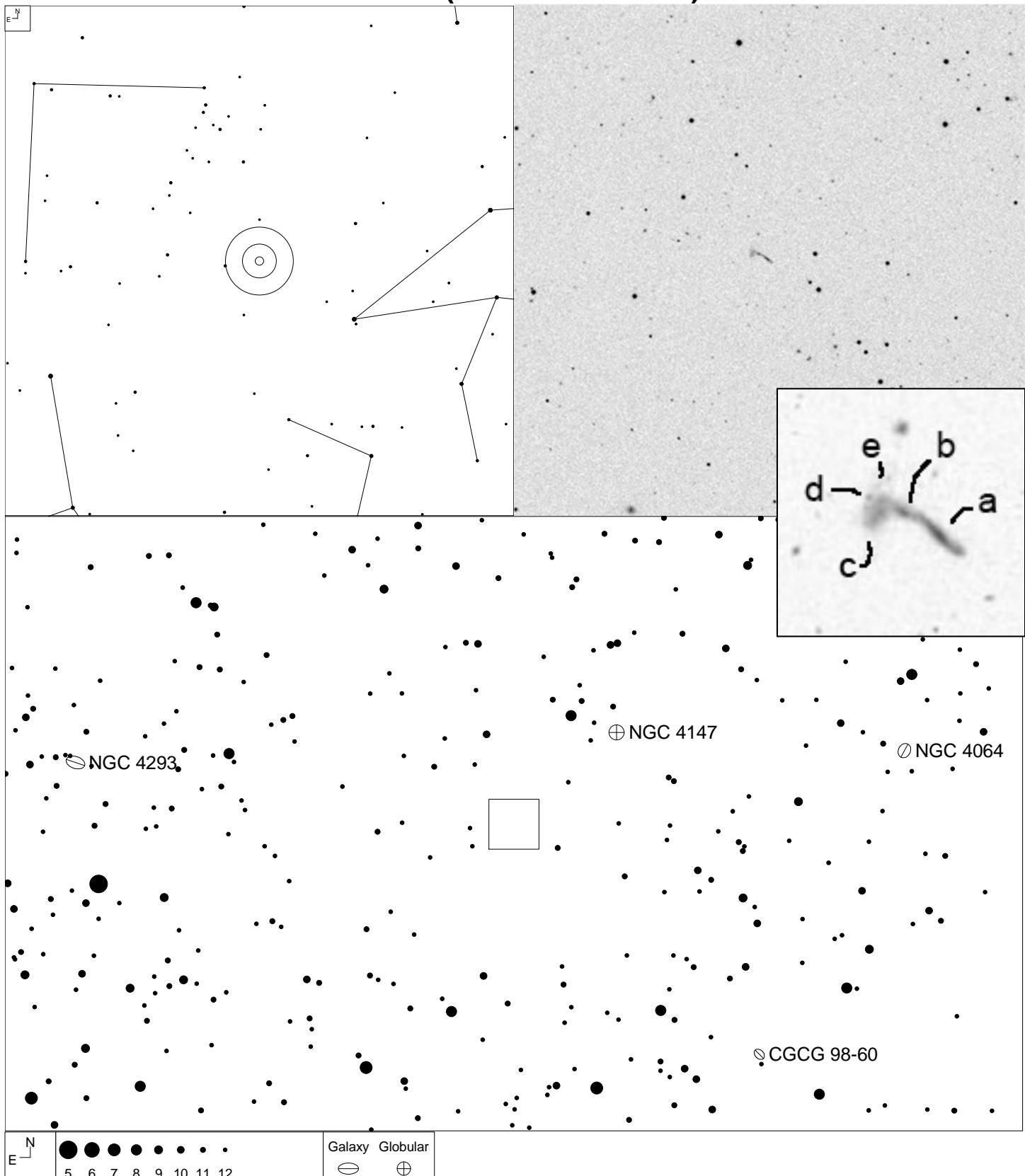


| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|-------|-------------|-----------|
| 61 | 12 06 03.9 | +20 36 22 | GPair | 14.36 | 13x18 | PK |
| 61a | 12 06 03.6 | +20 36 29 | G | | | |
| 61b | 12 06 04.2 | +20 36 14 | G | | | |

VV 62 (Coma Berenices)

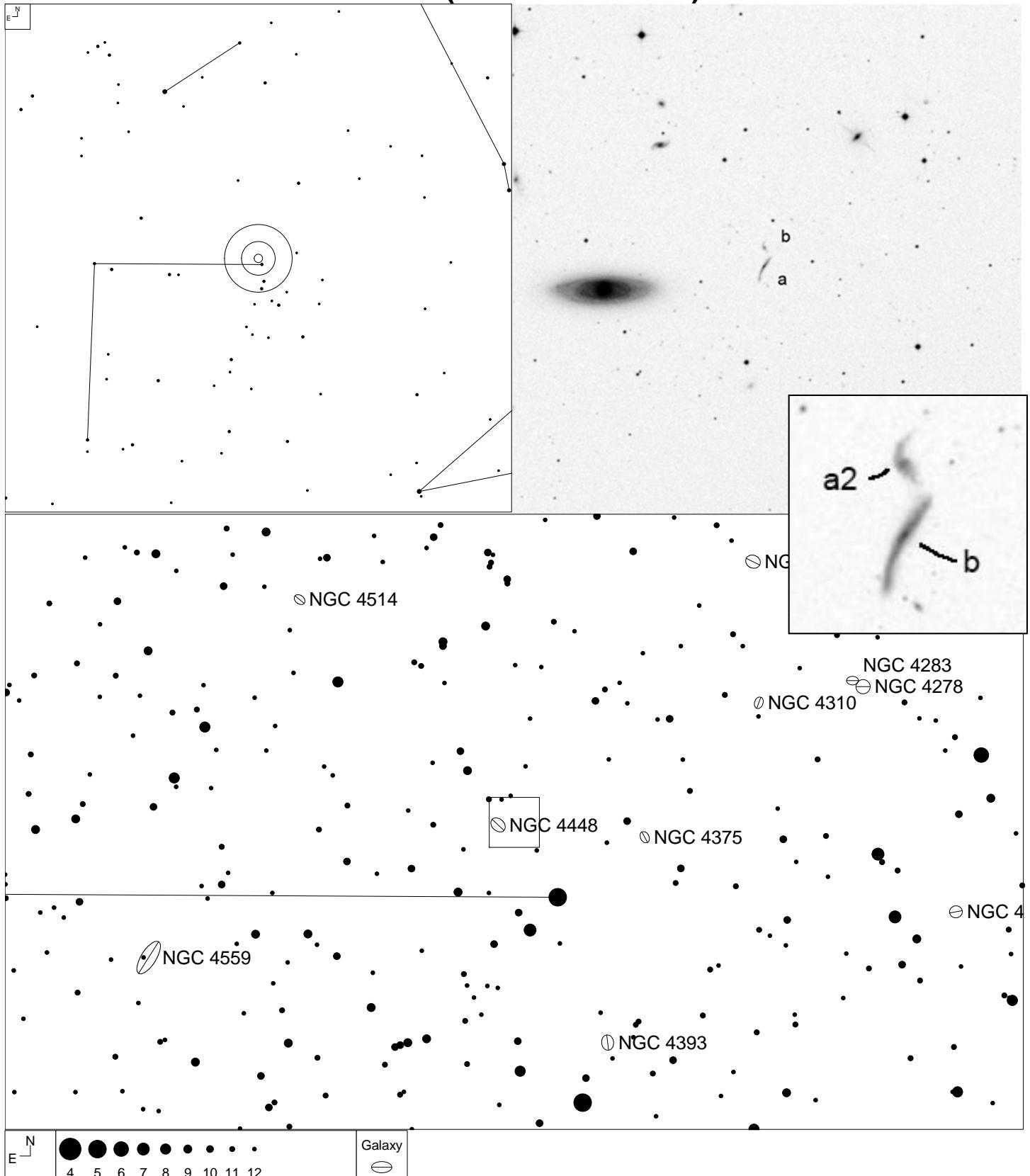


VV 147 (Coma Berenices)



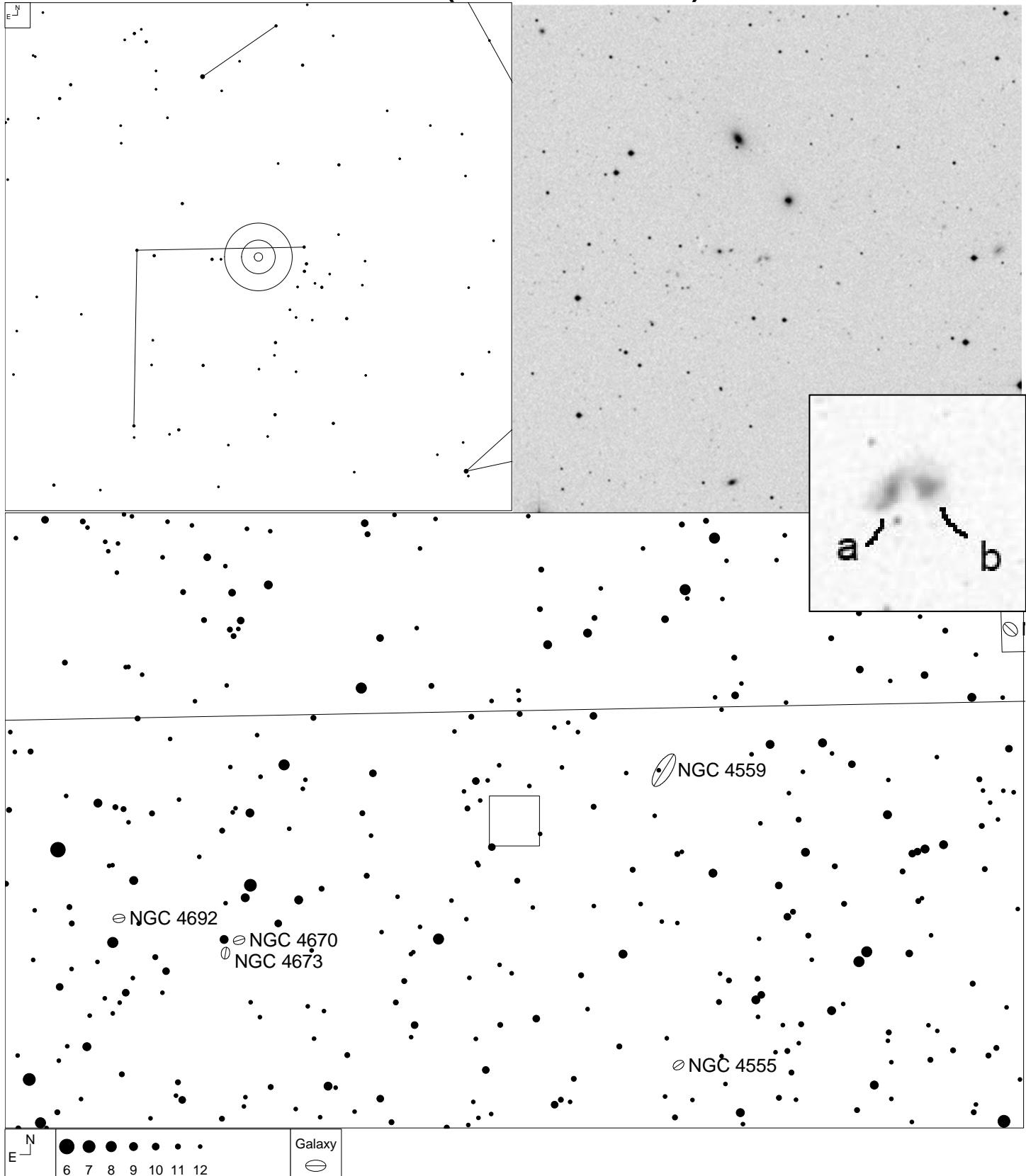
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 147 | 12 12 11.6 | +18 05 37 | GGroup | | | Ch |
| 147a | 12 12 11.8 | +18 05 38 | G | 17.0g | 8x1 | |
| 147b | 12 12 12.9 | +18 05 47 | G | | | |
| 147e | 12 12 13.5 | +18 05 48 | G | | | |
| 147d | 12 12 13.8 | +18 05 58 | PofG | | | |
| 147c | 12 12 13.9 | +18 05 43 | G | | | |

VV 279 (Coma Berenices)



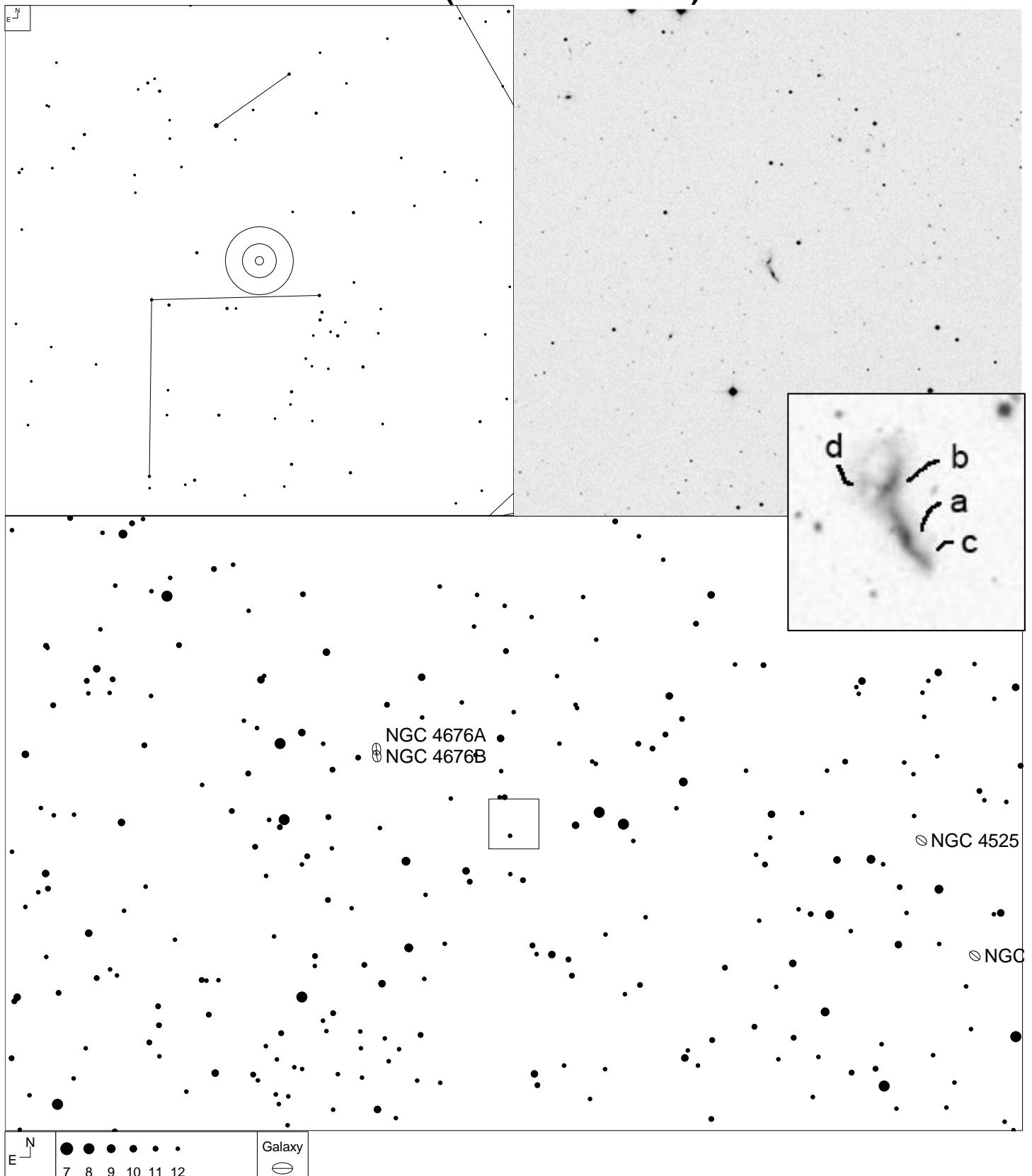
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-------|------------|-----------|----------|-------|-------------|-----------|
| 279 | 12 27 53.9 | +28 38 17 | GTrpl | | | PK |
| 279a1 | 12 27 53.7 | +28 38 15 | G | 16 | 9x1 | |
| 279a | 12 27 53.9 | +28 38 24 | GPair | | | |
| 279a2 | 12 27 54.0 | +28 38 35 | G | 17.3g | 8x1 | |
| 279b | 12 27 54.0 | +28 38 01 | G | 16.9 | 17x2 | |

VV 287 (Coma Berenices)



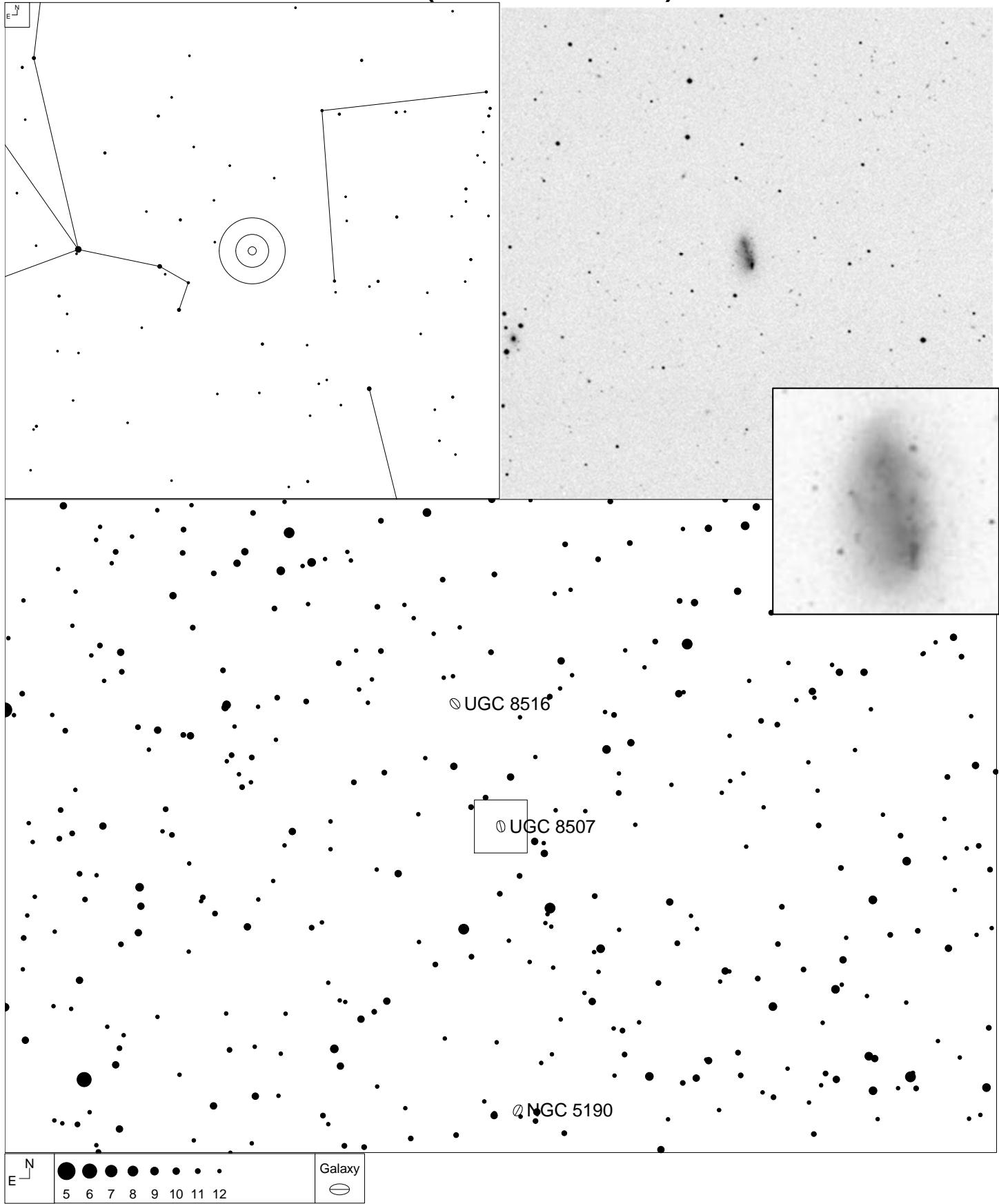
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 287 | 12 39 15.7 | +27 42 52 | GPair | | | PK |
| 287a | 12 39 15.1 | +27 42 52 | G | 17.9g | 2x2 | |
| 287b | 12 39 16.1 | +27 42 51 | G | 17.2r | | |

VV 151 (Coma Berenices)



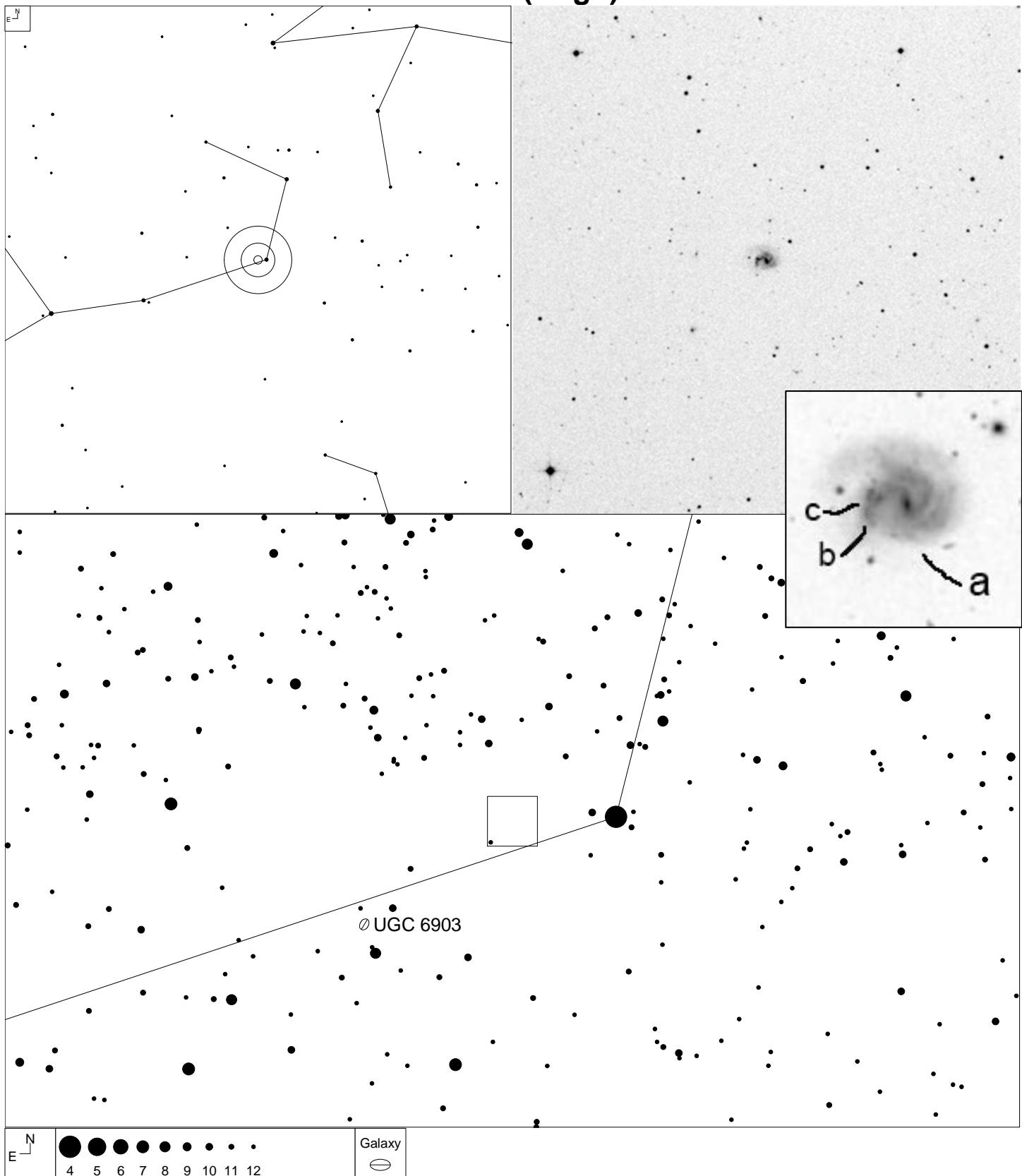
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|------|-------------|-------------|
| 151 | 12 43 03.6 | +30 22 58 | GTrpl | | | PD b |
| 151c | 12 43 03.0 | +30 22 44 | G | | | |
| 151a | 12 43 03.7 | +30 22 55 | G | 15.3 | 7x3 | |
| 151b | 12 43 04.2 | +30 23 14 | G | 16.0 | 7x5 | |
| 151d | 12 43 05.1 | +30 23 17 | PofG | | | |

VV 88 (Coma Berenices)

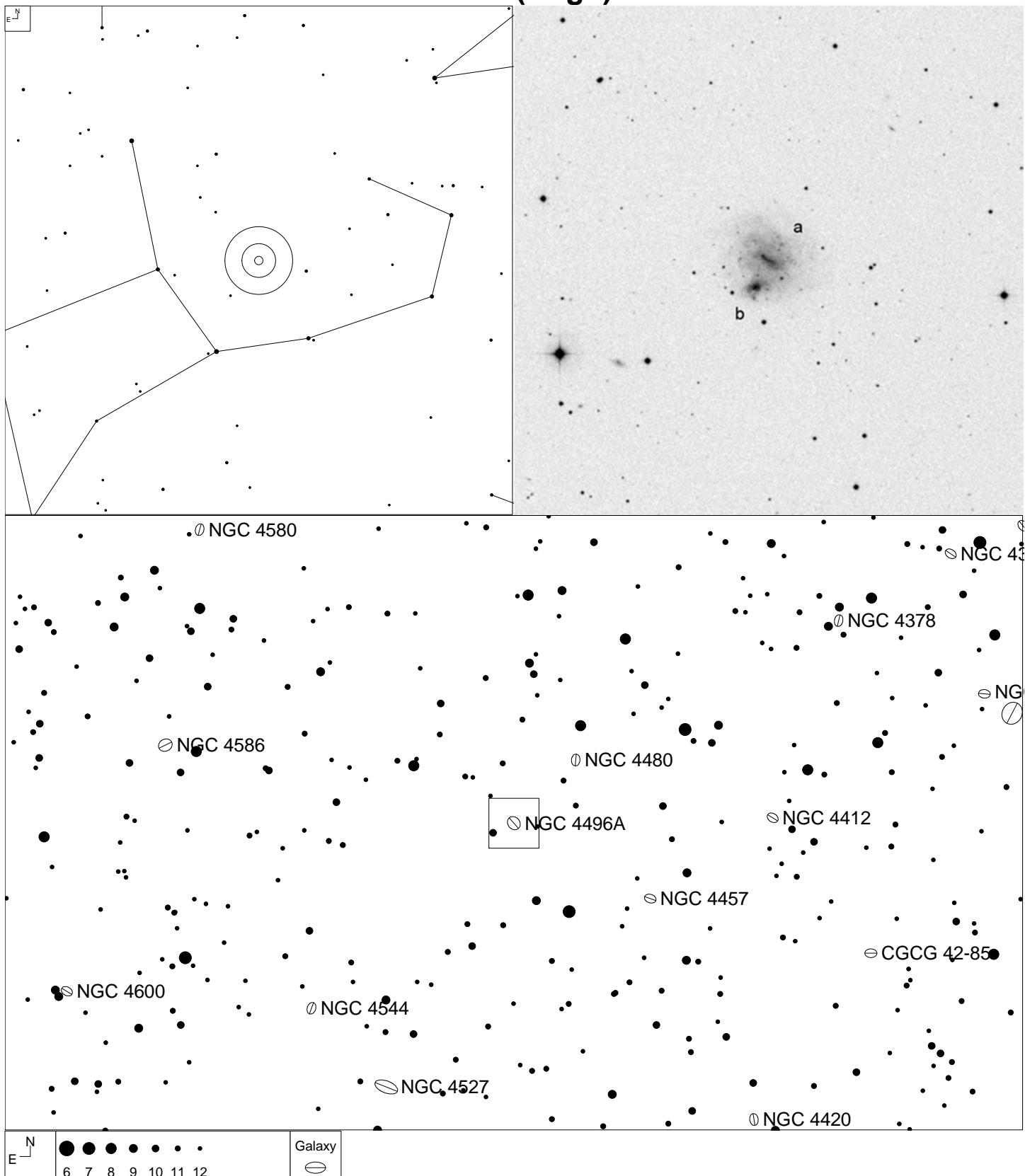


| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|----|------------|-----------|----------|-------|-------------|-----------|
| 88 | 13 30 58.7 | +19 26 17 | G | 13.94 | 14x8 | PC |

VV 105 (Virgo)

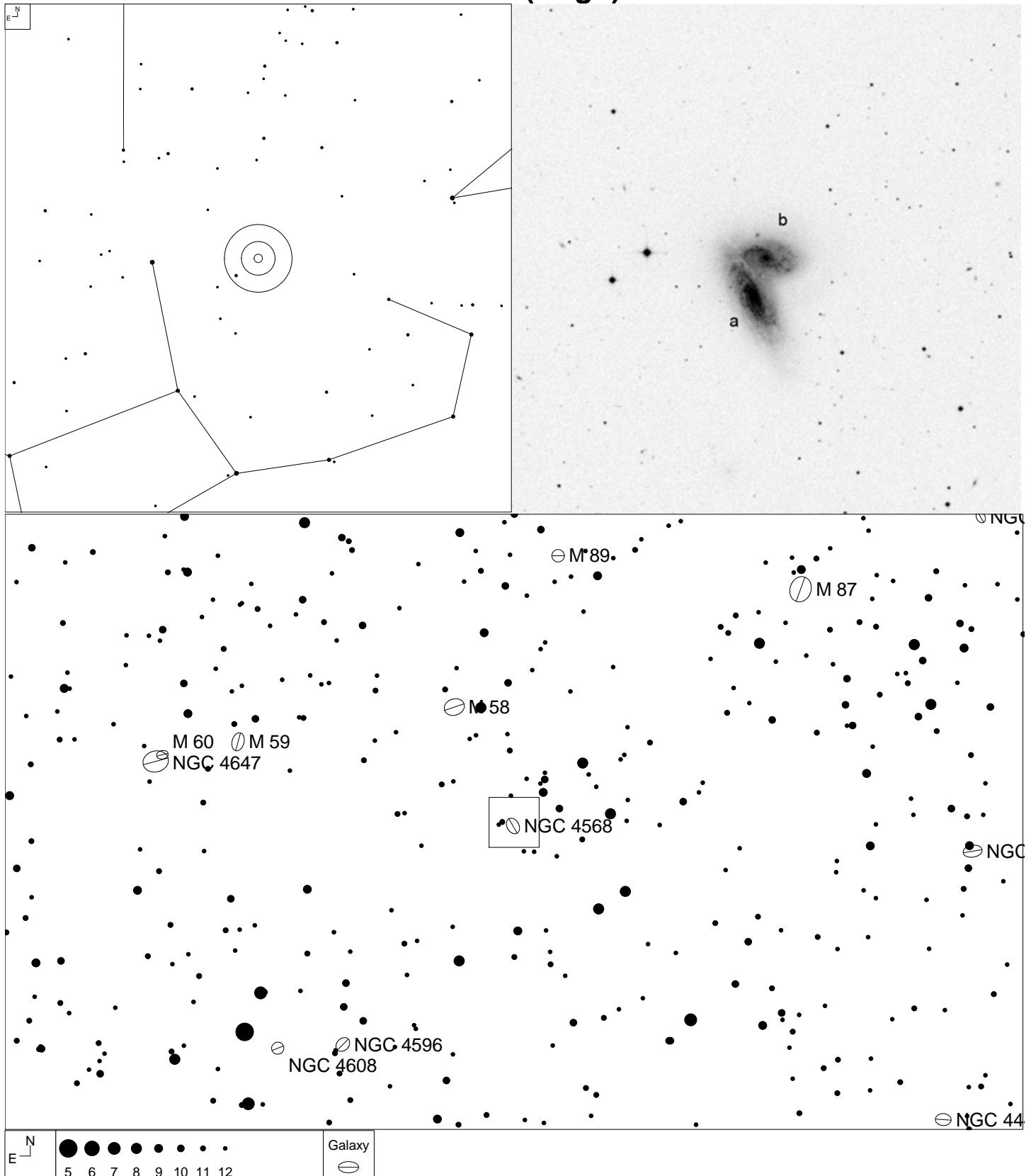


VV 76 (Virgo)



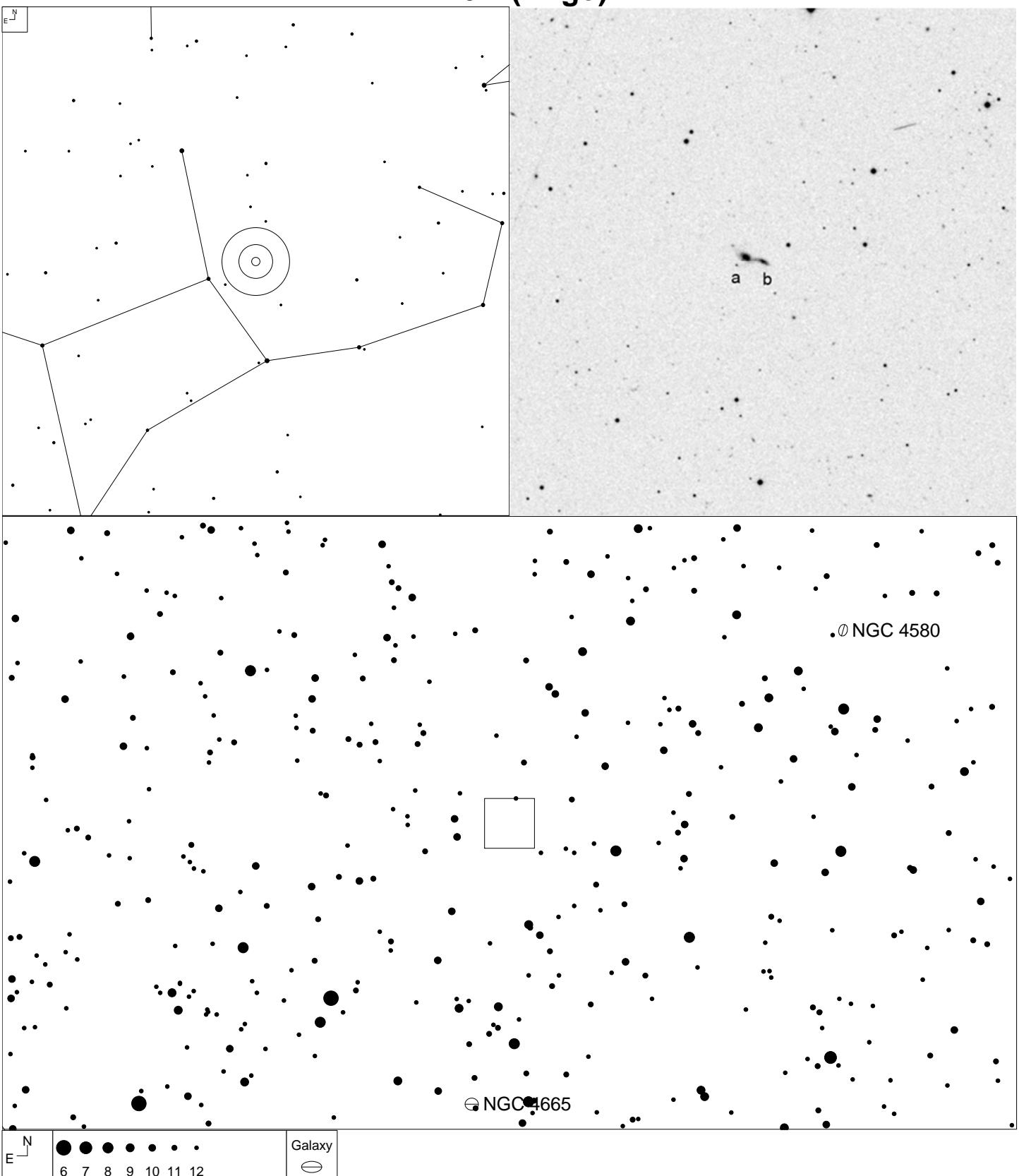
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|-------|-------------|-----------|
| 76 | 12 31 40.0 | +03 55 58 | GPair | | | PK |
| 76a | 12 31 39.2 | +03 56 23 | G | 11.94 | 40x32 | |
| 76b | 12 31 40.9 | +03 55 34 | G | 14.0g | 13x7 | |

VV 219 (Virgo)



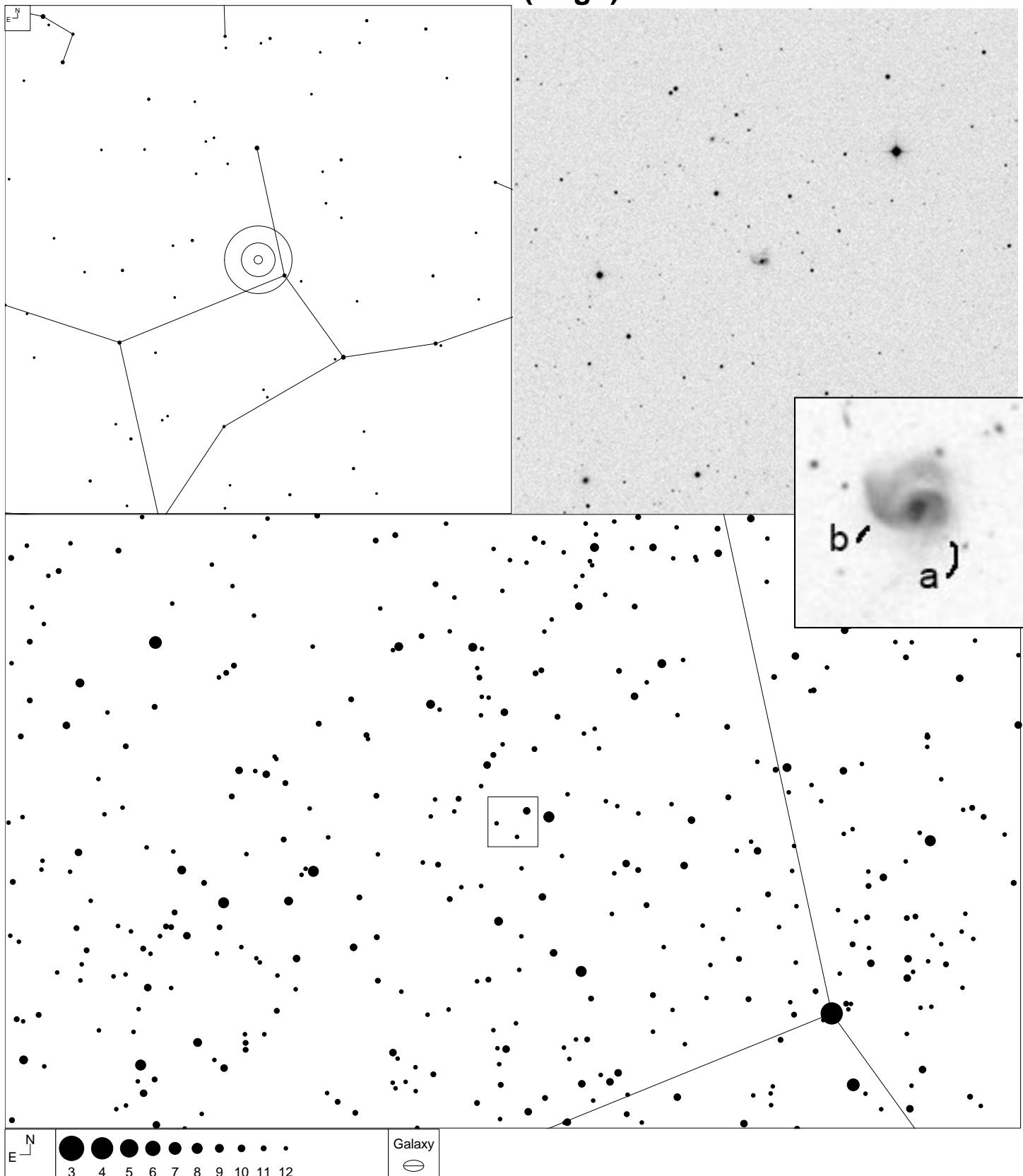
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 219 | 12 36 33.5 | +11 14 54 | GPair | | | PK |
| 219b | 12 36 32.7 | +11 15 28 | G | 12.1b | 33x20 | |
| 219a | 12 36 34.2 | +11 14 20 | G | 11.7b | 48x20 | |

VV 64 (Virgo)



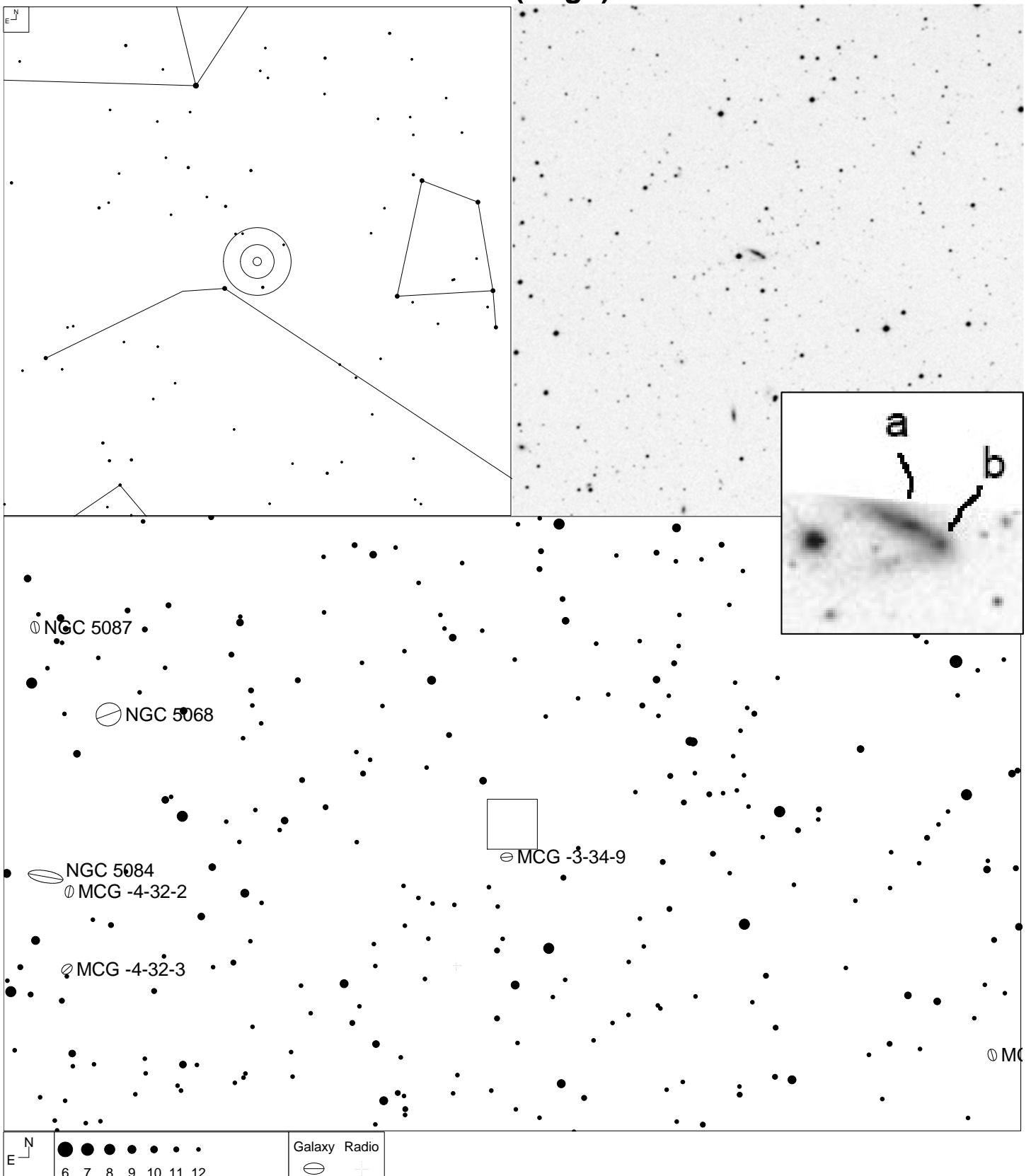
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|-------|-------------|-----------------|
| 64 | 12 44 20.5 | +04 25 35 | GPair | | | PD _b |
| 64b | 12 44 19.5 | +04 25 31 | G | 15.3p | 5x2 | |
| 64a | 12 44 21.5 | +04 25 39 | G | 15.7 | 3x2 | |

VV 283 (Virgo)



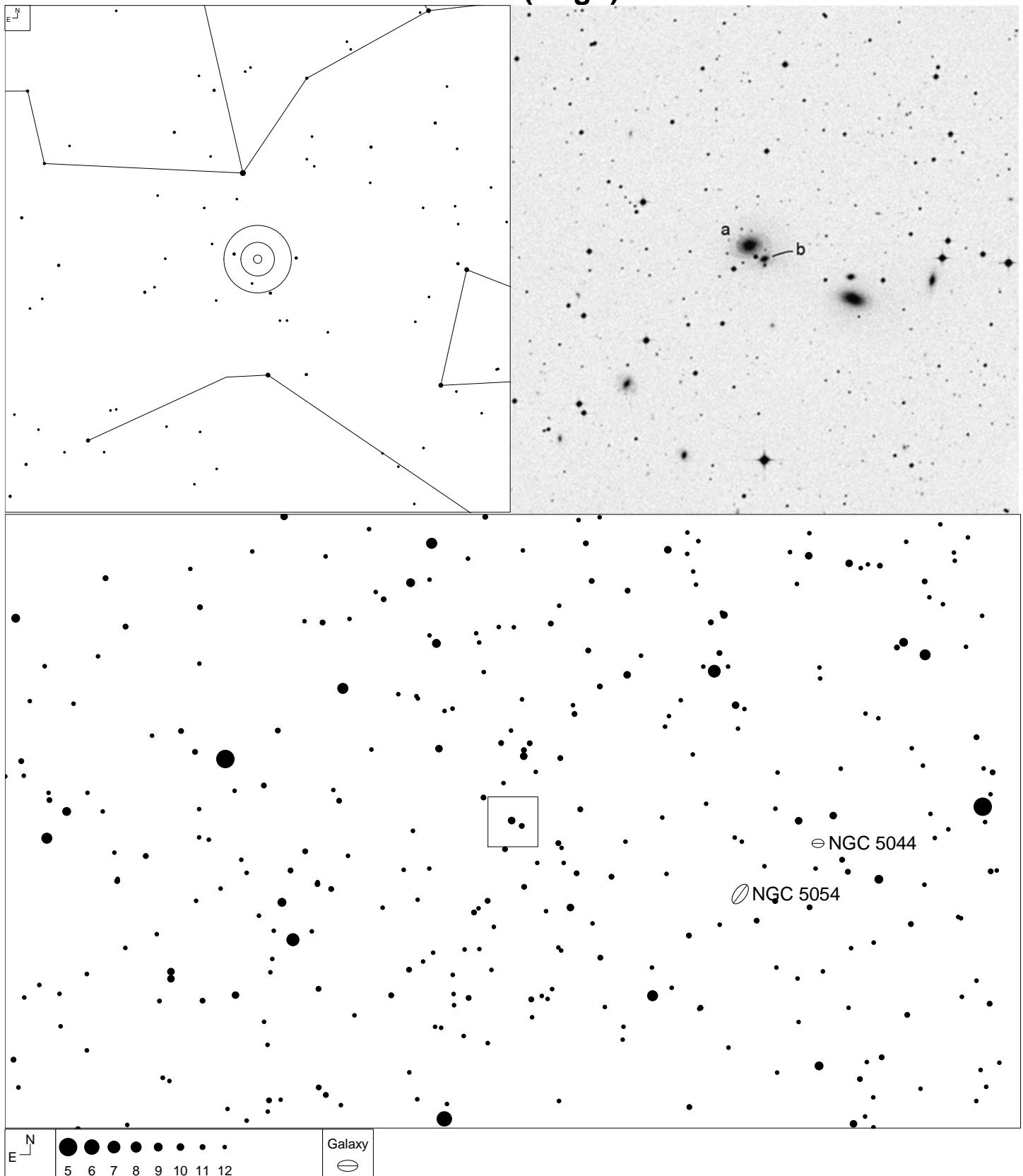
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 283 | 13 01 50.8 | +04 20 00 | GPair | 15.28 | 6x6 | PK |
| 283a | 13 01 50.2 | +04 20 02 | G | 15.5 | | |
| 283b | 13 01 51.2 | +04 20 00 | G | | | |

VV 47 (Virgo)



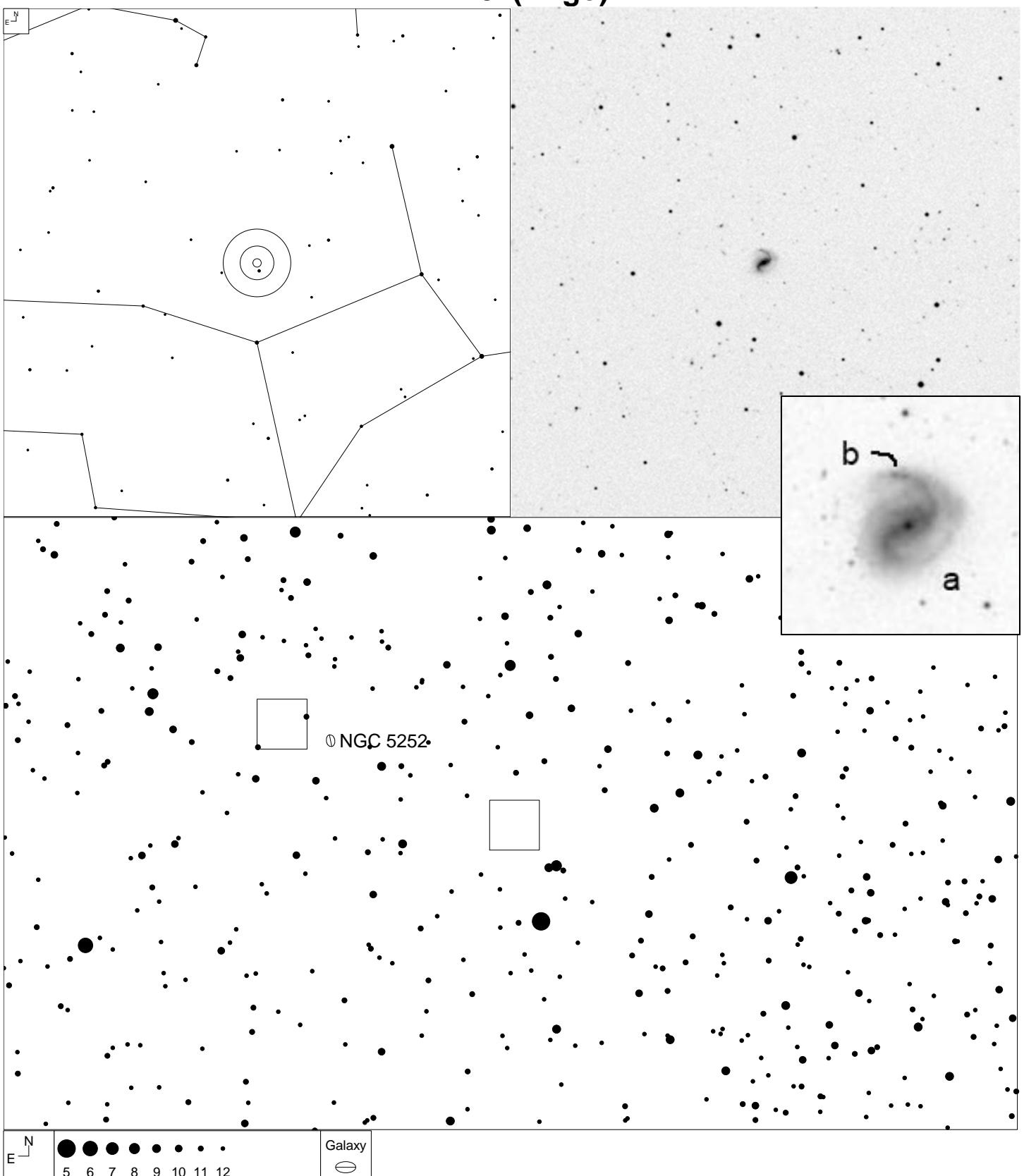
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|-------|-------------|-------------|
| 47 | 13 10 28.6 | -21 35 13 | GPair | | | PD b |
| 47b | 13 10 28.1 | -21 35 17 | G | 17.10 | 1x1 | |
| 47a | 13 10 28.8 | -21 35 11 | G | 15.86 | 4x1 | |

VV 184 (Virgo)



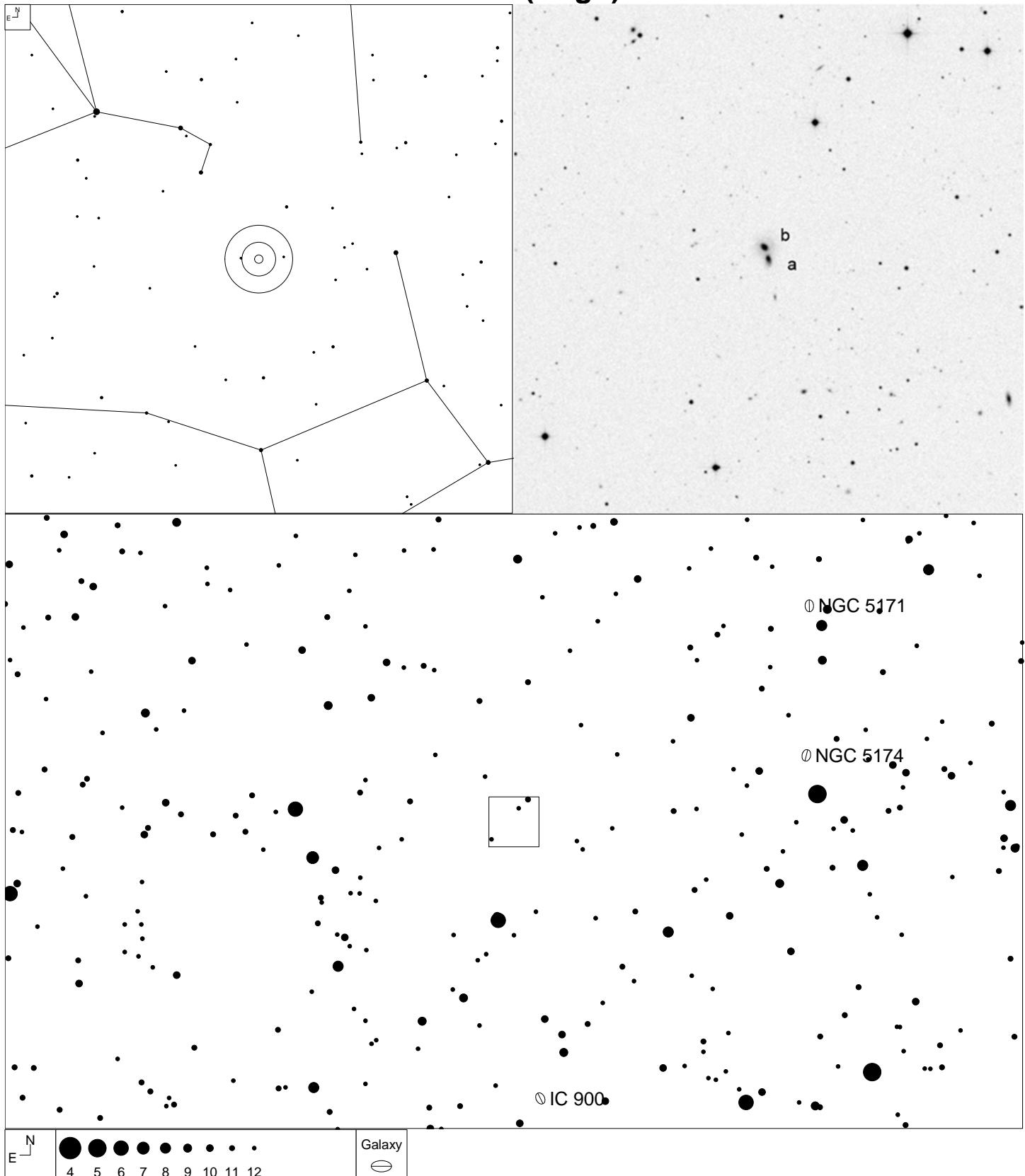
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 184 | 13 21 37.6 | -16 16 57 | GPair | | | PD |
| 184b | 13 21 36.7 | -16 17 10 | G | 16 | 2x2 | |
| 184a | 13 21 38.5 | -16 16 45 | G | 14.29 | 3x2 | |

VV 18 (Virgo)

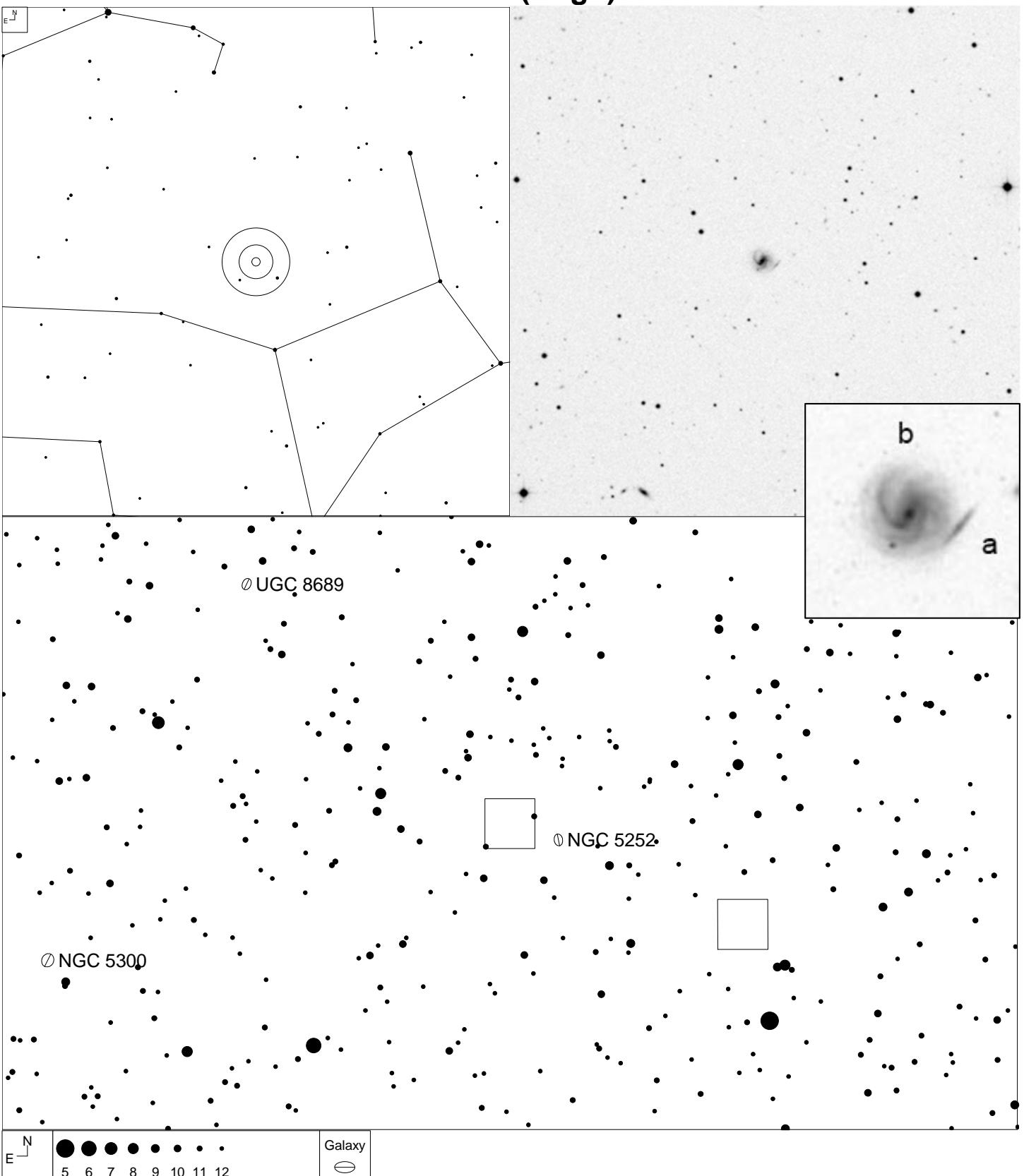


| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|-------|-------------|-----------|
| 18 | 13 34 39.4 | +04 08 00 | GPair | | | M |
| 18a | 13 34 39.2 | +04 07 48 | G | 14.5g | 9x7 | |
| 18b | 13 34 39.6 | +04 08 11 | G | 17.9g | 5x1 | |

VV 211 (Virgo)

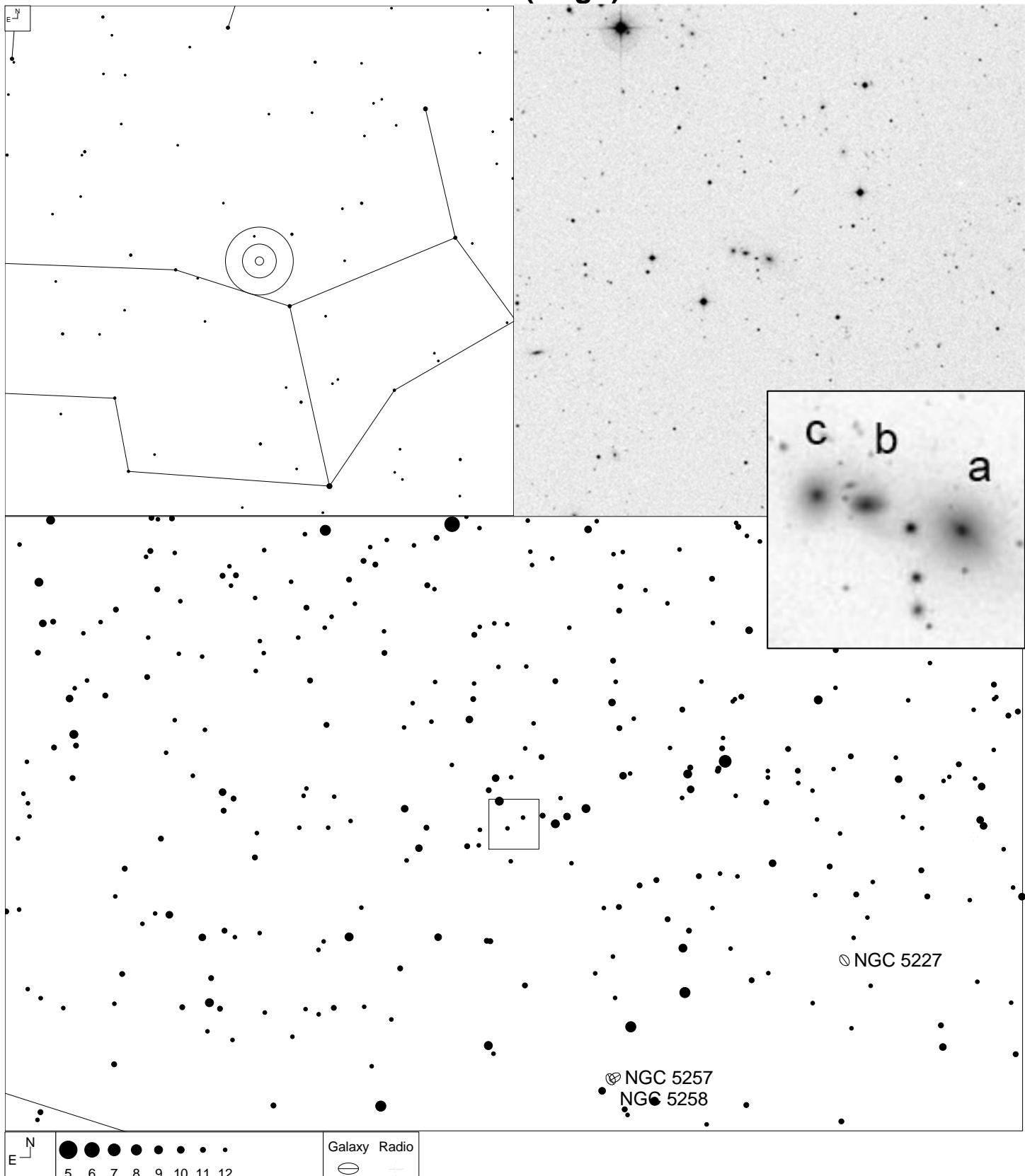


VV 108 (Virgo)



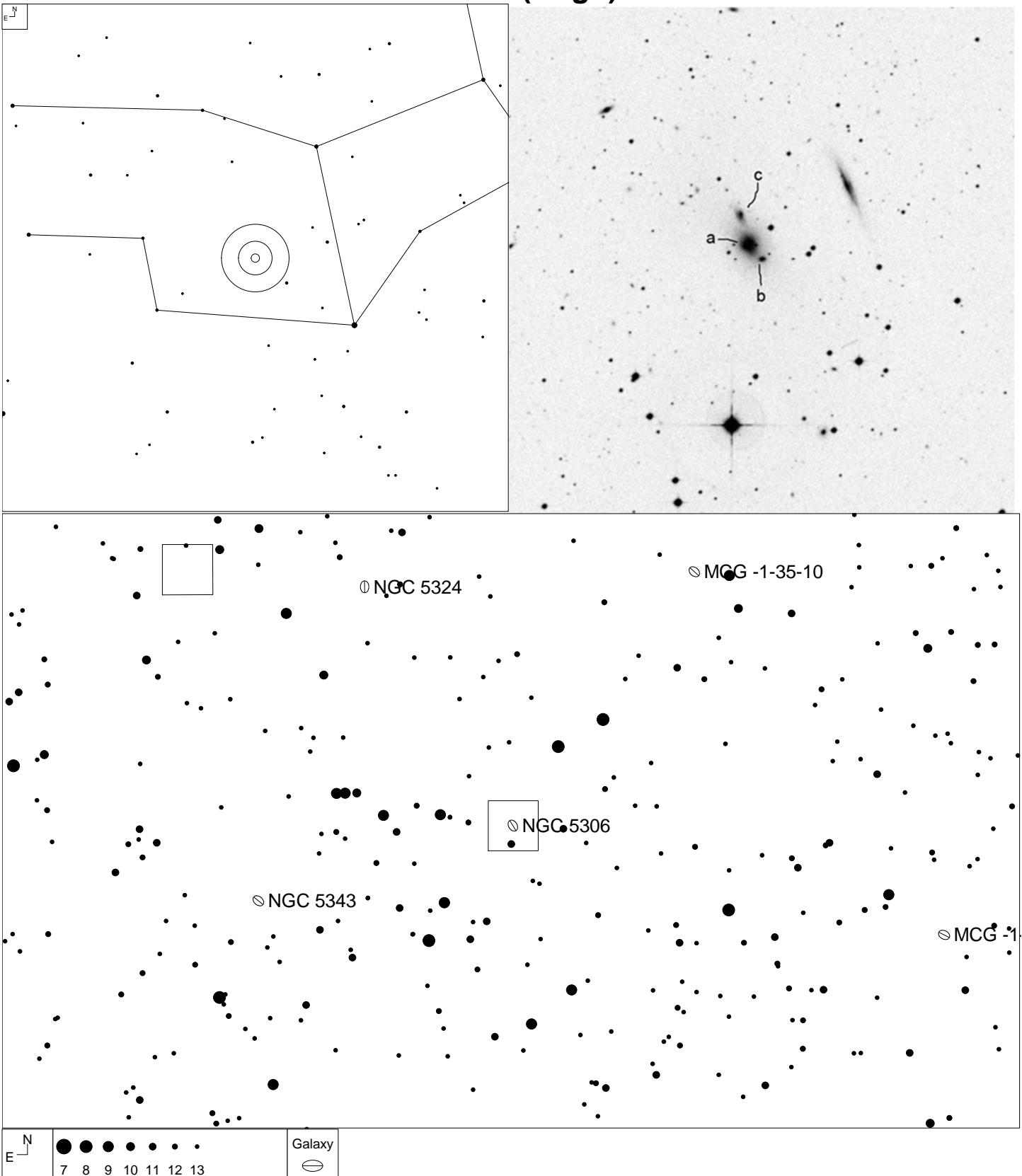
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 108 | 13 39 12.4 | +04 37 20 | GPair | | | PC |
| 108a | 13 39 11.5 | +04 37 17 | G | 18.6g | 4x1 | |
| 108b | 13 39 13.2 | +04 37 24 | G | 14.6g | 9x7 | |

VV 170 (Virgo)



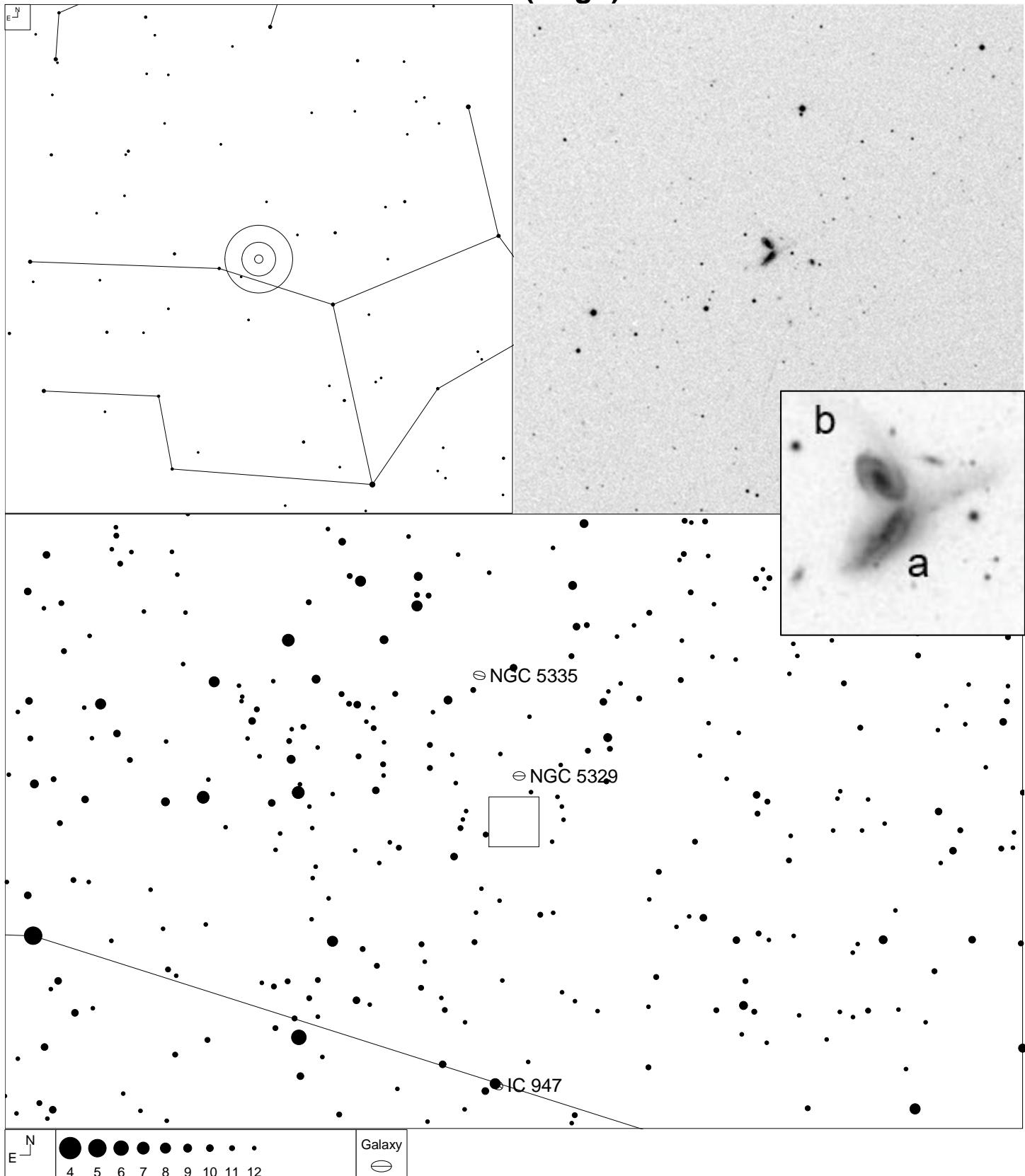
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|------|-------------|-----------|
| 170 | 13 41 53.3 | +02 04 41 | GTrpl | | | Ch |
| 170a | 13 41 51.2 | +02 04 34 | G | 15.5 | 6x5 | |
| 170b | 13 41 54.0 | +02 04 45 | G | 15.5 | 4x3 | |
| 170c | 13 41 55.4 | +02 04 49 | G | 16.5 | 2x2 | |

VV 135 (Virgo)



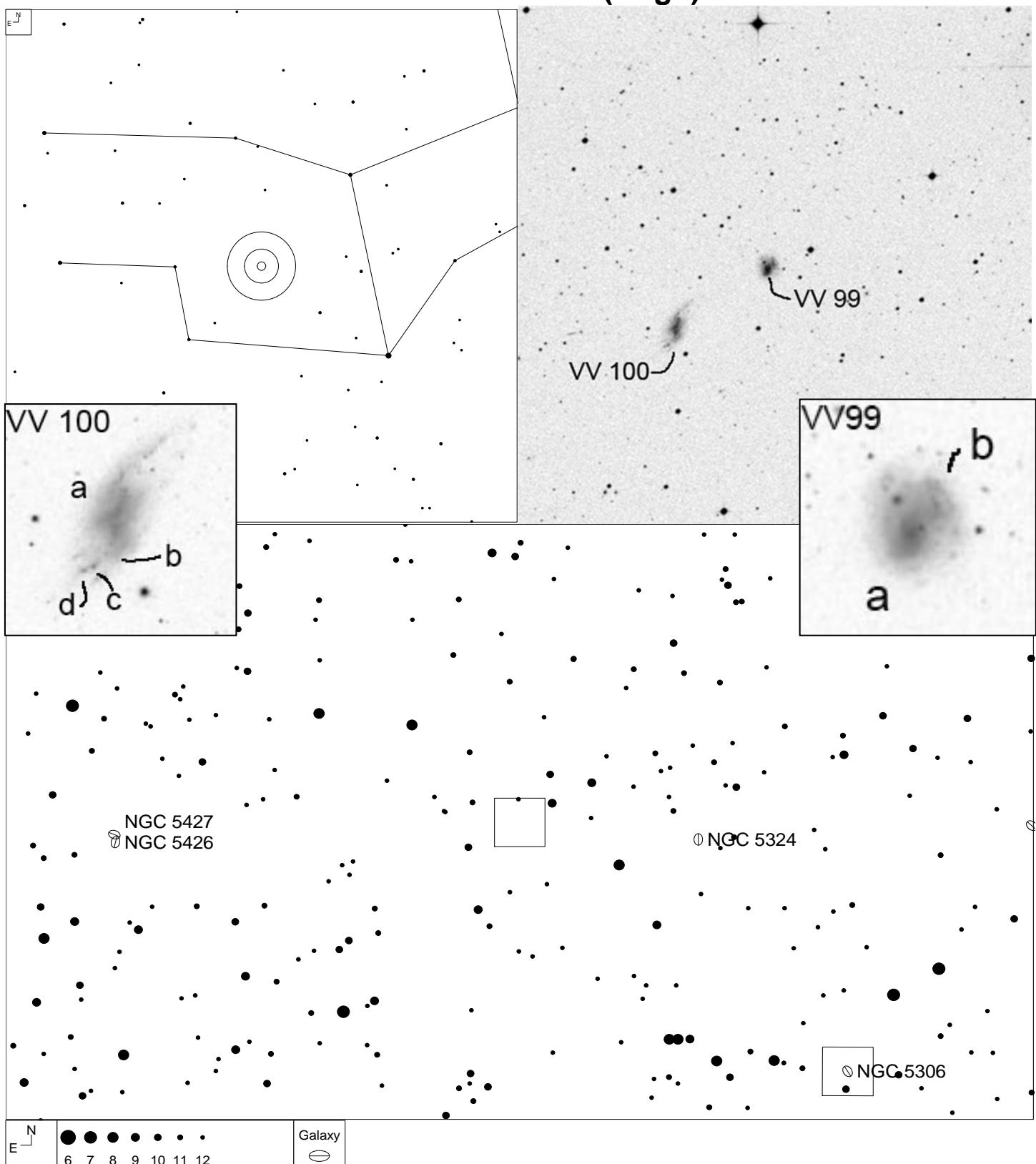
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 135 | 13 49 11.1 | -07 13 15 | GTrpl | | | NNN |
| 135b | 13 49 09.8 | -07 13 54 | G | 15.77 | 5x3 | |
| 135a | 13 49 11.4 | -07 13 28 | G | 13.43 | 20x18 | |
| 135c | 13 49 12.3 | -07 12 33 | G | 15.69 | 7x3 | |

VV 253 (Virgo)



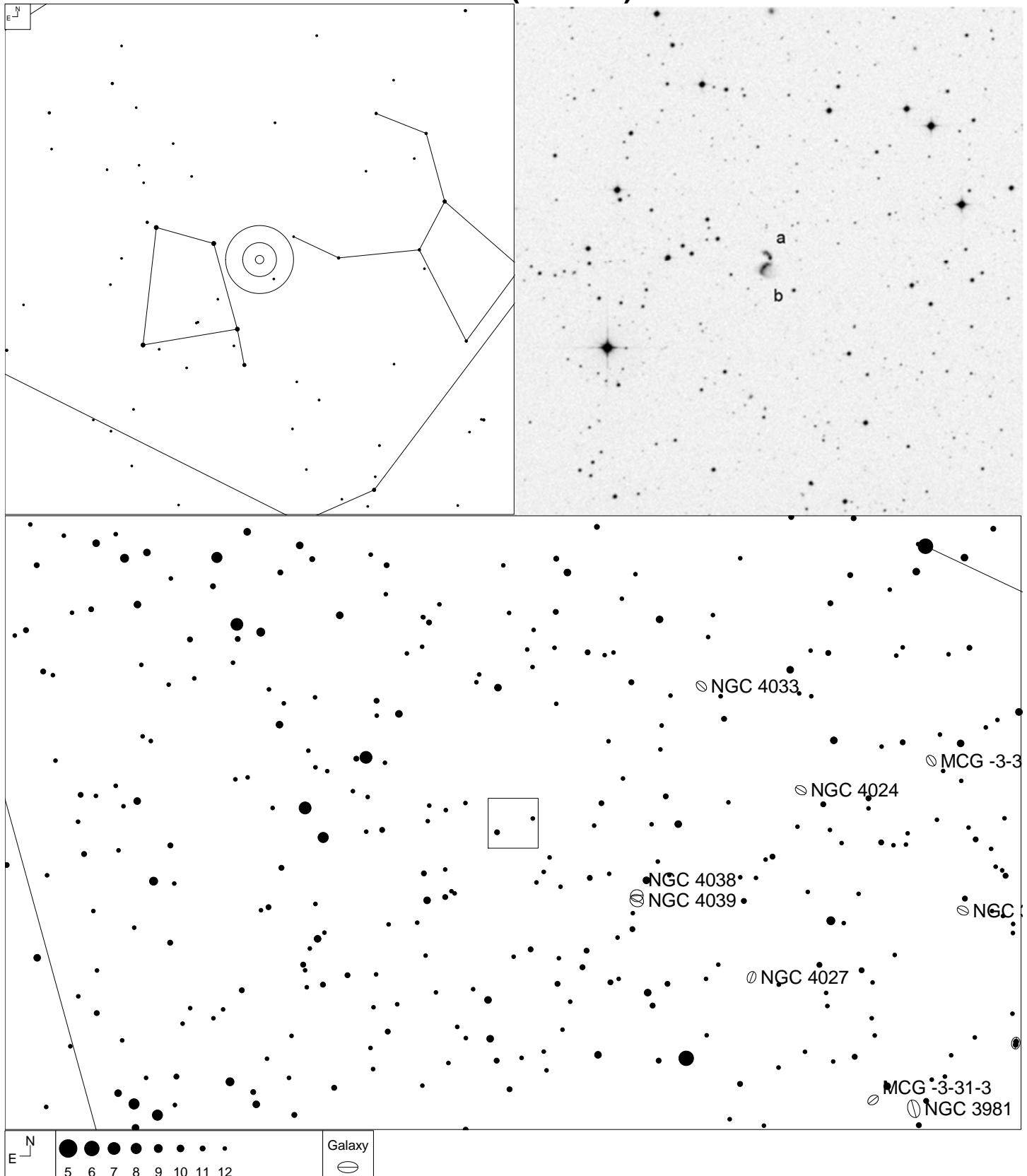
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|------|-------------|-----------|
| 253 | 13 52 16.3 | +02 06 11 | GPair | 14.3 | | PKt |
| 253a | 13 52 16.1 | +02 06 03 | G | 15.0 | 6x3 | |
| 253b | 13 52 16.4 | +02 06 31 | G | 16.2 | 6x4 | |

VV 99 and VV 100 (Virgo)



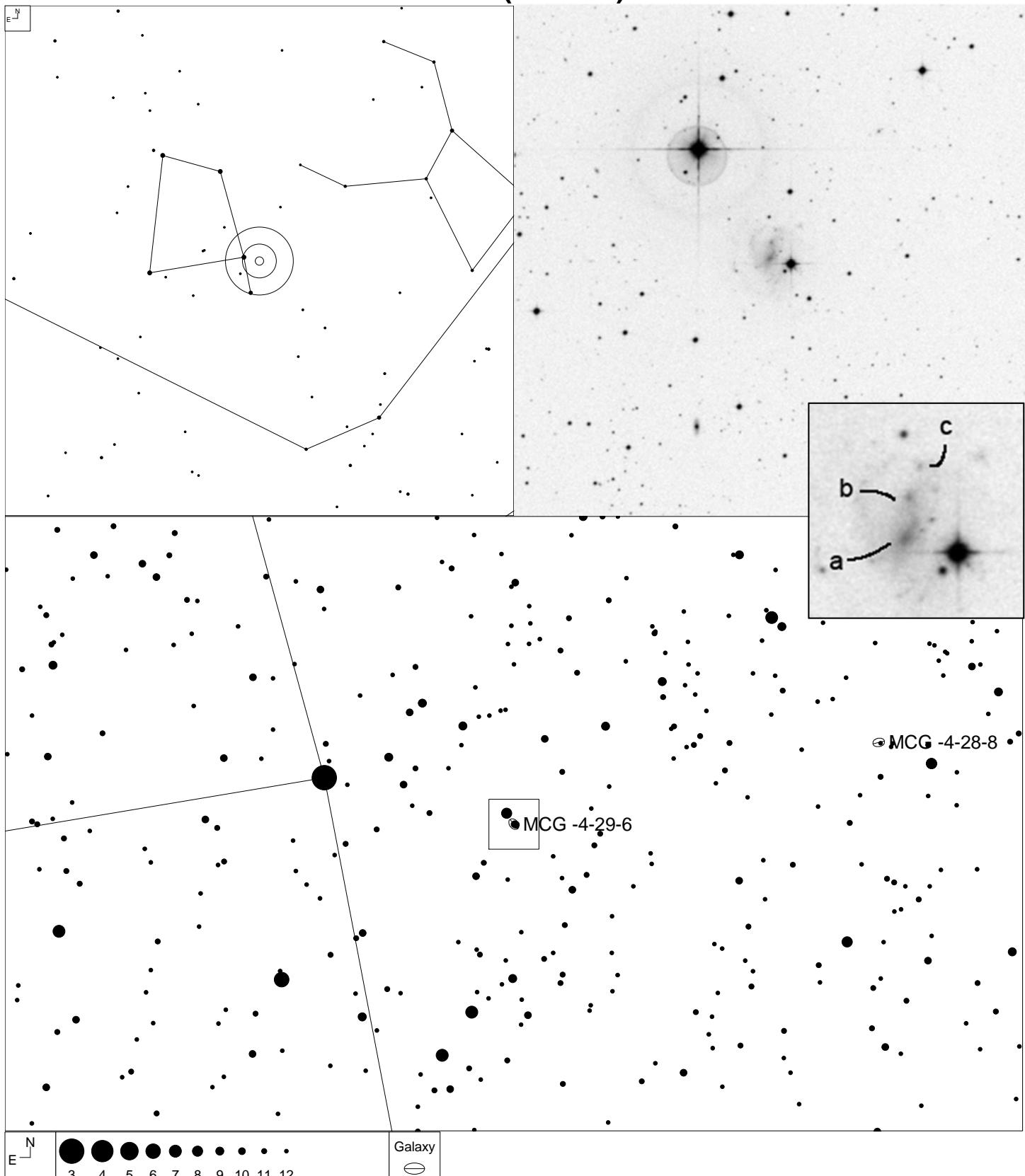
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 99 | 13 55 34.2 | -05 58 22 | G | 14.53 | 6x5 | PC |
| 99b | 13 55 33.9 | -05 58 18 | G | 15.5 | | |
| 99a | 13 55 34.5 | -05 58 26 | G | | | |
| 100 | 13 55 45.4 | -06 00 10 | G | 13.93 | 16x8 | PC |
| 100b | 13 55 45.3 | -06 00 28 | PofG | | | |
| 100a | 13 55 45.5 | -06 00 18 | PofG | | | |
| 100c | 13 55 46.4 | -06 00 40 | PofG | | | |
| 100d | 13 55 46.7 | -06 00 42 | PofG | | | |

VV 269 (Corvus)



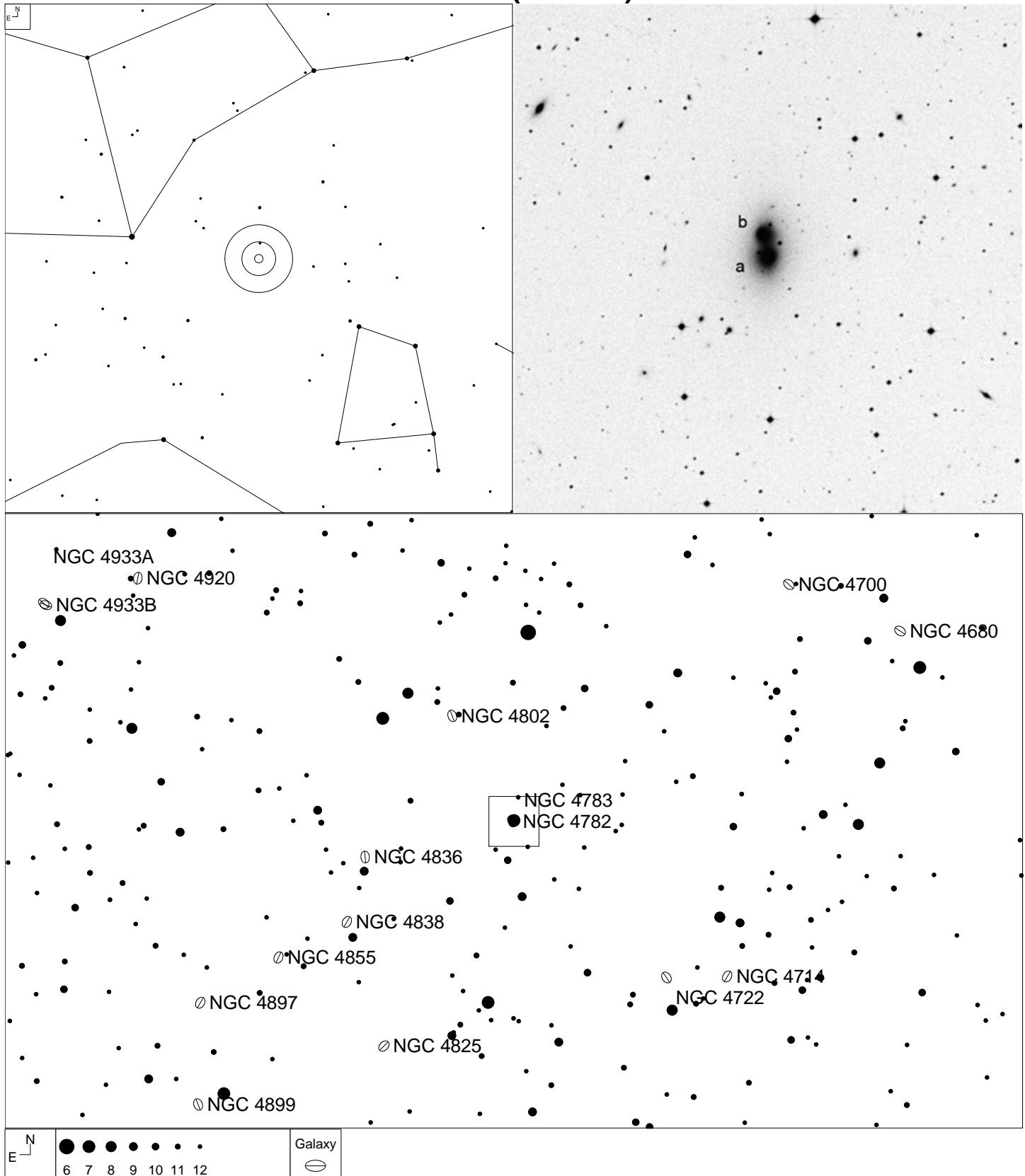
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 269 | 12 04 26.3 | -18 30 59 | GPair | | | PK |
| 269a | 12 04 26.1 | -18 30 48 | G | 15.92 | 4x2 | |
| 269b | 12 04 26.6 | -18 31 11 | G | 16.32 | 4x2 | |

VV 49 (Corvus)



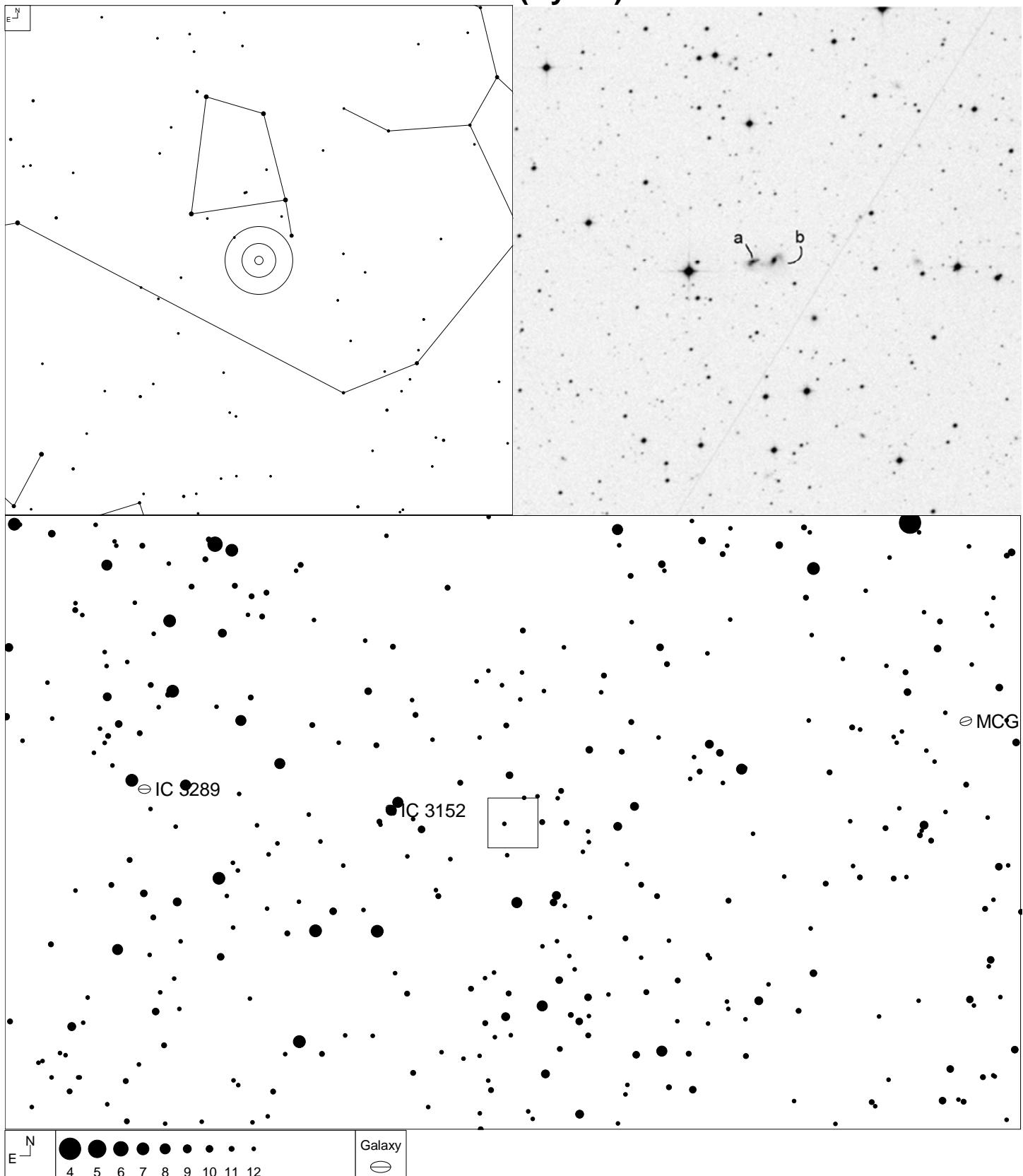
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|-------|-------------|-----------|
| 49 | 12 06 07.2 | -22 50 58 | G | 13.03 | 29x21 | N |
| 49c | 12 06 06.5 | -22 50 07 | PofG | | | |
| 49b | 12 06 07.0 | -22 50 29 | PofG | | | |
| 49a | 12 06 07.2 | -22 50 58 | PofG | | | |

VV 201 (Corvus)



| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 201 | 12 54 36.2 | -12 33 47 | GPair | | | PK |
| 201a | 12 54 35.7 | -12 34 07 | G | 12.7p | 17x16 | |
| 201b | 12 54 36.6 | -12 33 28 | G | 12.5p | 17x17 | |

VV 333 (Hydra)



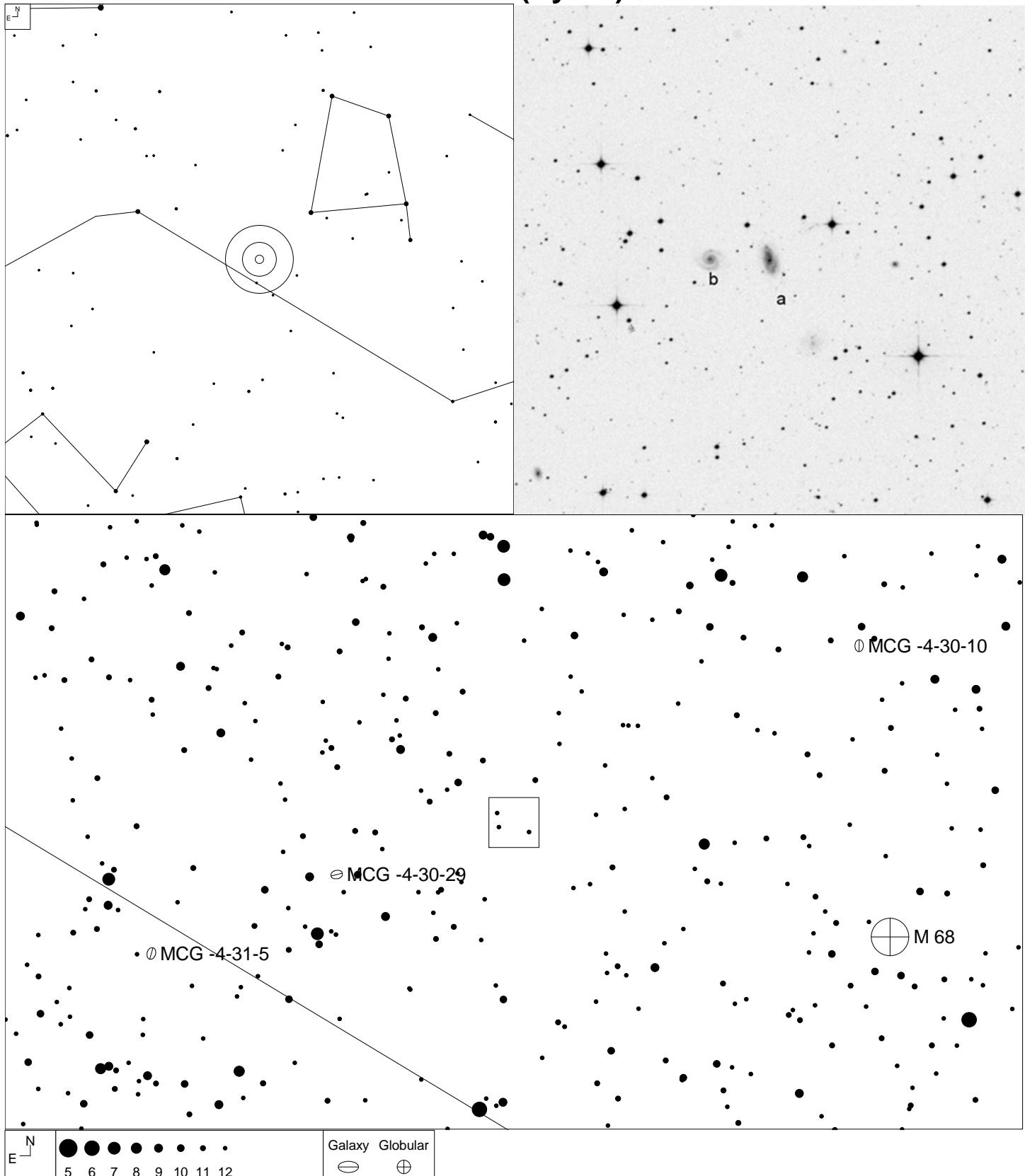
N
E

4 5 6 7 8 9 10 11 12

Galaxy

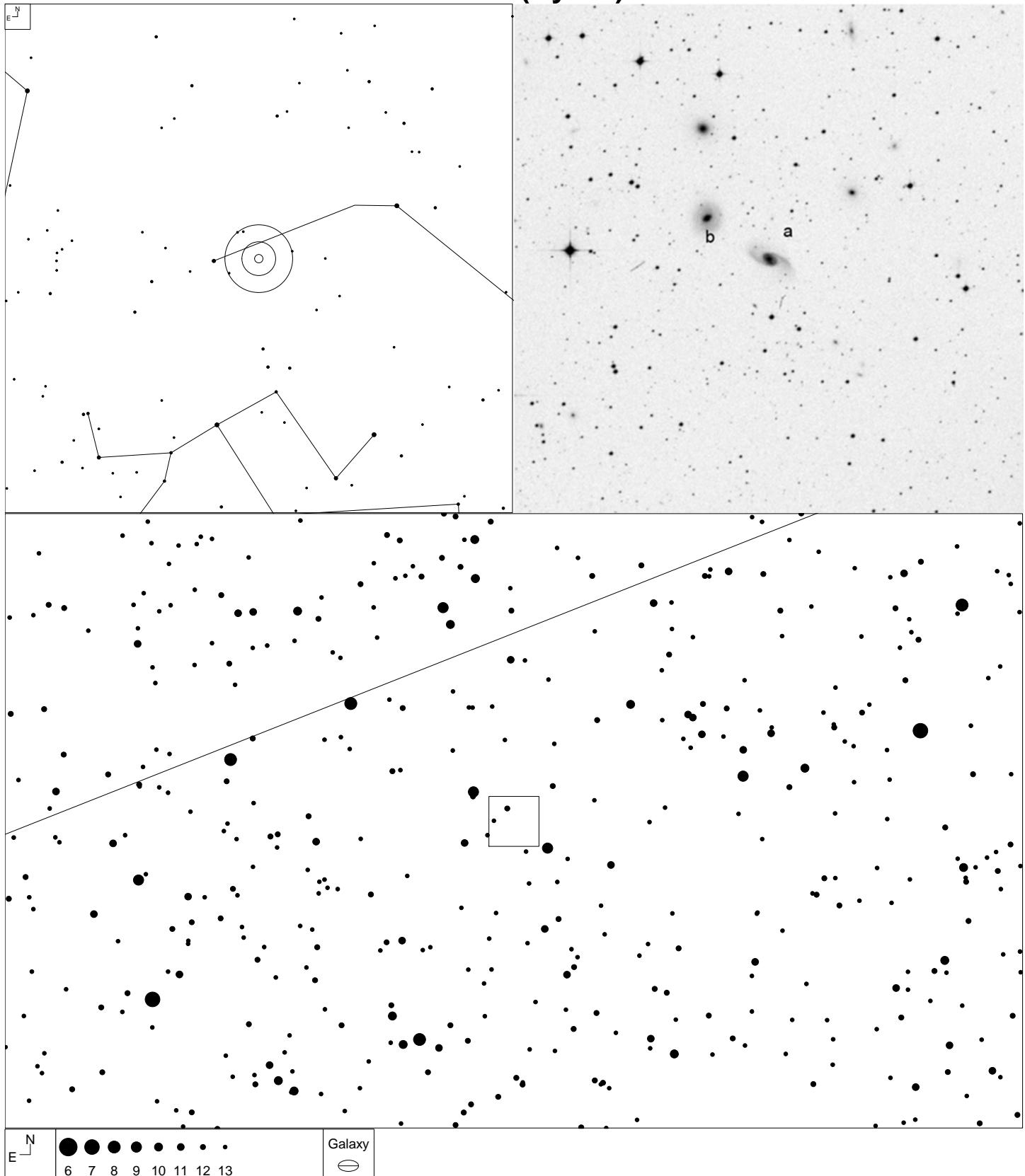
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 333 | 12 16 58.0 | -26 12 37 | GPair | | | PD |
| 333b | 12 16 57.1 | -26 12 34 | G | 16 | 8x7 | |
| 333a | 12 16 59.9 | -26 12 36 | G | 15.49 | 8x7 | |

VV 290 (Hydra)

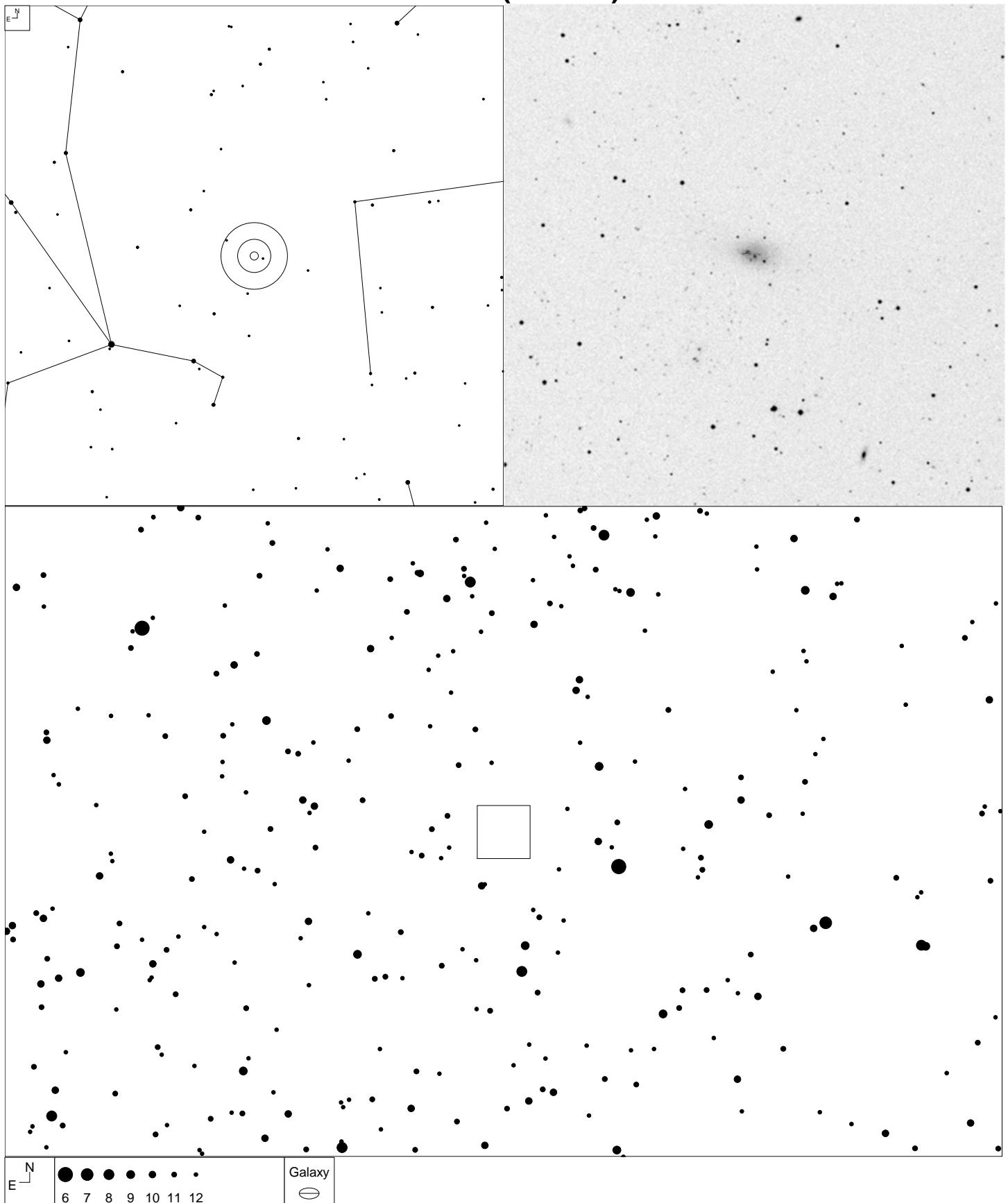


| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 290 | 12 47 44.1 | -26 11 58 | GPair | | | PKb |
| 290a | 12 47 40.3 | -26 12 00 | G | 14.81 | 12x5 | |
| 290b | 12 47 48.1 | -26 11 59 | G | 15.51 | 12x10 | |

VV 351 (Hydra)

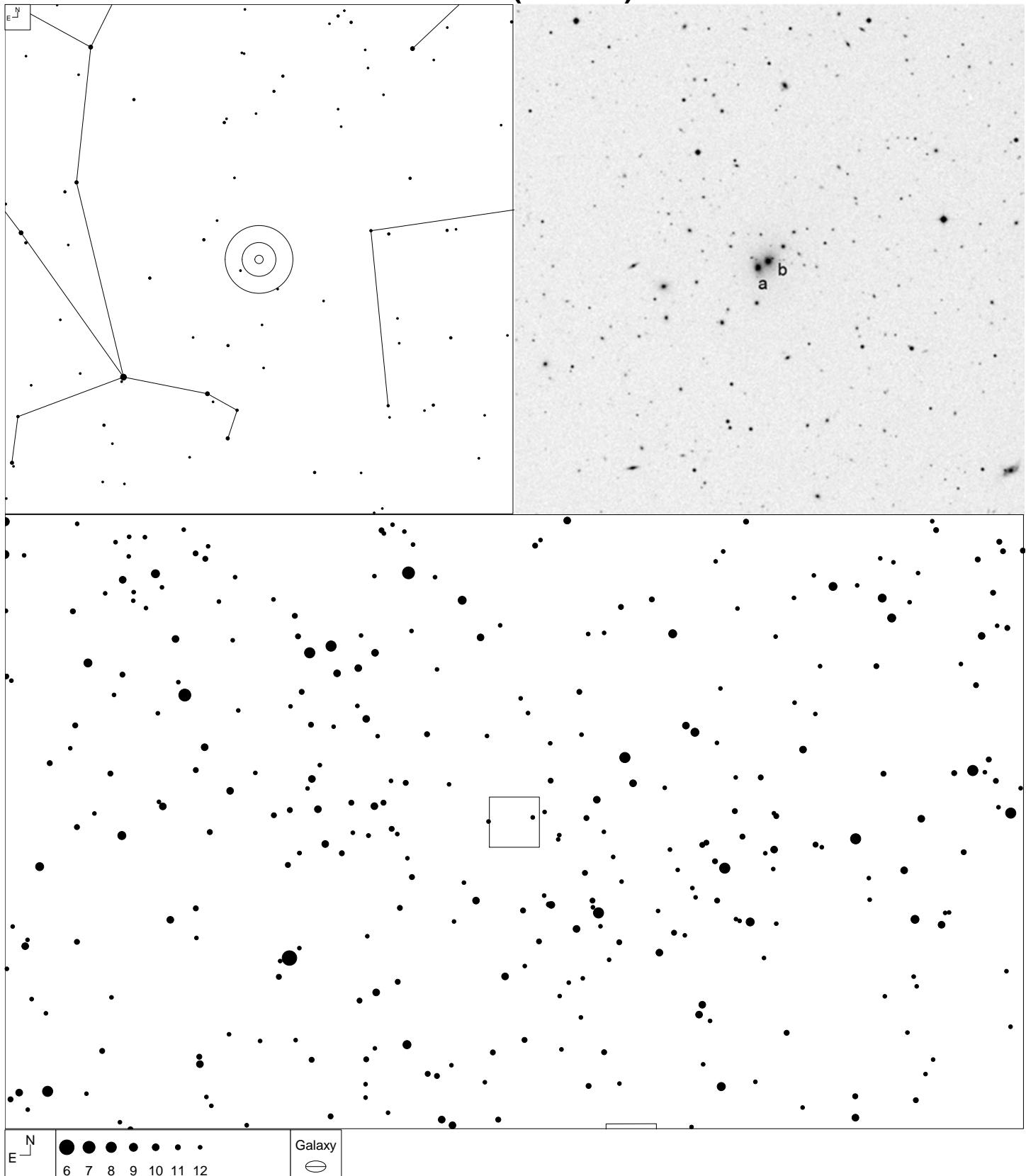


VV 133 (Bootes)



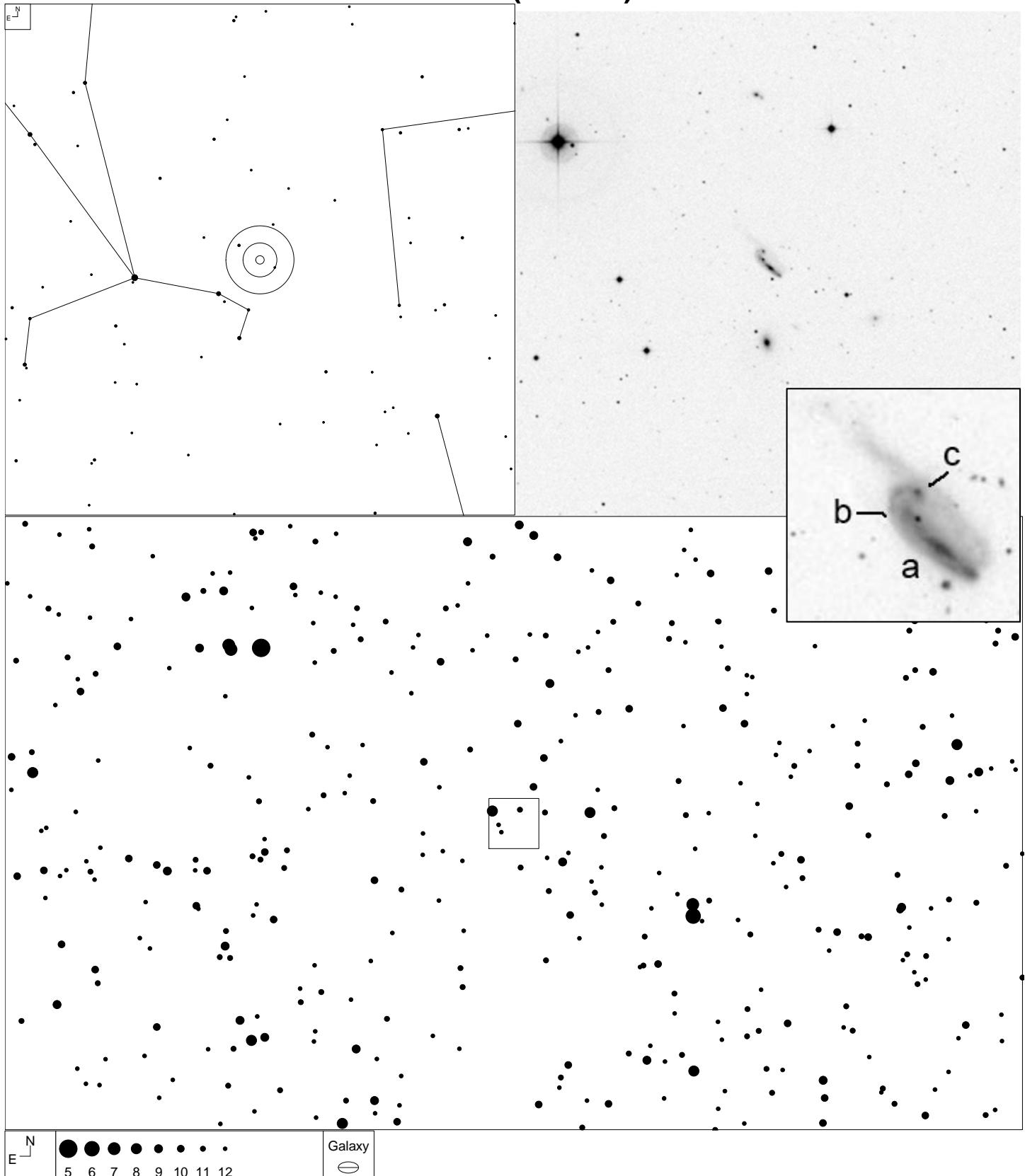
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|-------|-------------|-----------|
| 133 | 13 39 19.4 | +24 46 32 | G | 14.47 | 12x8 | N |

VV 195 (Bootes)



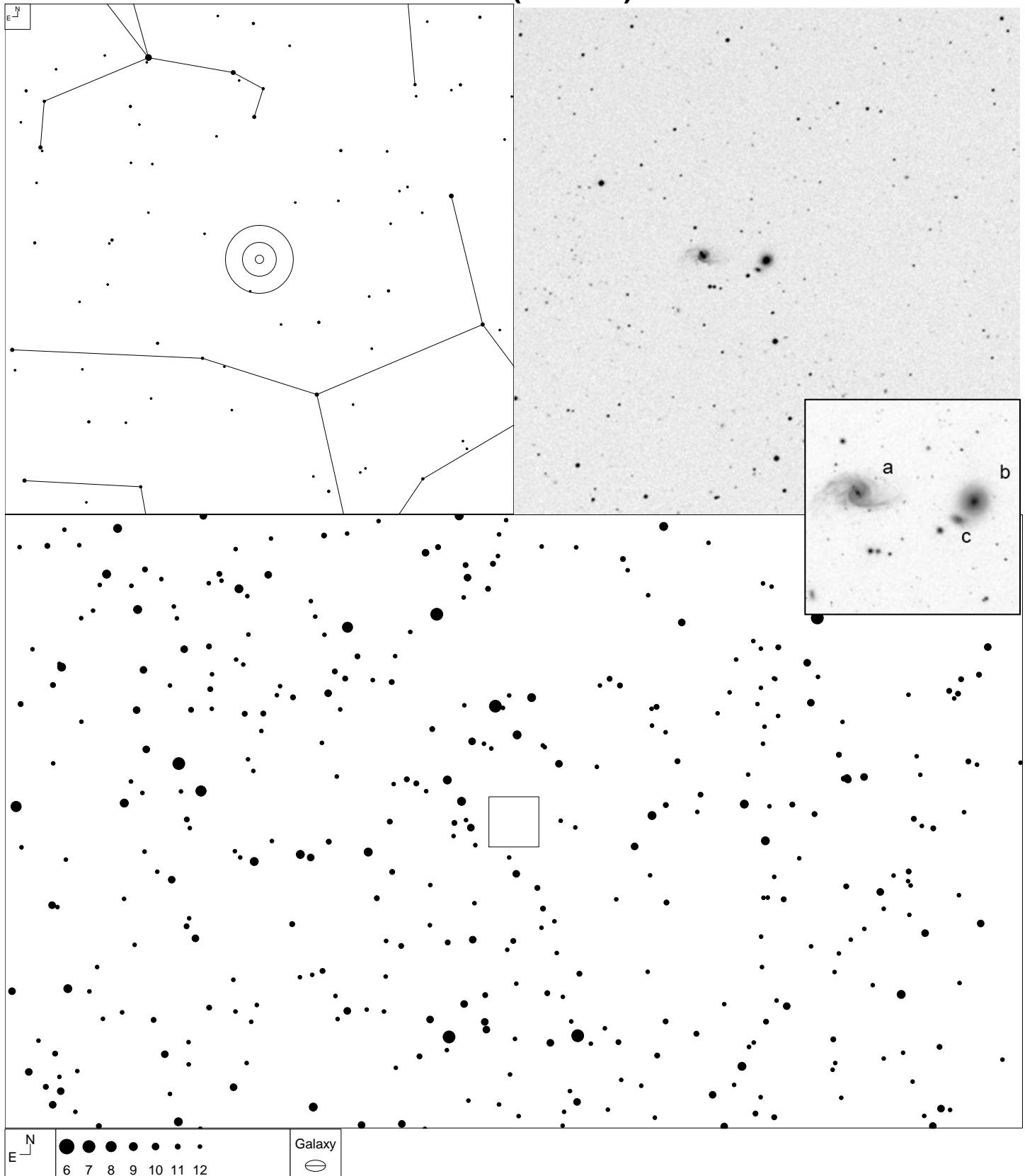
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-------------|
| 195 | 13 41 49.4 | +26 22 19 | GPair | | | PD b |
| 195b | 13 41 49.1 | +26 22 25 | G | 15.0g | 8x6 | |
| 195a | 13 41 50.4 | +26 22 13 | G | 15.3 | 2x2 | |

VV 163 (Bootes)



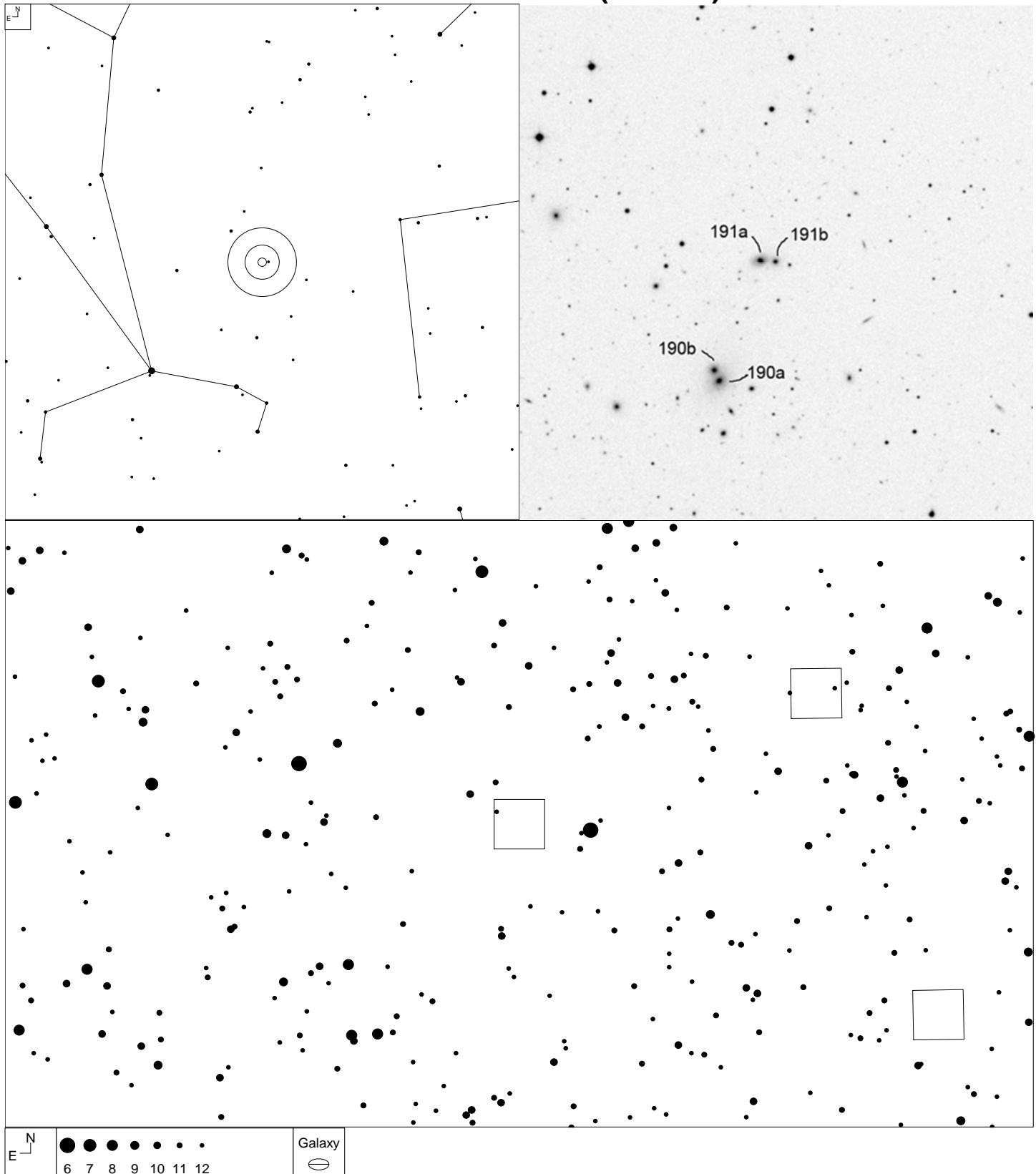
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 163 | 13 44 25.0 | 20 24 50 | GTrpl | 14.89 | 11 | Ch |
| 163a | 13 44 24.5 | +20 24 34 | G | 15.0 | | |
| 163c | 13 44 25.4 | +20 24 52 | G | 16.0 | 1x1 | |
| 163b | 13 44 25.4 | +20 25 06 | G | | 1x1 | |

VV 306 (Bootes)



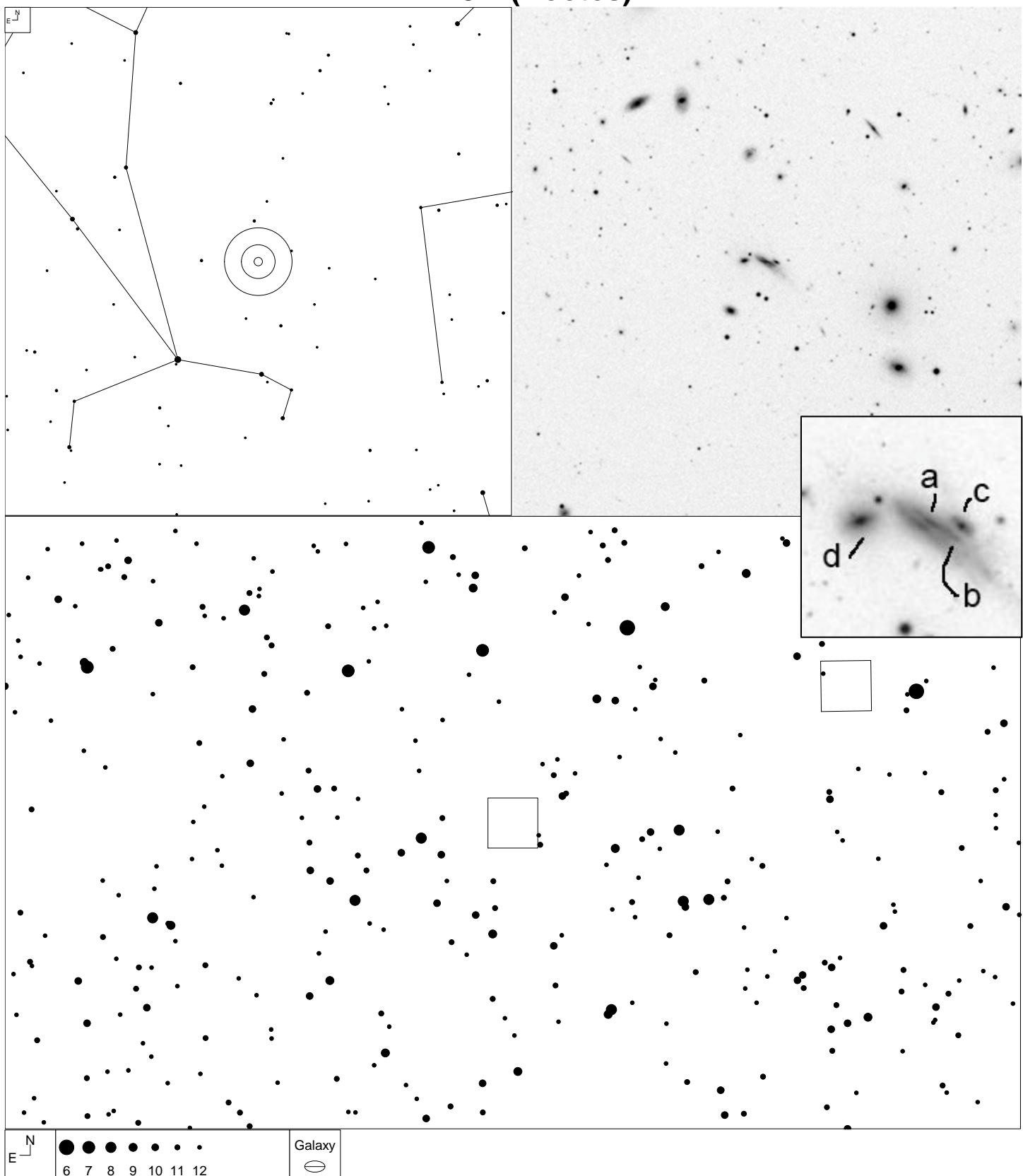
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 306 | 13 48 08.9 | +07 23 27 | GTrpl | | | NNNP |
| 306c | 13 48 05.0 | +07 23 32 | G | 15.5 | 6x6 | |
| 306b | 13 48 06.0 | +07 23 15 | G | 14.7 | 4x4 | |
| 306a | 13 48 12.5 | +07 23 41 | G | 14.39 | 13x7 | |

VV 190 and VV 191 (Bootes)



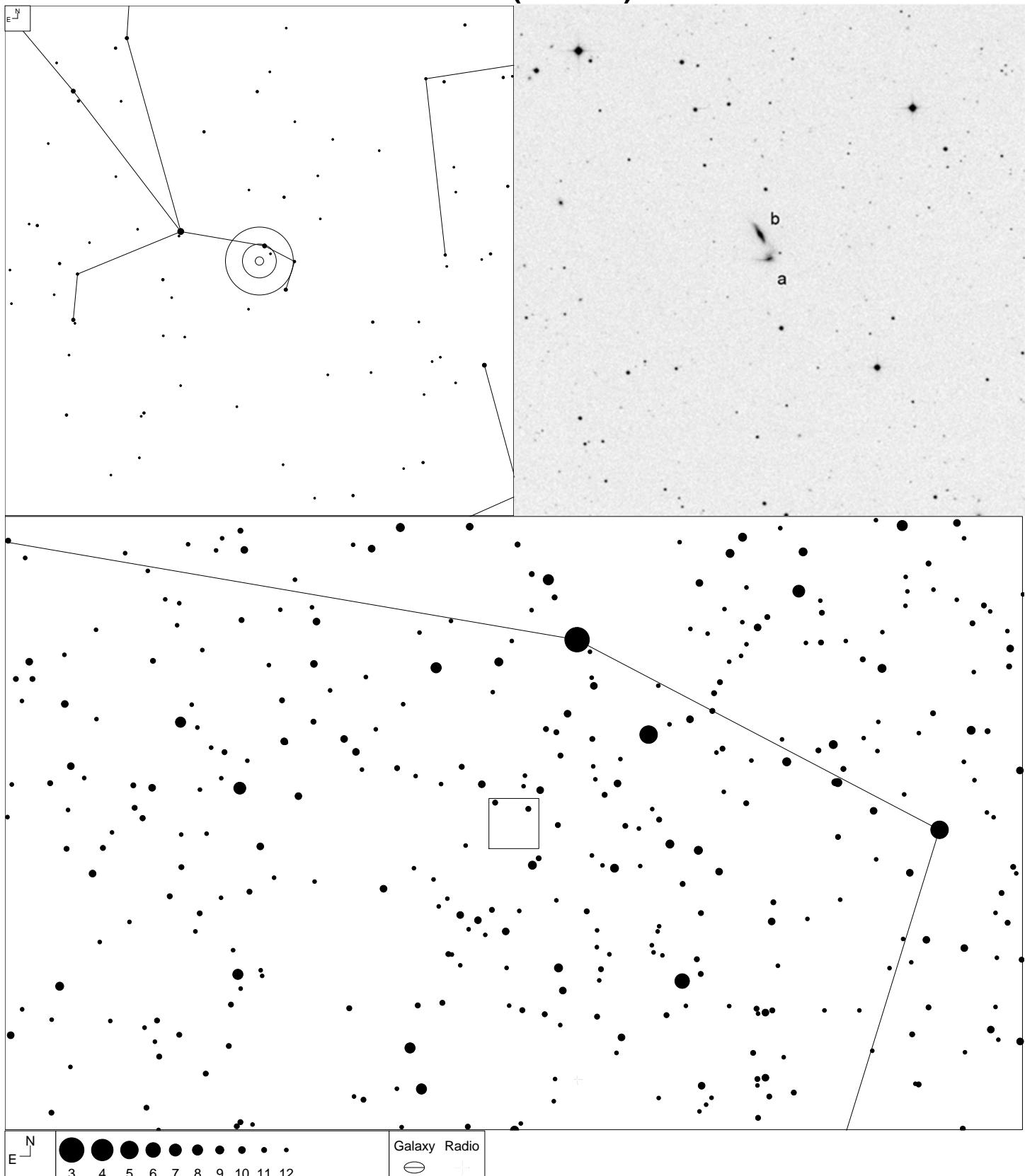
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 190 | 13 48 15.1 | +25 43 59 | GPair | | | |
| 190b | 13 48 14.1 | +25 43 58 | G | 16.1g | 4x4 | PDb |
| 190a | 13 48 16.1 | +25 44 01 | G | 15.3g | 7x5 | |
| 191 | 13 48 22.1 | +25 50 50 | GPair | | | PDb |
| 191a | 13 48 21.8 | +25 40 31 | G | 15.5 | 5x5 | |
| 191b | 13 48 22.4 | +25 40 50 | G | 15.8g | 5x5 | |

VV 281 (Bootes)



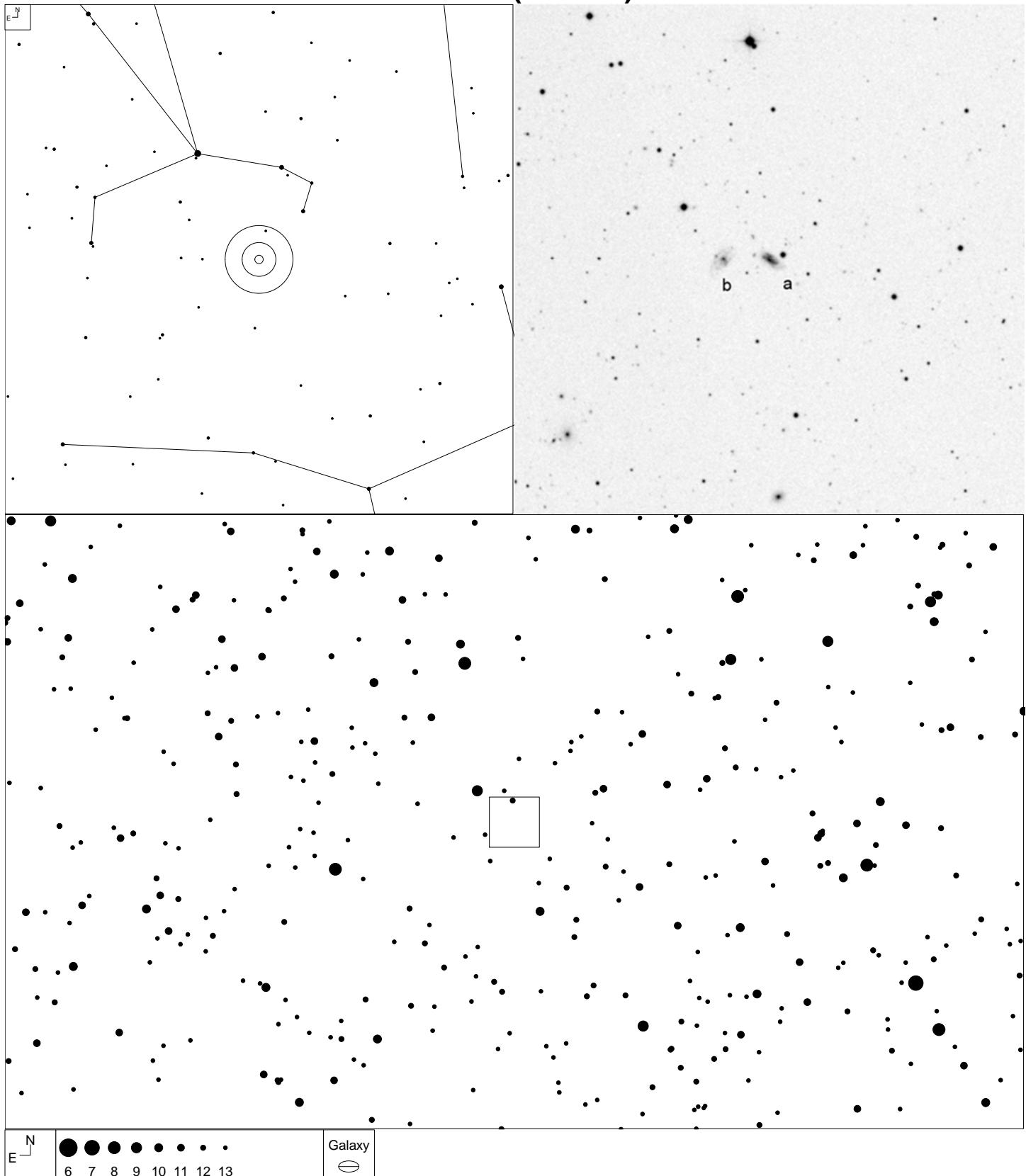
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 281 | 13 55 30.0 | +25 04 26 | GTrpl | | | Ch |
| 281c | 13 55 28.4 | +25 04 25 | G | 17.7g | 1x1 | |
| 281b | 13 55 28.7 | +25 04 19 | PofG | 21.3 | 1x1 | |
| 281a | 13 55 29.9 | +25 04 27 | PofG | | | |
| 281d | 13 55 32.6 | +25 04 28 | G | 15.76 | 5x4 | |

VV 335 (Bootes)



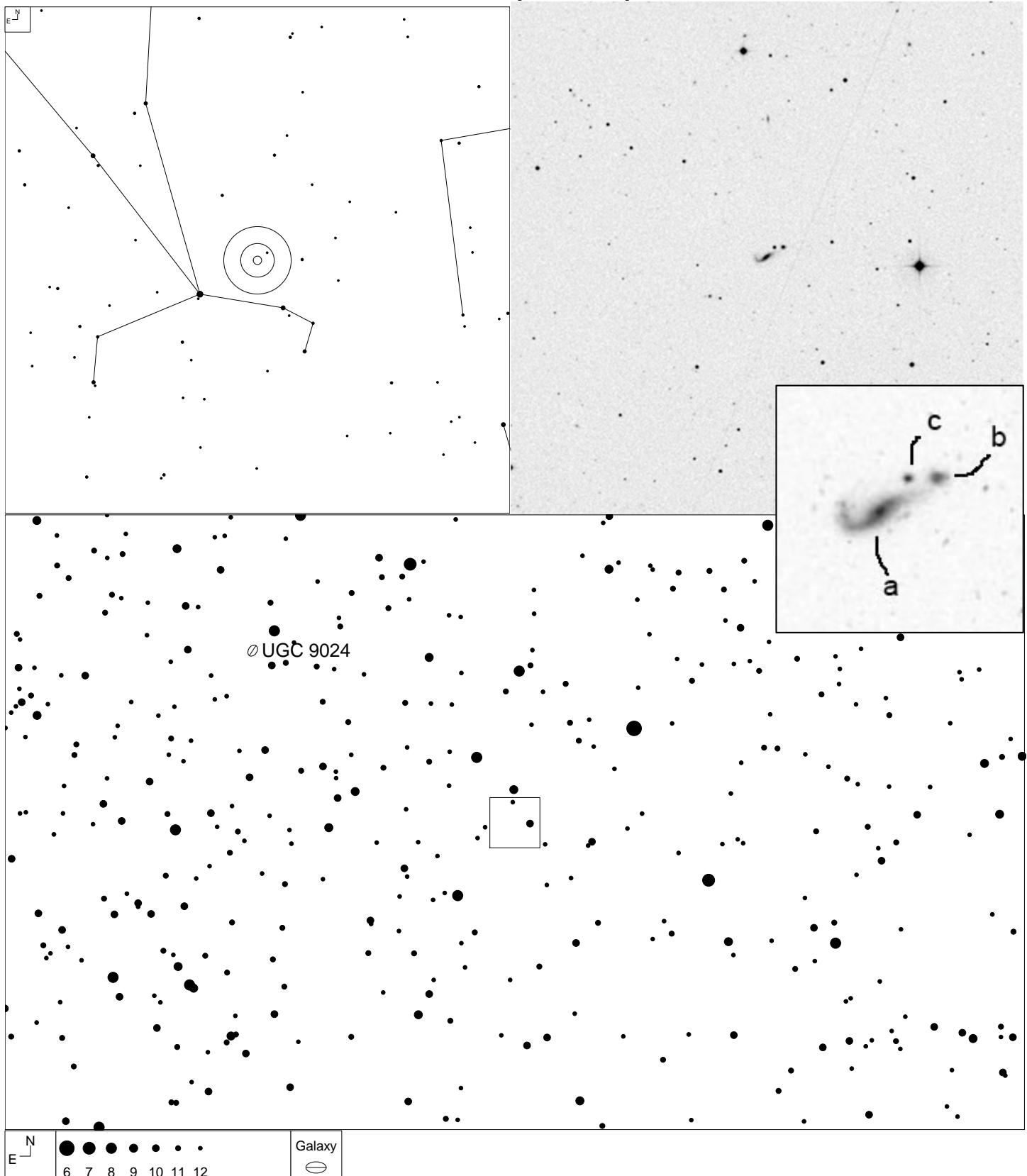
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-------------|
| 335 | 13 55 59.6 | +17 30 21 | GPair | | | PD b |
| 335a | 13 55 59.1 | +17 29 57 | G | 14.50 | 9x6 | |
| 335b | 13 56 00.1 | +17 30 42 | G | 14.50 | 7x2 | |

VV 339 (Bootes)



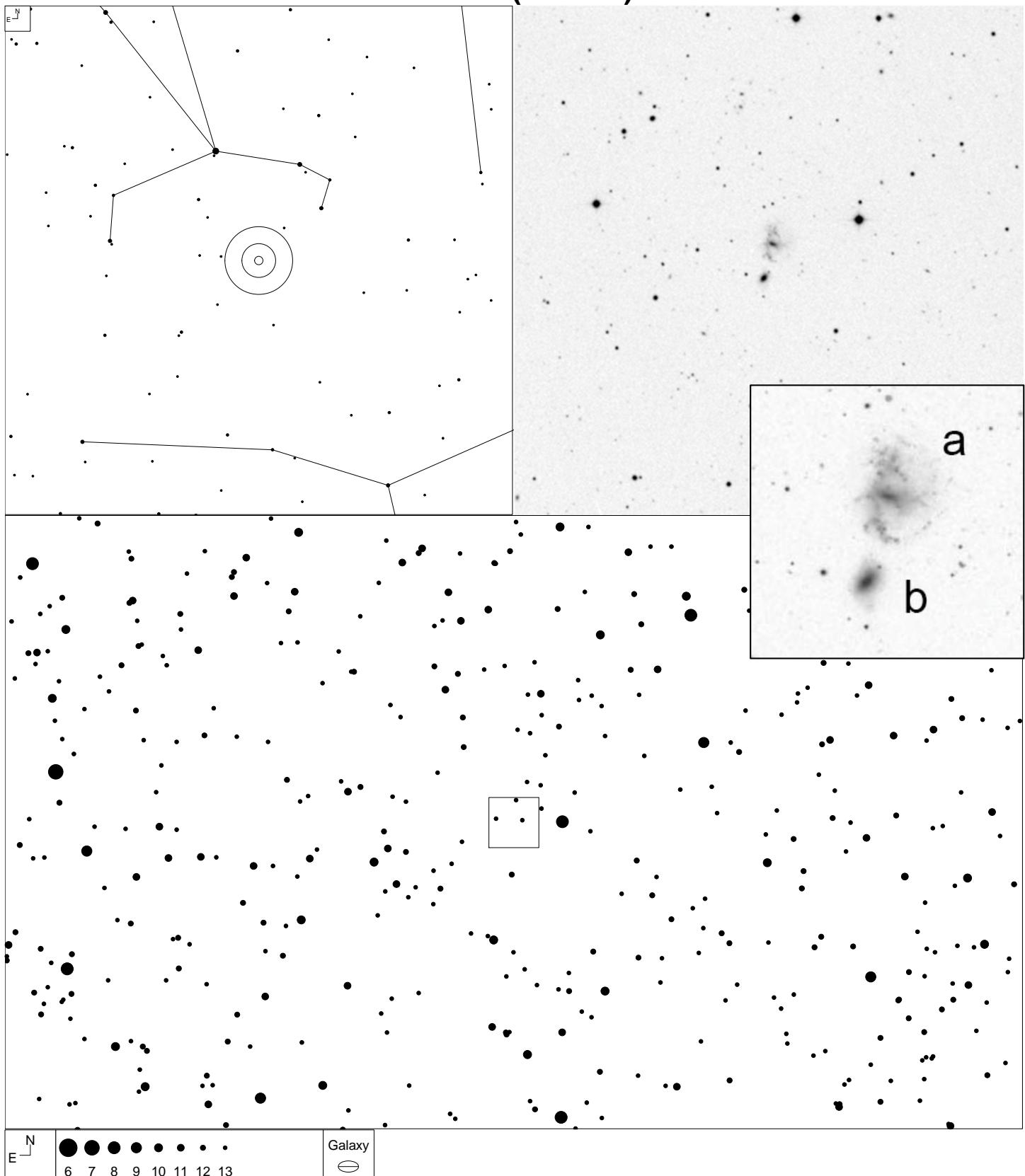
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 339 | 14 00 22.5 | +12 57 26 | GPair | | | PD |
| 339a | 14 00 19.8 | +12 57 26 | G | 14.77 | 10x6 | |
| 339b | 14 00 25.3 | +12 57 27 | G | 14.93 | 9x7 | |

VV 277 (Bootes)



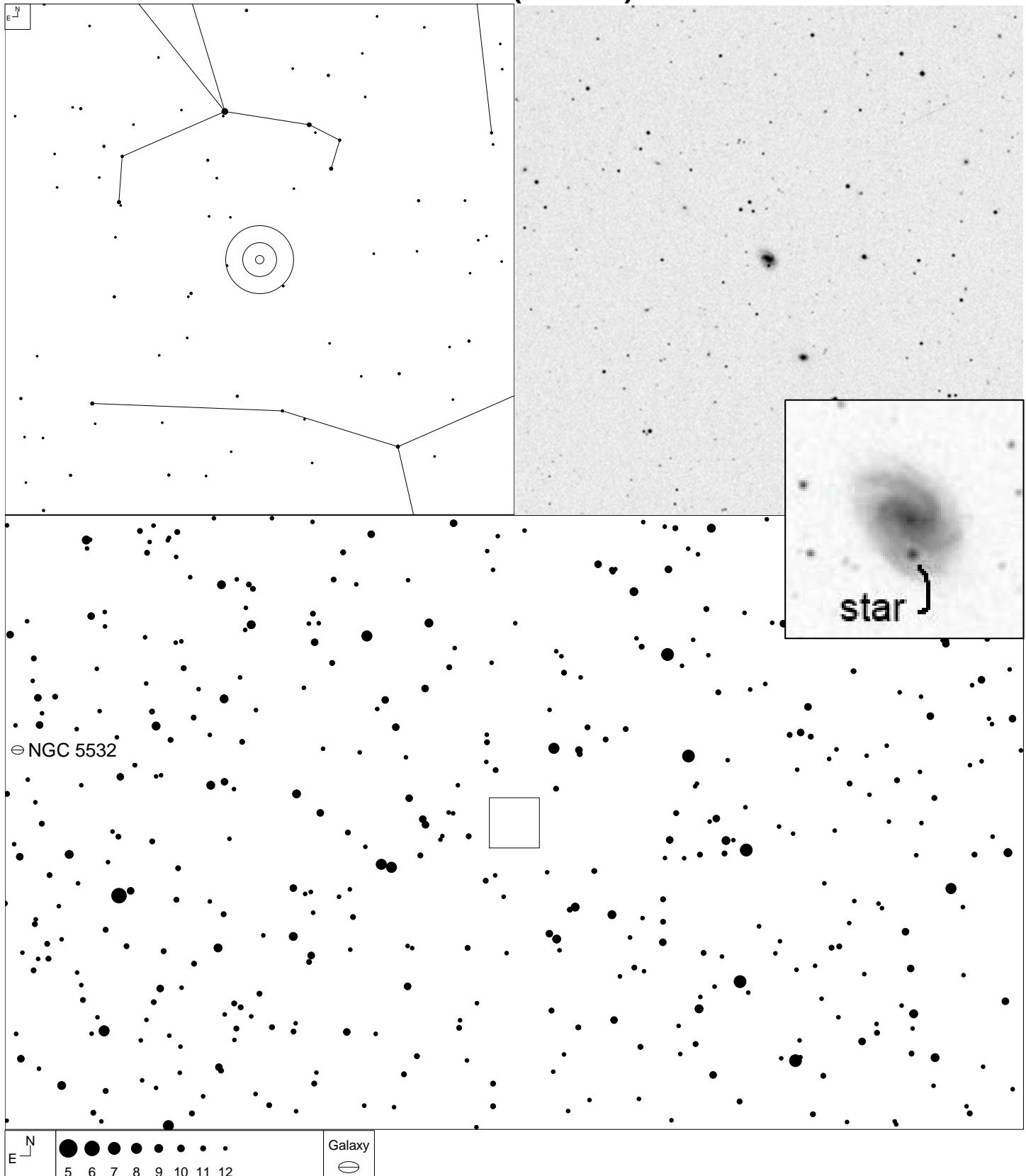
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 277 | 14 01 08.2 | +21 14 24 | GPair | 15.1 | 10x4 | PKdf |
| 277b | 14 01 07.1 | +21 14 35 | G | 14.8 | 2x2 | |
| 277c | 14 01 08.2 | +21 14 34 | PofG | 16.6g | 1x1 | |
| 277a | 14 01 09.3 | +21 14 16 | G | 14.70 | 6x4 | |

VV 328 (Bootes)



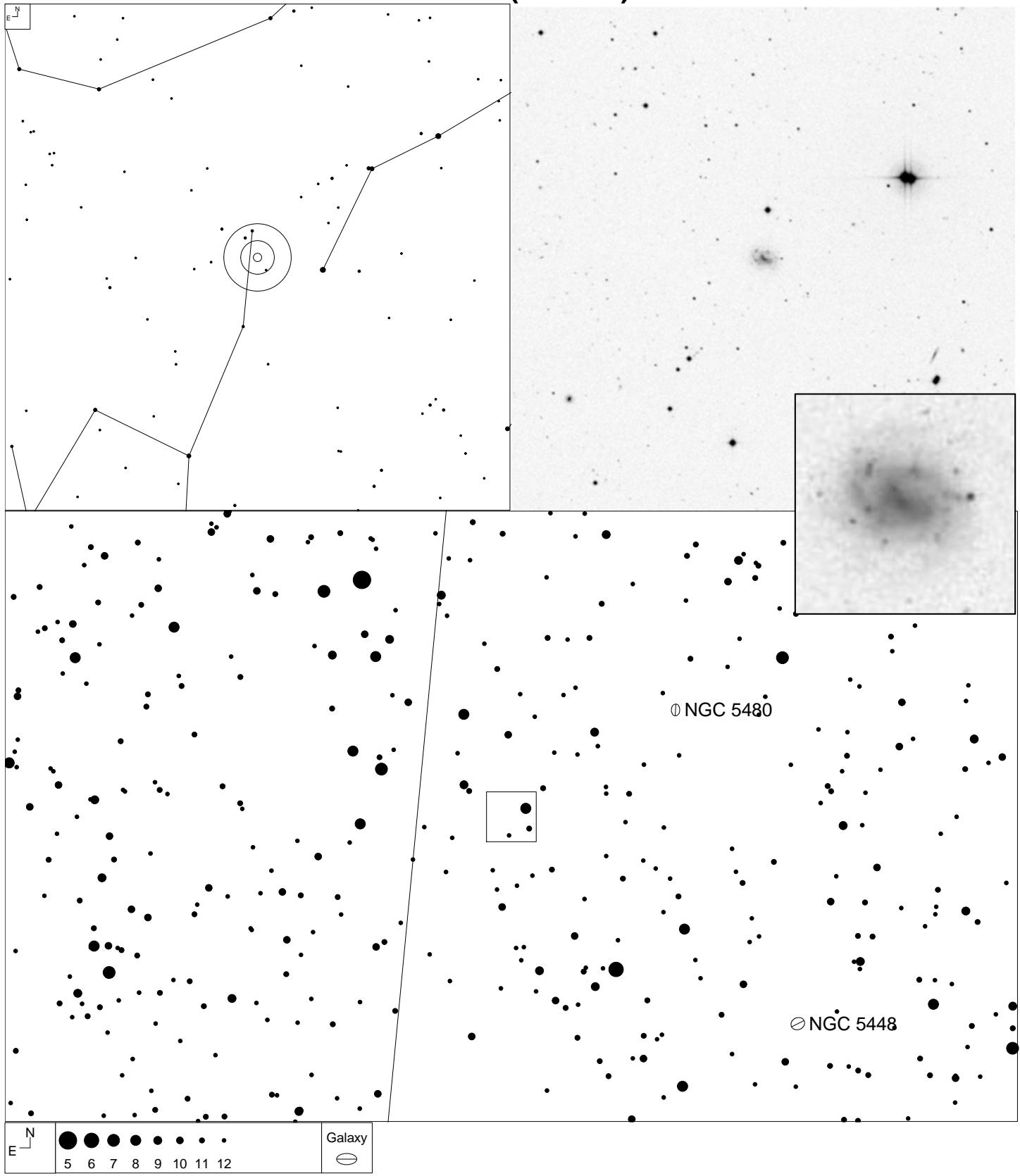
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 328 | 14 04 54.2 | +12 42 48 | GPair | | | PD |
| 328a | 14 04 53.7 | +12 43 18 | G | 14.4p | 13x8 | |
| 328b | 14 04 54.7 | +12 42 17 | G | 15.6 | 4x2 | |

VV 103 (Bootes)

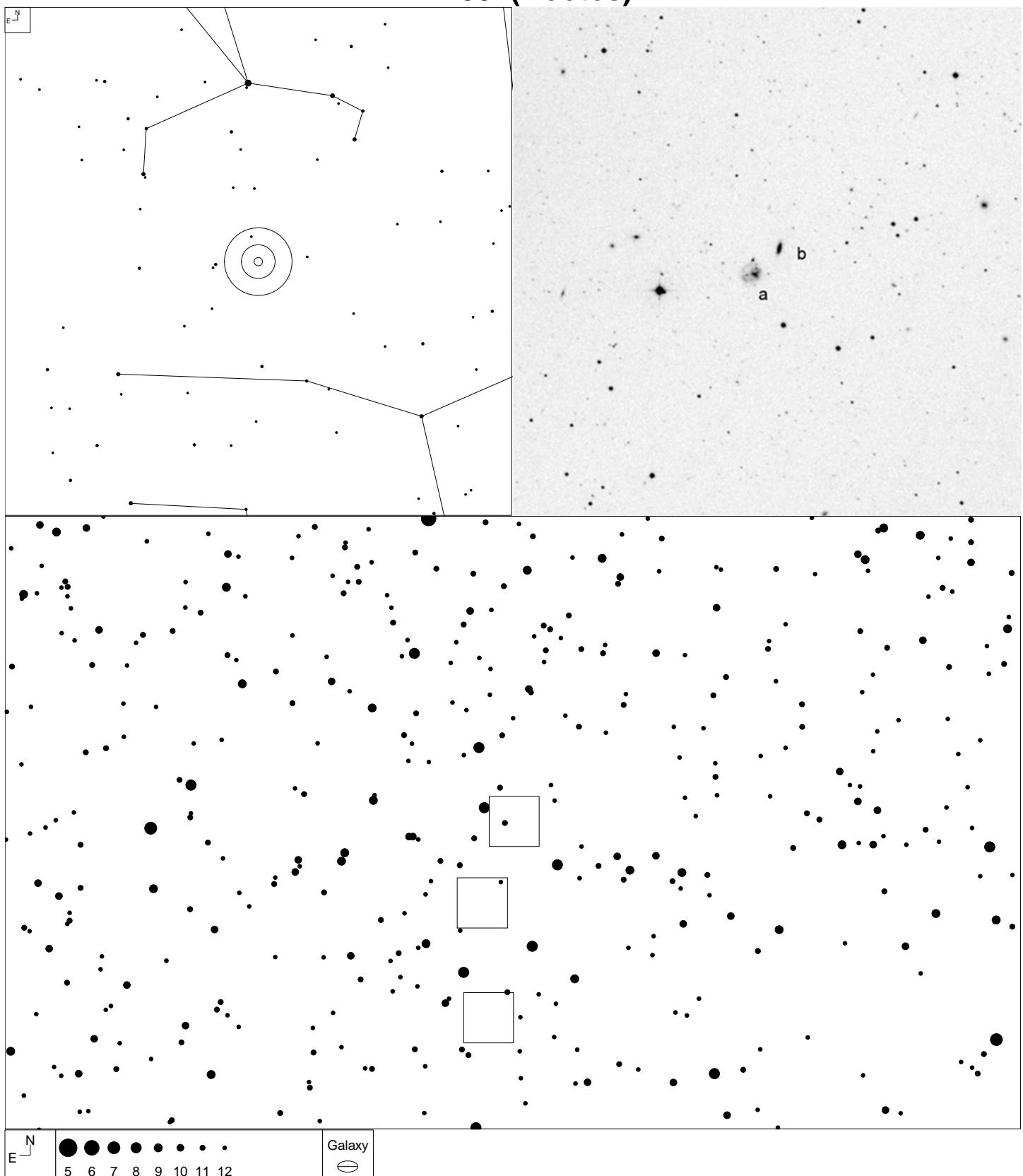


| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 103 | 14 07 00.1 | +10 27 44 | GPair? | 14.8 | 8x5 | PC |
| 103a | 14 07 00.2 | +10 27 45 | G | 14.8g | 9x6 | |

VV 125 (Bootes)

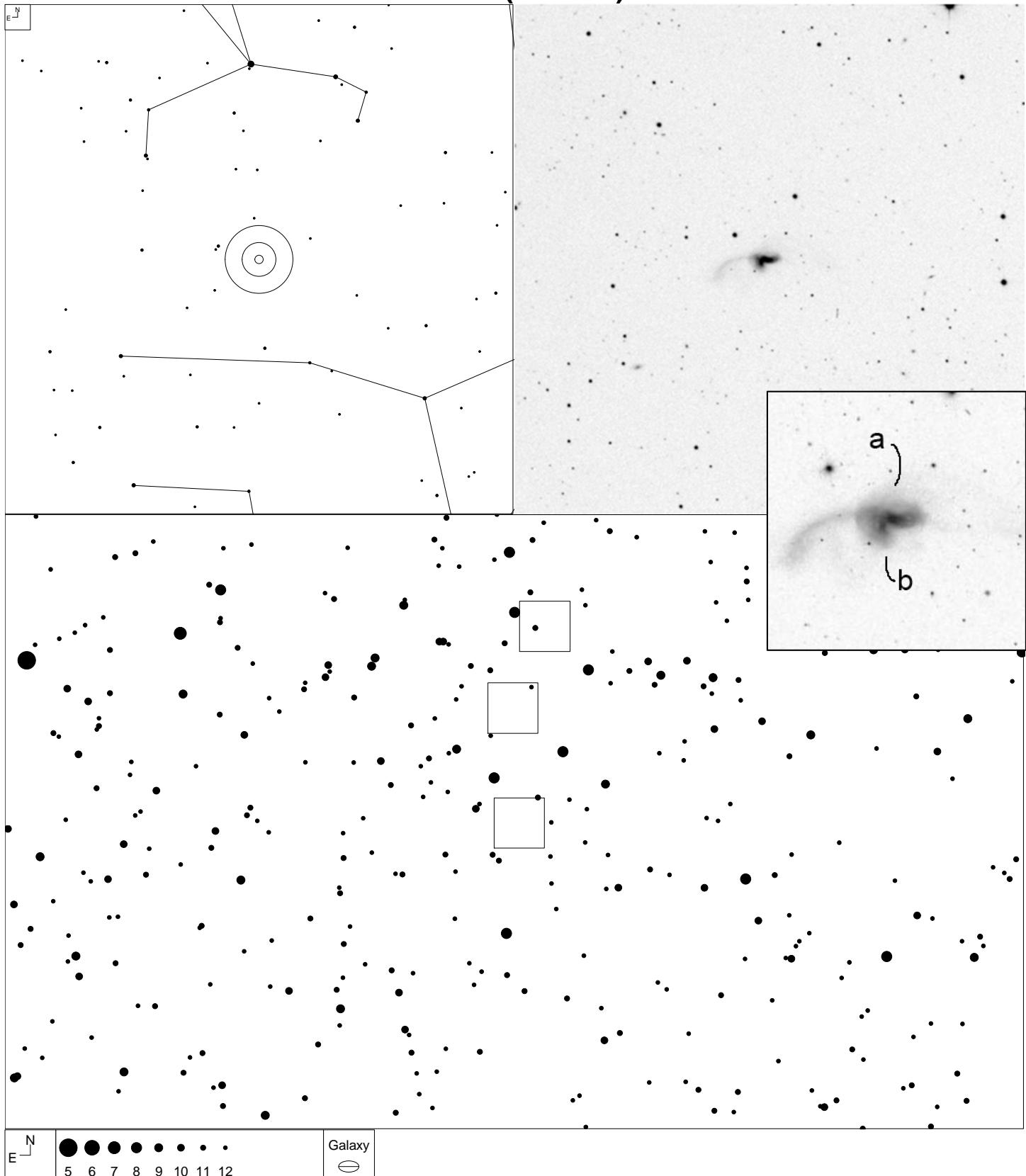


VV 299 (Bootes)



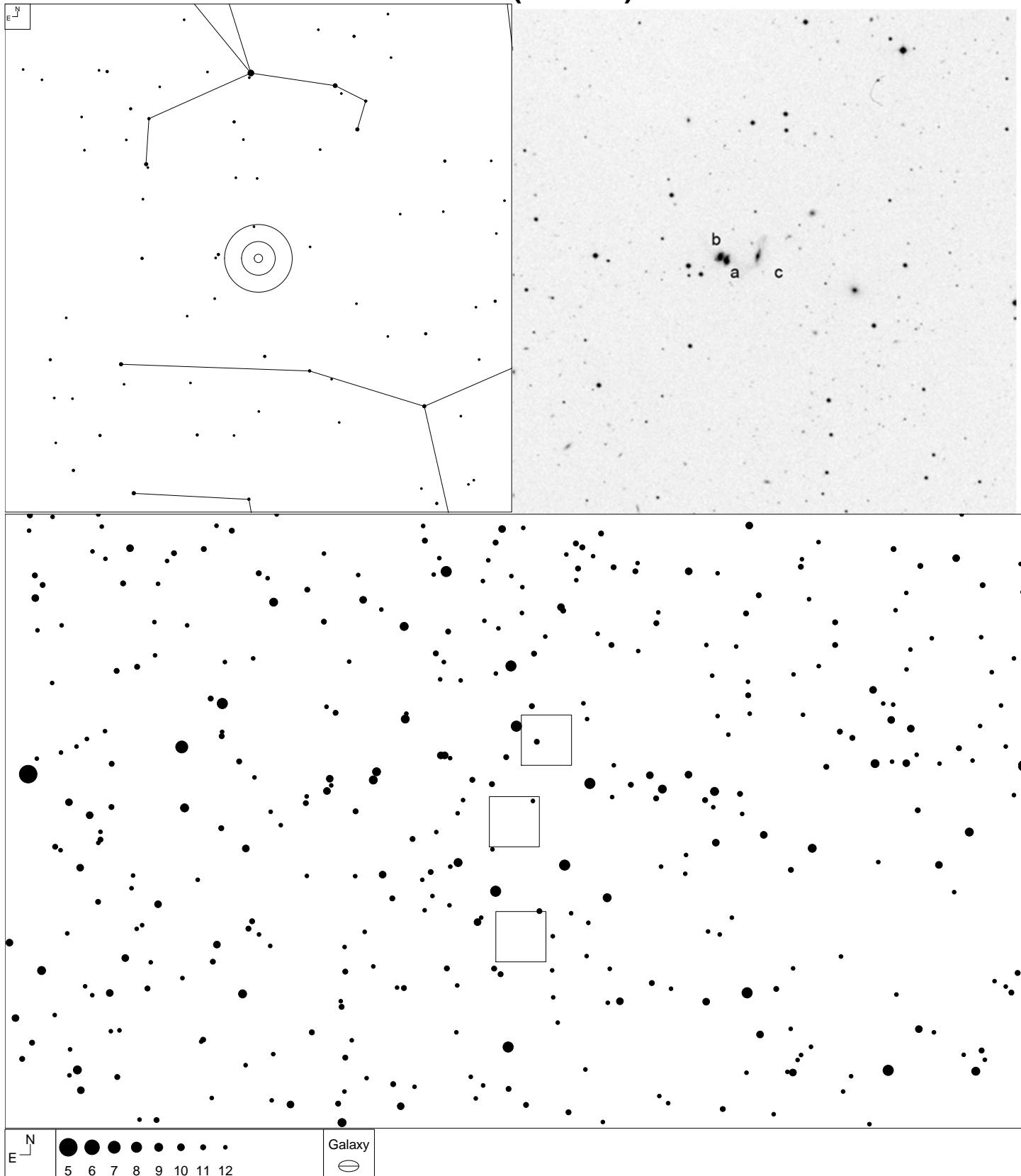
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 299 | 14 13 06.9 | +08 37 31 | GPair | | | PD |
| 299b | 14 13 05.4 | +08 37 55 | G | 15.8g | 6x2 | |
| 299a | 14 13 08.3 | +08 37 08 | G | 15.0 | 6x6 | |

VV 70 (Bootes)



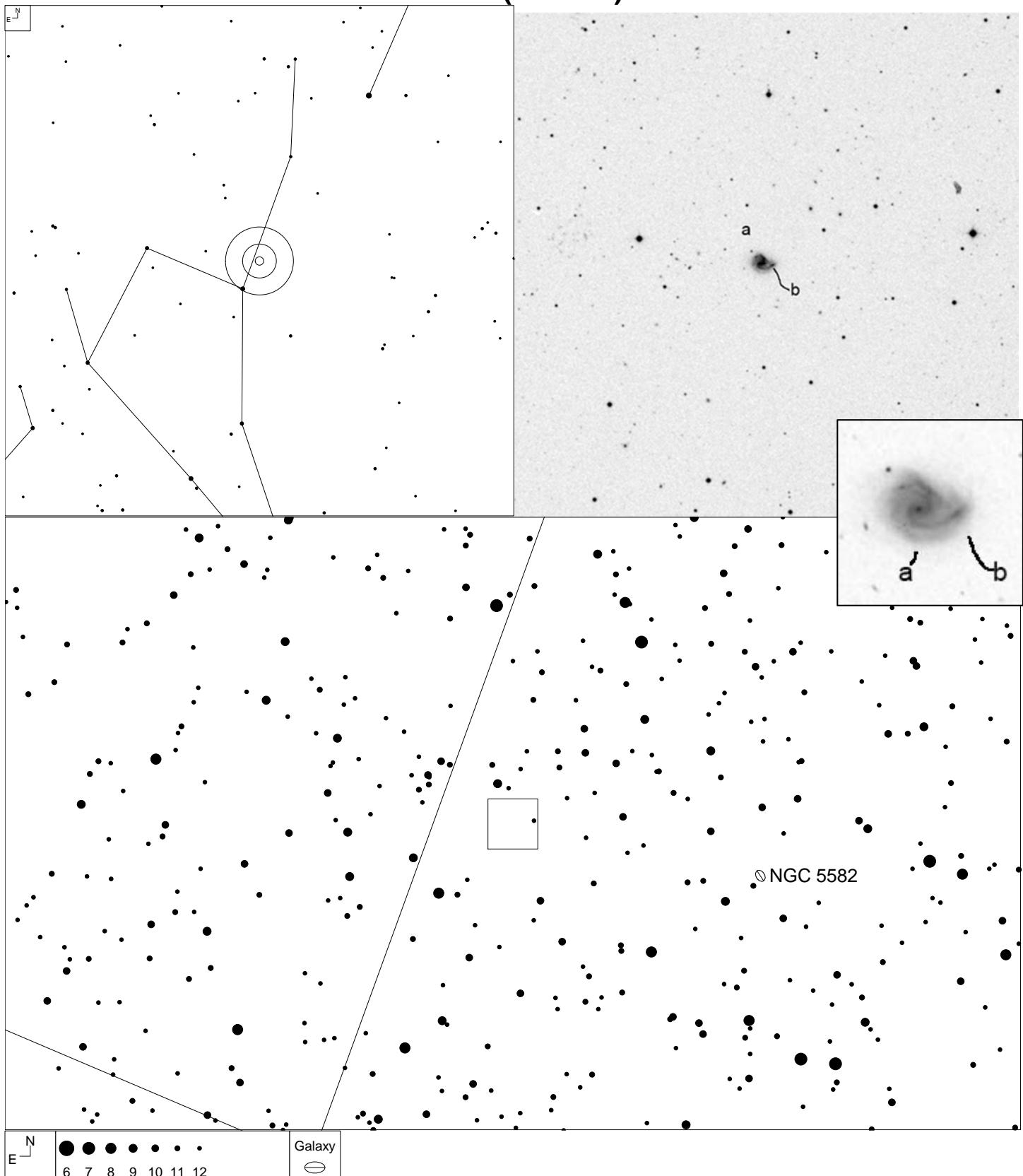
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|-------|-------------|-----------|
| 70 | 14 13 38.8 | +07 39 34 | GPair | 13.7 | | PC |
| 70a | 14 13 38.4 | +07 39 38 | G | 14.5 | 10x5 | |
| 70b | 14 13 39.4 | +07 39 29 | G | 15.50 | 8x7 | |

VV 223 (Bootes)



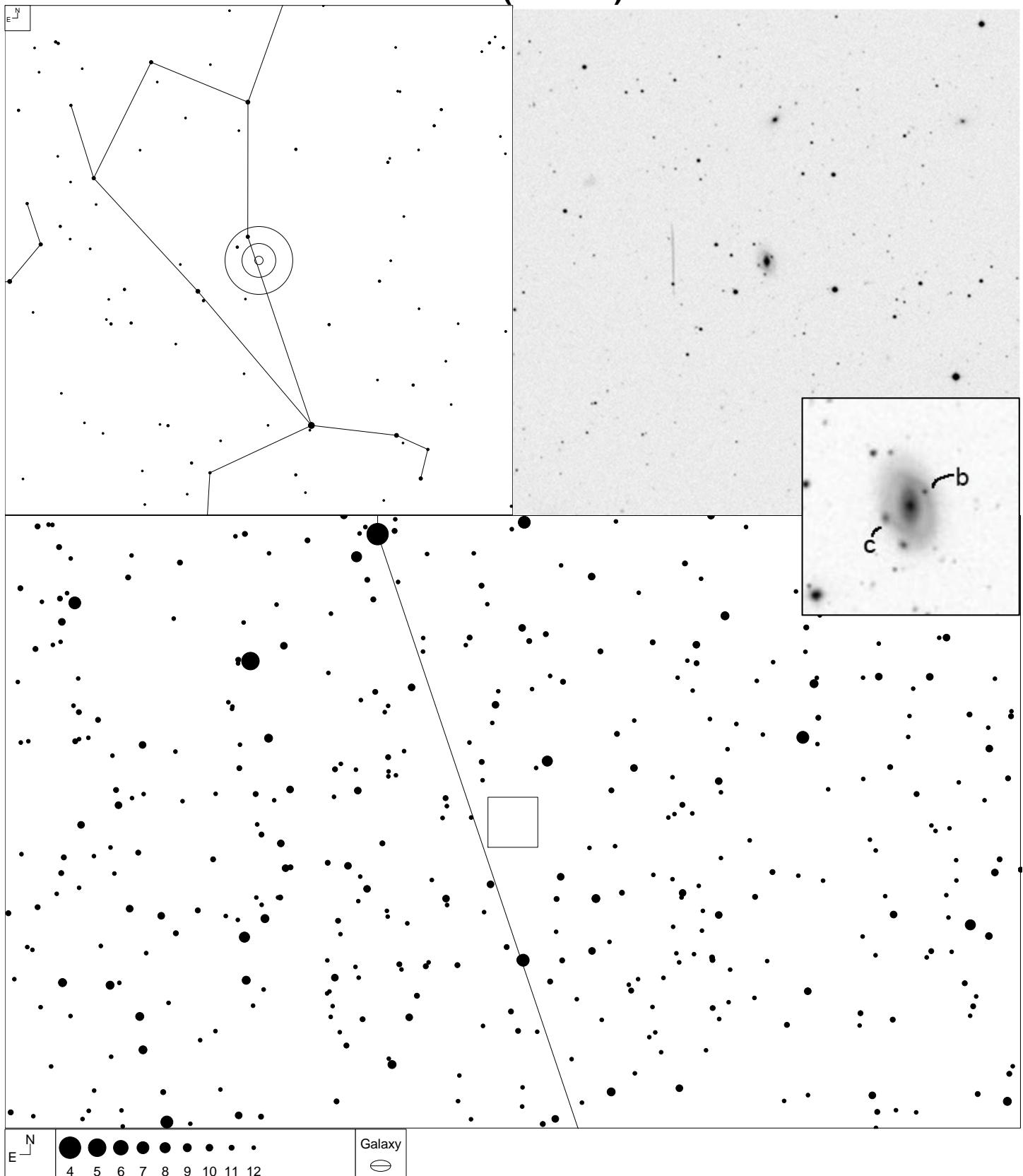
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 223 | 14 13 44.7 | +08 13 13 | GTrpl | | | NNNP |
| 223c | 14 13 42.0 | +08 13 16 | G | 16.0g | 10x2 | |
| 223a | 14 13 45.7 | +08 13 07 | G | 14.7 | 4x2 | |
| 223b | 14 13 46.5 | +08 13 15 | G | 15.3 | 5x2 | |

VV 24 (Bootes)



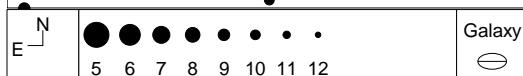
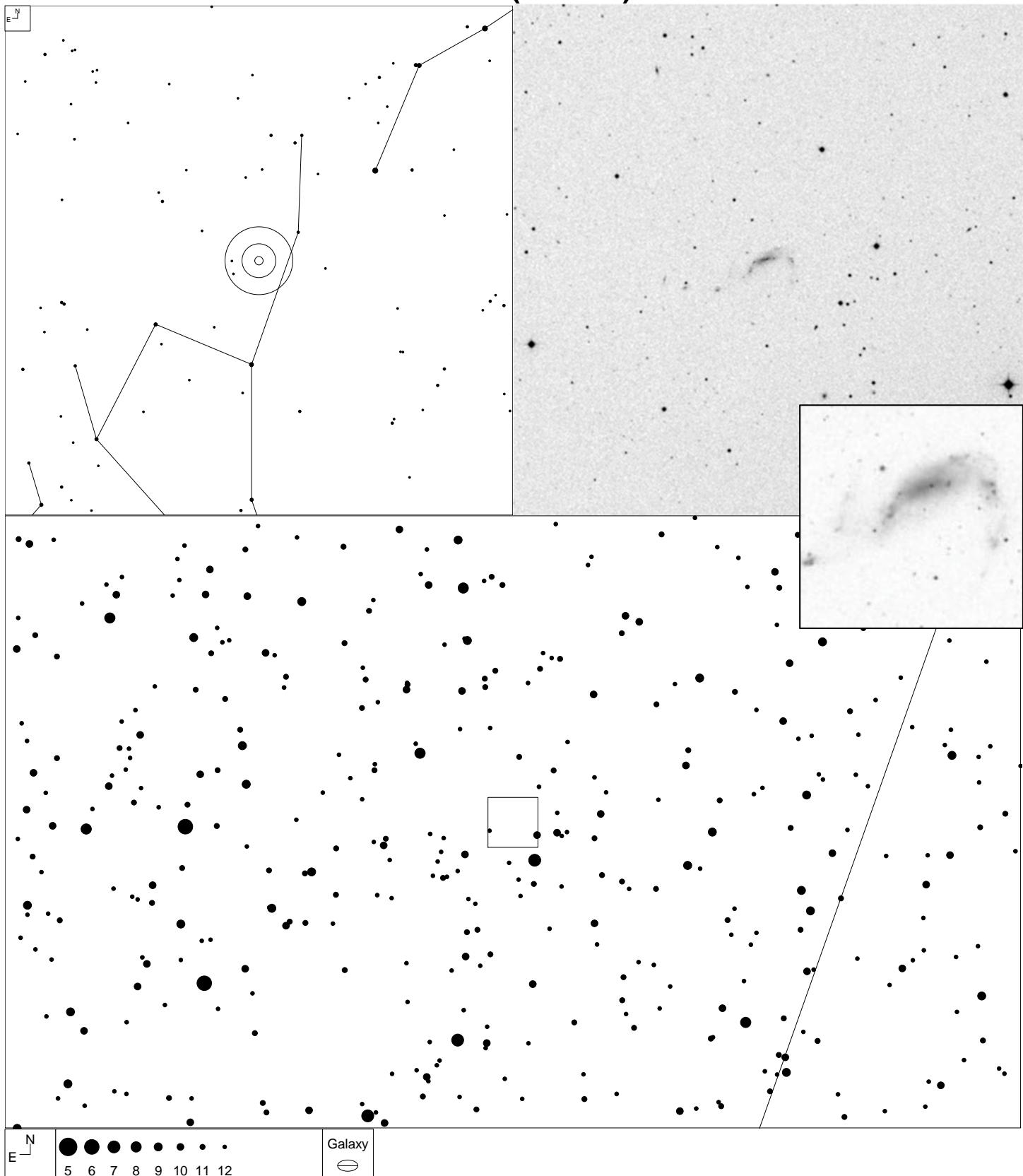
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|-------|-------------|-----------|
| 24 | 14 27 01.5 | +39 57 25 | GPair | 14.8 | 8x6 | M |
| 24b | 14 27 00.6 | +39 57 22 | G | 20.5g | 1x1 | |
| 24a | 14 27 01.6 | +39 57 25 | G | 14.7g | 8x6 | |

VV 15 (Bootes)



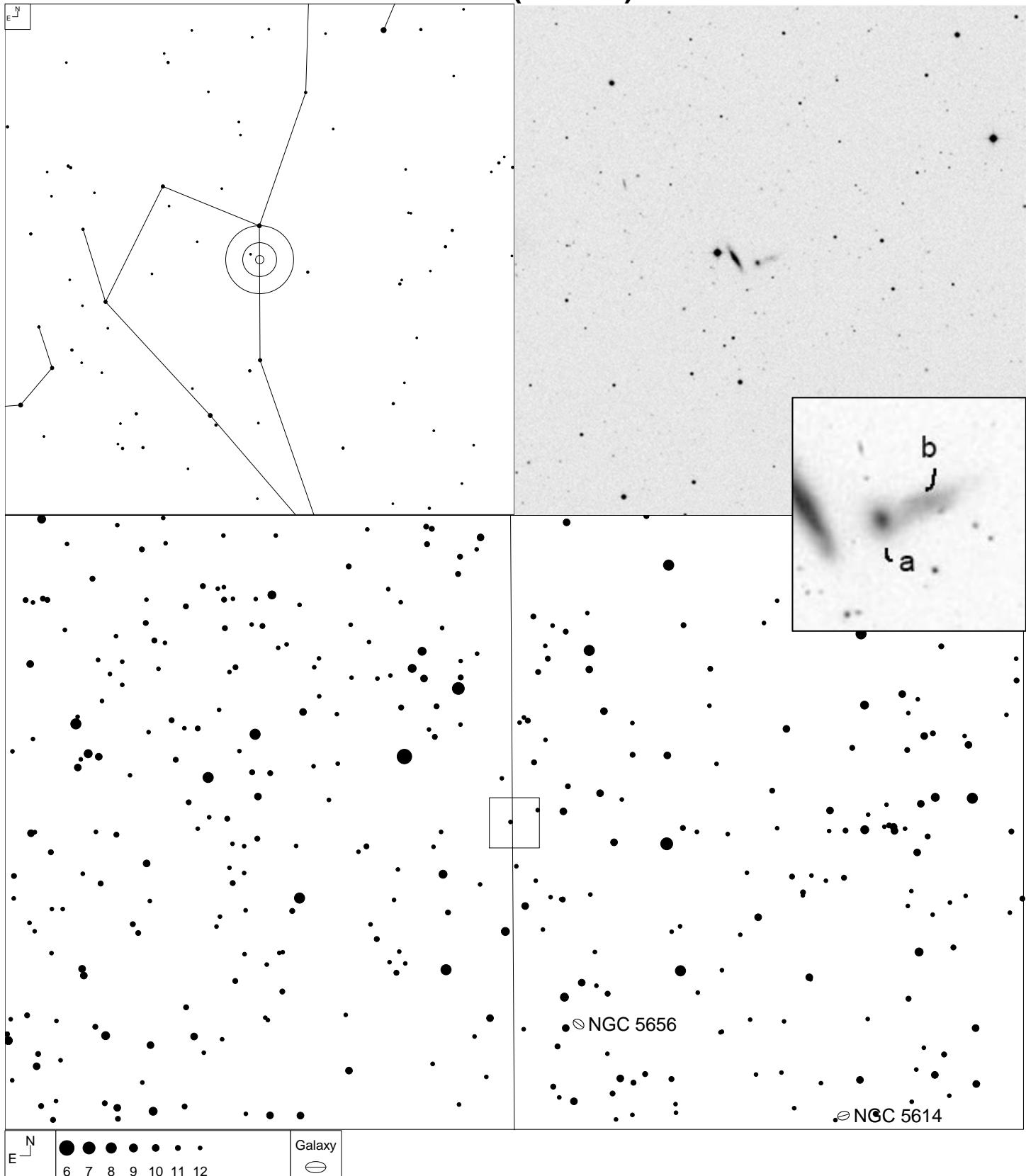
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|-------|-------------|-----------|
| 15 | 14 28 45.3 | +28 57 51 | G | | | M |
| 15b | 14 28 44.6 | +28 58 00 | PofG | 19.6 | 1x1 | |
| 15a | 14 28 45.3 | +28 57 51 | G | 14.9p | 10x6 | |
| 15c | 14 28 46.4 | +28 57 44 | PofG | 18.7g | 2x1 | |

VV 152 (Bootes)



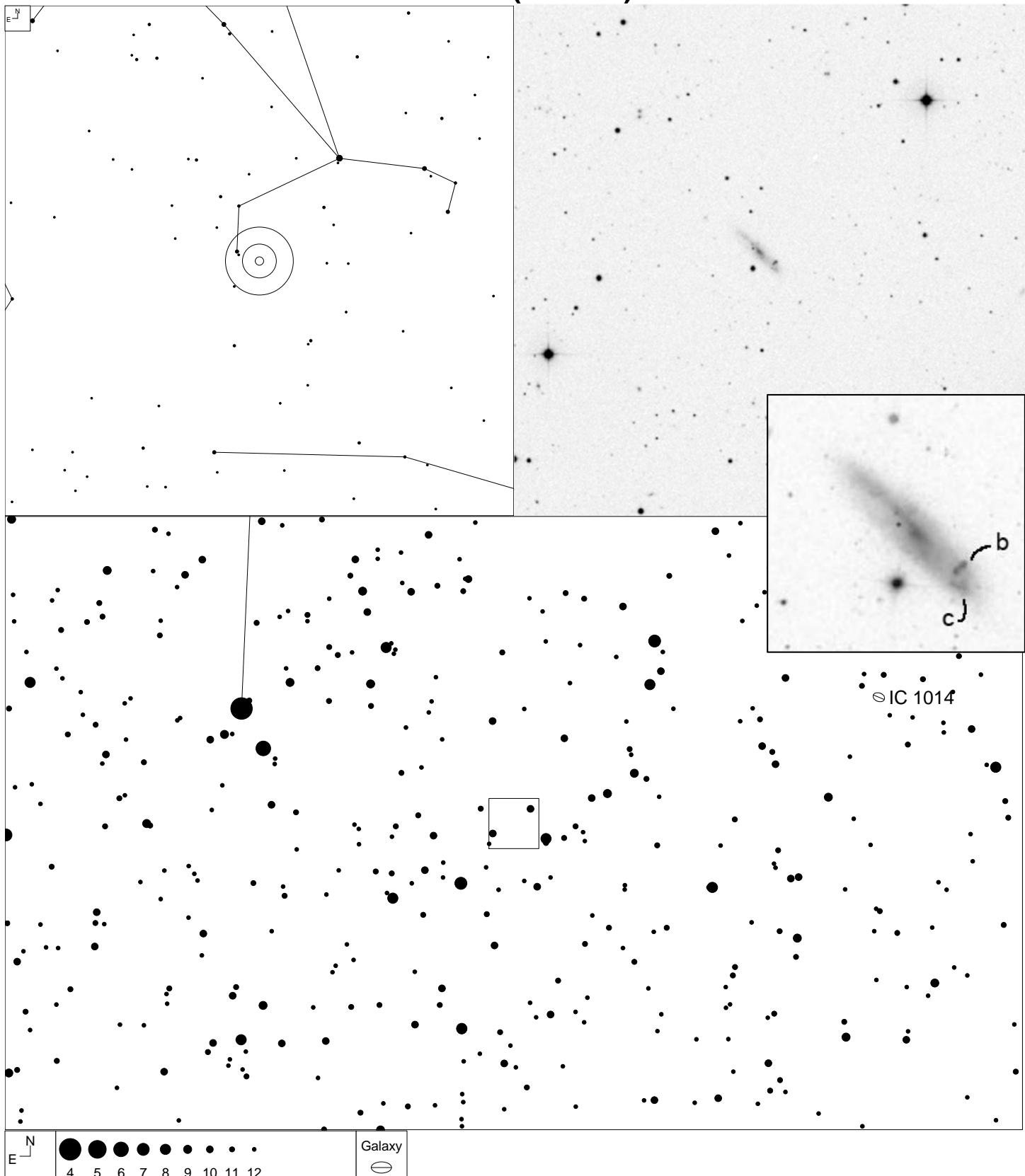
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|------|-------------|-----------|
| 152 | 14 29 50.7 | +44 26 52 | G | 14.9 | 23x1 | N |

VV 262 (Bootes)



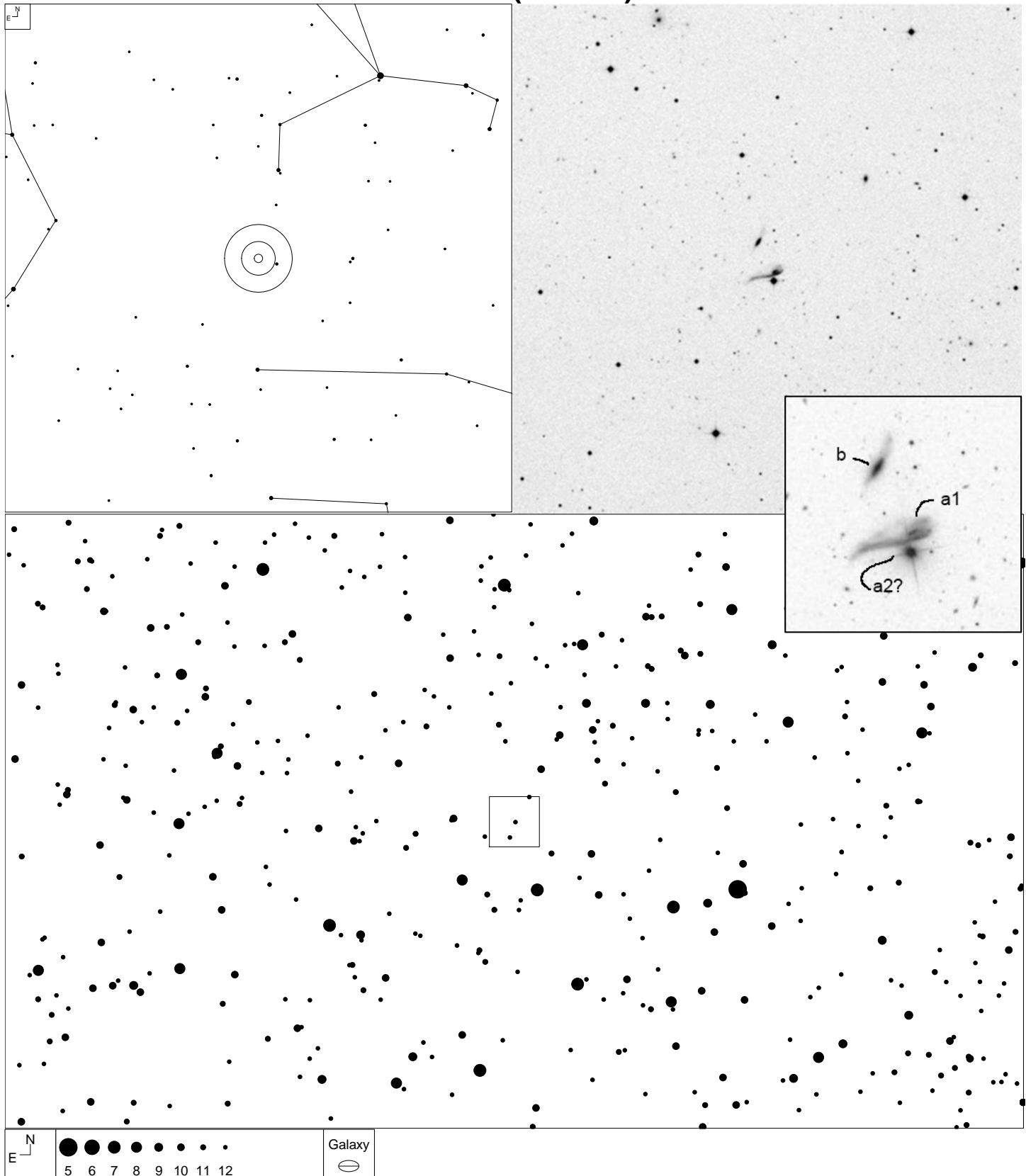
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|------|-------------|-----------|
| 262 | 14 31 56.8 | +36 18 15 | GPair | | | PK |
| 262b | 14 31 55.7 | +36 18 21 | G | 17.0 | 9x3 | |
| 262a | 14 31 57.7 | +36 18 11 | G | 16.3 | | |

VV 146 (Bootes)



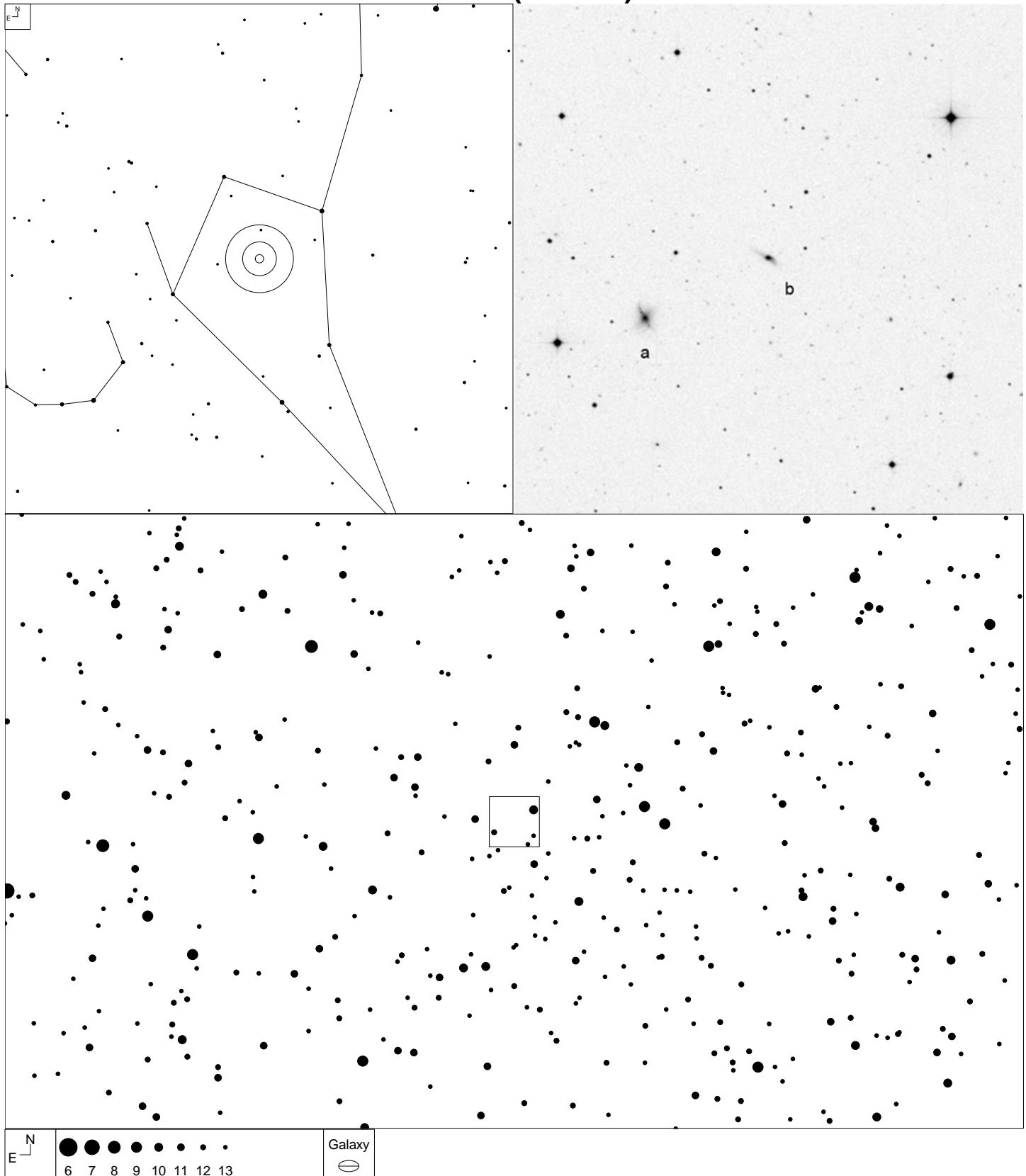
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 146 | 14 35 38.9 | +13 09 56 | GTrpl | 14.10 | 22x7 | N |
| 146c | 14 35 37.9 | +13 09 40 | G | 16 | | |
| 146b | 14 35 38.1 | +13 09 50 | G | 15.0 | | |
| 146a | 14 35 39.9 | +13 10 12 | G | 15.0g | 10x5 | |

VV 109 (Bootes)



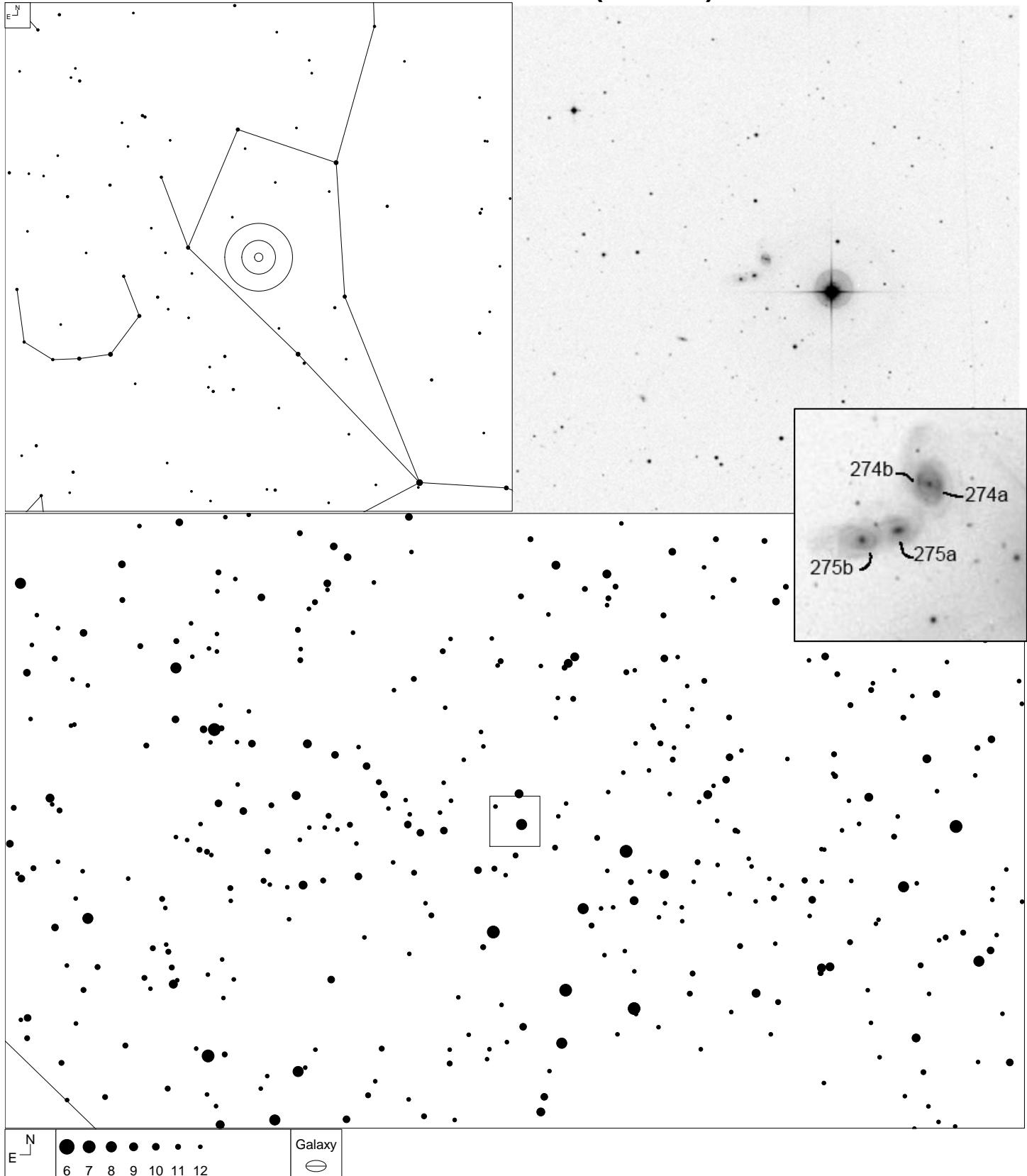
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-------|------------|-----------|----------|-------|-------------|-----------|
| 109 | 14 46 02.8 | +08 30 11 | GTrpl | | | NNNP |
| 109a1 | 14 46 01.8 | +08 29 46 | G | 15.4 | 4x2 | |
| 109a | 14 46 01.8 | +08 29 47 | GPair | 15.4 | 12x4 | |
| 109a2 | 14 46 02.8 | +08 29 43 | G | 16 | 5x3 | |
| 109b | 14 46 03.8 | +08 30 40 | G | 15.7g | 4x2 | |

VV 324 (Bootes)



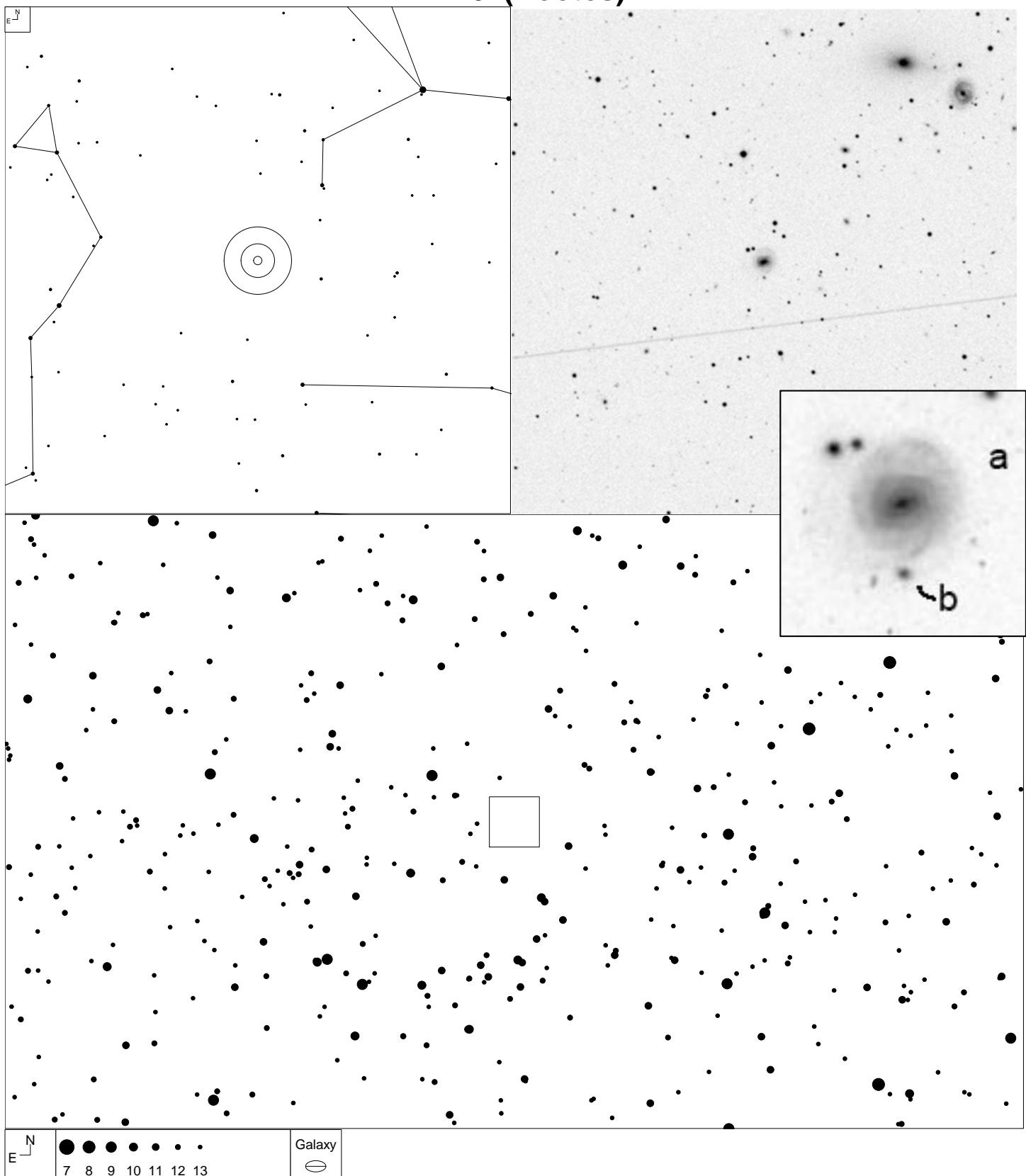
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 324 | 14 51 05.5 | +35 33 23 | GPair | | | PD |
| 324b | 14 50 56.5 | +35 34 18 | G | 14.8b | 10x3 | |
| 324a | 14 51 14.4 | +35 32 29 | G | 14.4b | 11x8 | |

VV 274 and VV 275 (Bootes)



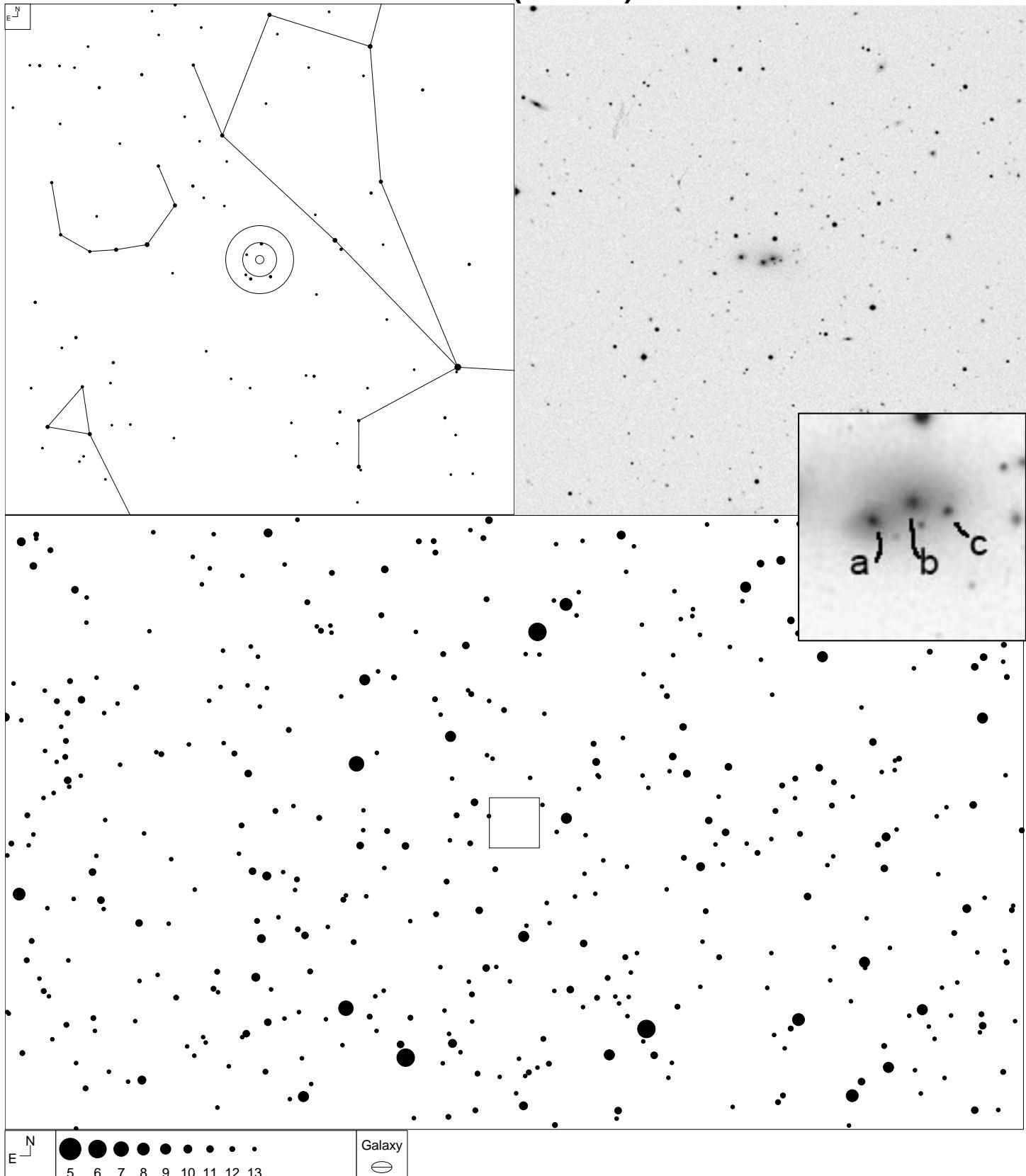
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 274 | 14 55 28.2 | +32 50 25 | GPair | | | PKt |
| 274a | 14 55 28.2 | +32 50 24 | G | 15.6g | 6x5 | |
| 274b | 14 55 28.7 | +32 50 26 | G | 19.9g | 1x1 | |
| 275 | 14 55 30.8 | +32 49 51 | GPair | 16.0 | 12x5 | PDt |
| 275a | 14 55 29.8 | +32 49 54 | G | 16.5g | 5x3 | |
| 275b | 14 55 31.7 | +32 49 47 | G | 16.3g | 8x4 | |

VV 26 (Bootes)



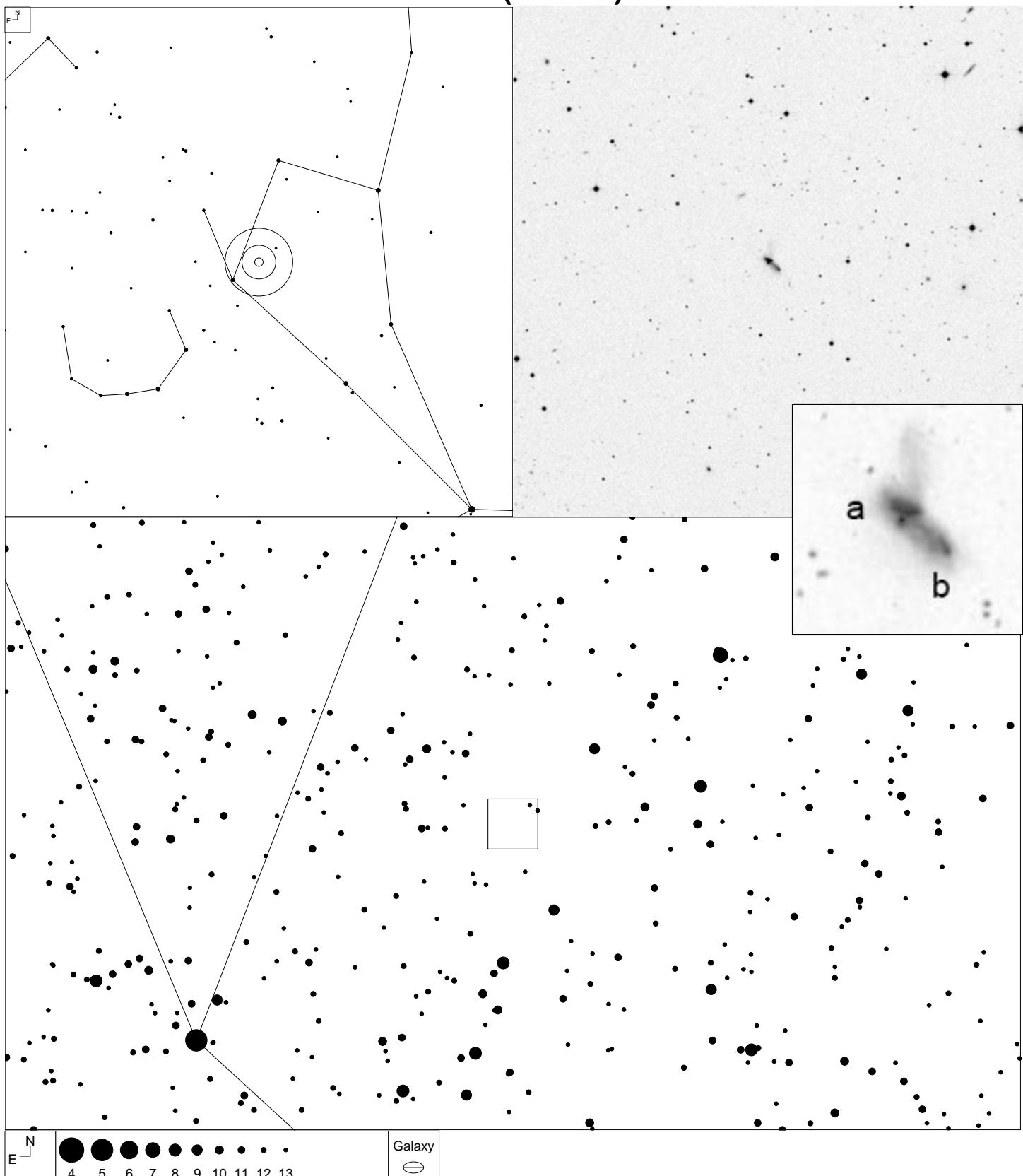
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|-------|-------------|-----------|
| 26 | 14 56 53.1 | +09 16 18 | GPair | | | M |
| 26a | 14 56 53.1 | +09 16 18 | G | 14.39 | 10x9 | |
| 26b | 14 56 53.1 | +09 15 49 | PofG | | | |

VV 204 (Bootes)



| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 204 | 15 04 57.2 | +26 00 54 | G | 15.24 | | NNNP |
| 204c | 15 04 56.1 | +26 00 55 | G | 18.1g | 2x2 | |
| 204b | 15 04 57.1 | +26 00 58 | G | 15.5g | 7x6 | |
| 204a | 15 04 58.3 | +26 00 51 | G | 16.2g | 5x4 | |

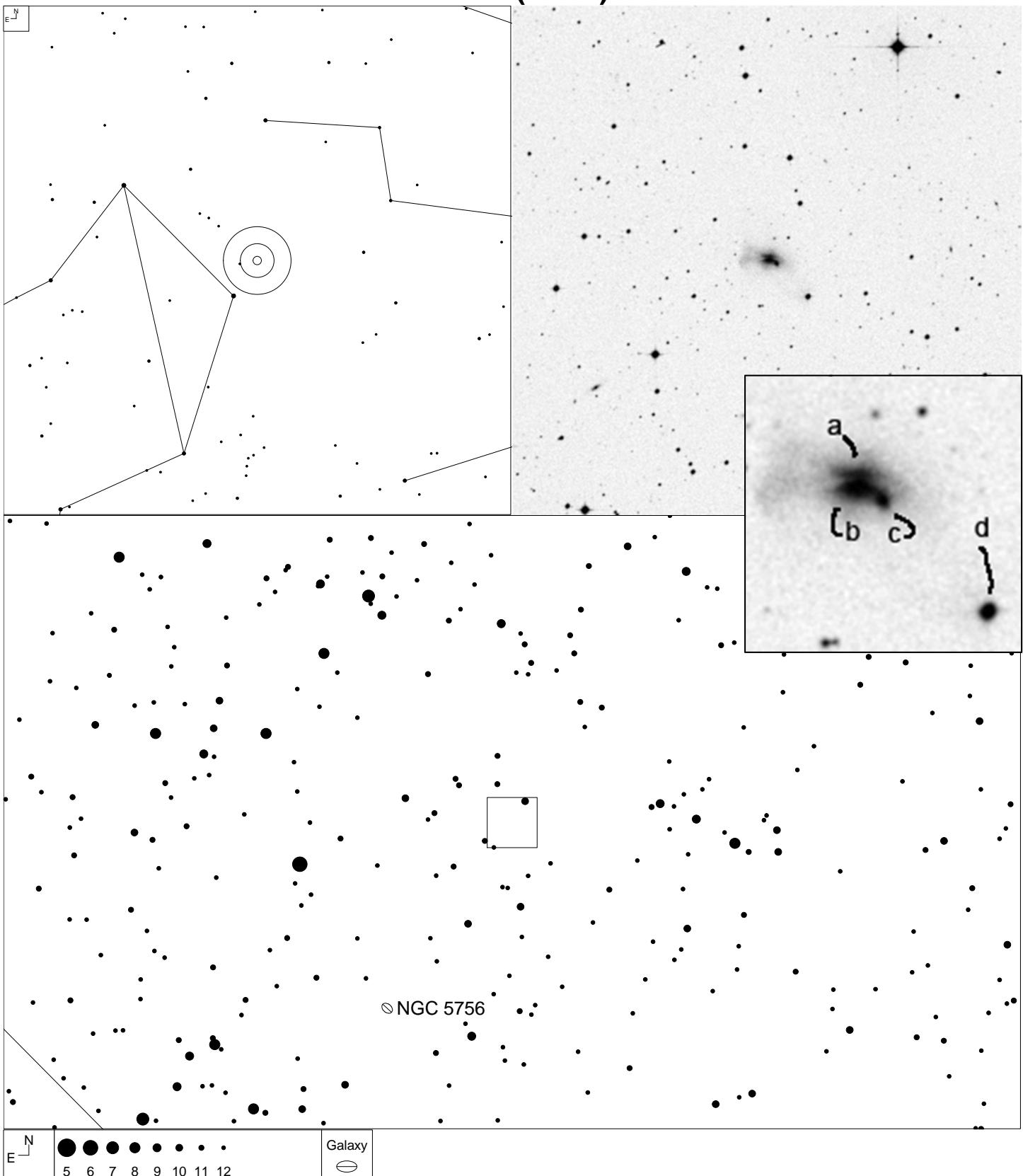
VV 59 (Bootes)



| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|-------|-------------|-----------|
| 59 | 15 08 04.9 | +34 23 14 | GPair | 15.9g | 10x3 | N |
| 59b | 15 08 04.3 | +34 23 07 | G | 15.6 | 1x1 | |
| 59a | 15 08 05.8 | +34 23 24 | G | 13.8 | 1x1 | |

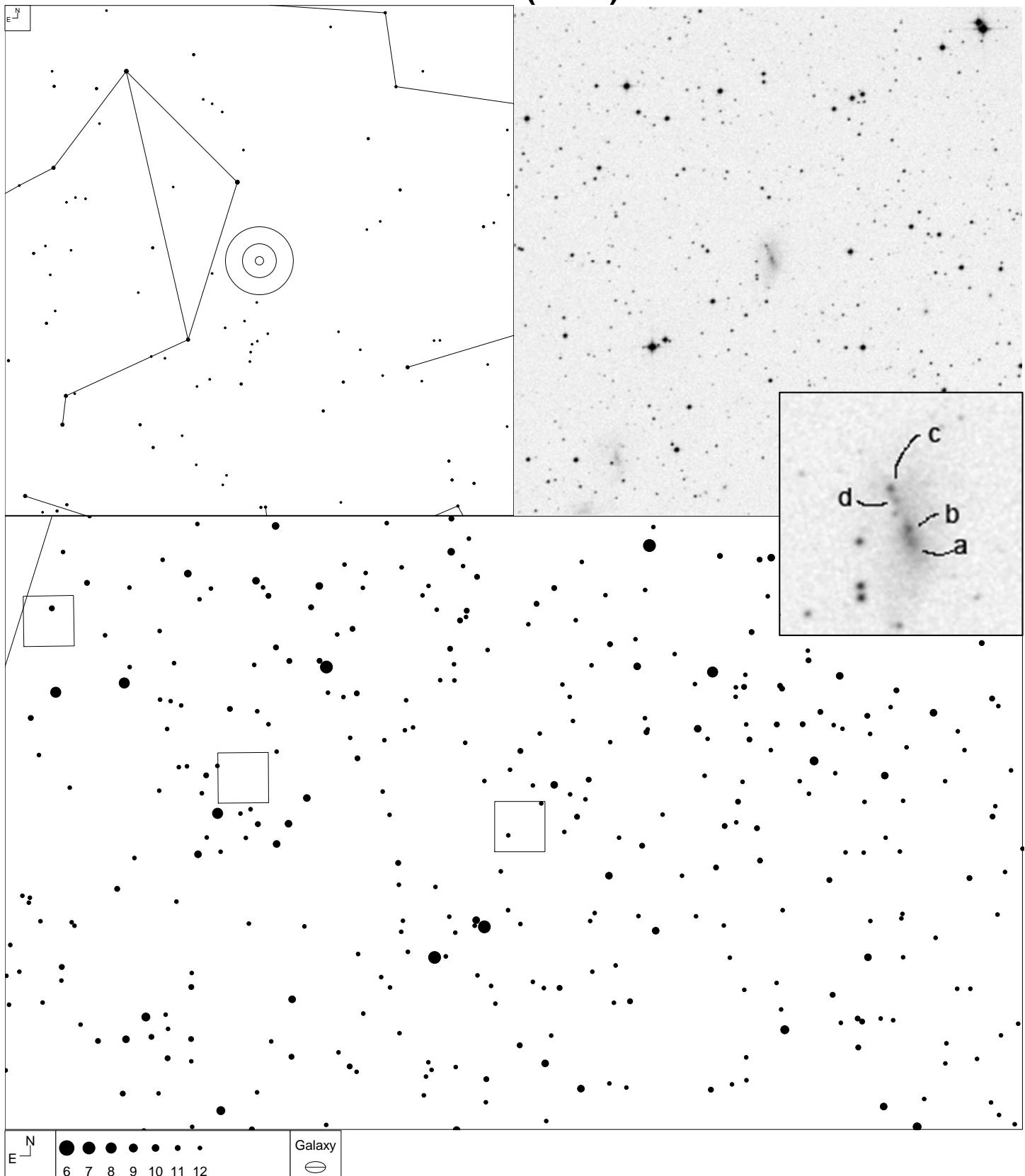
This object is also known as Rose 25.

VV 98 (Libra)



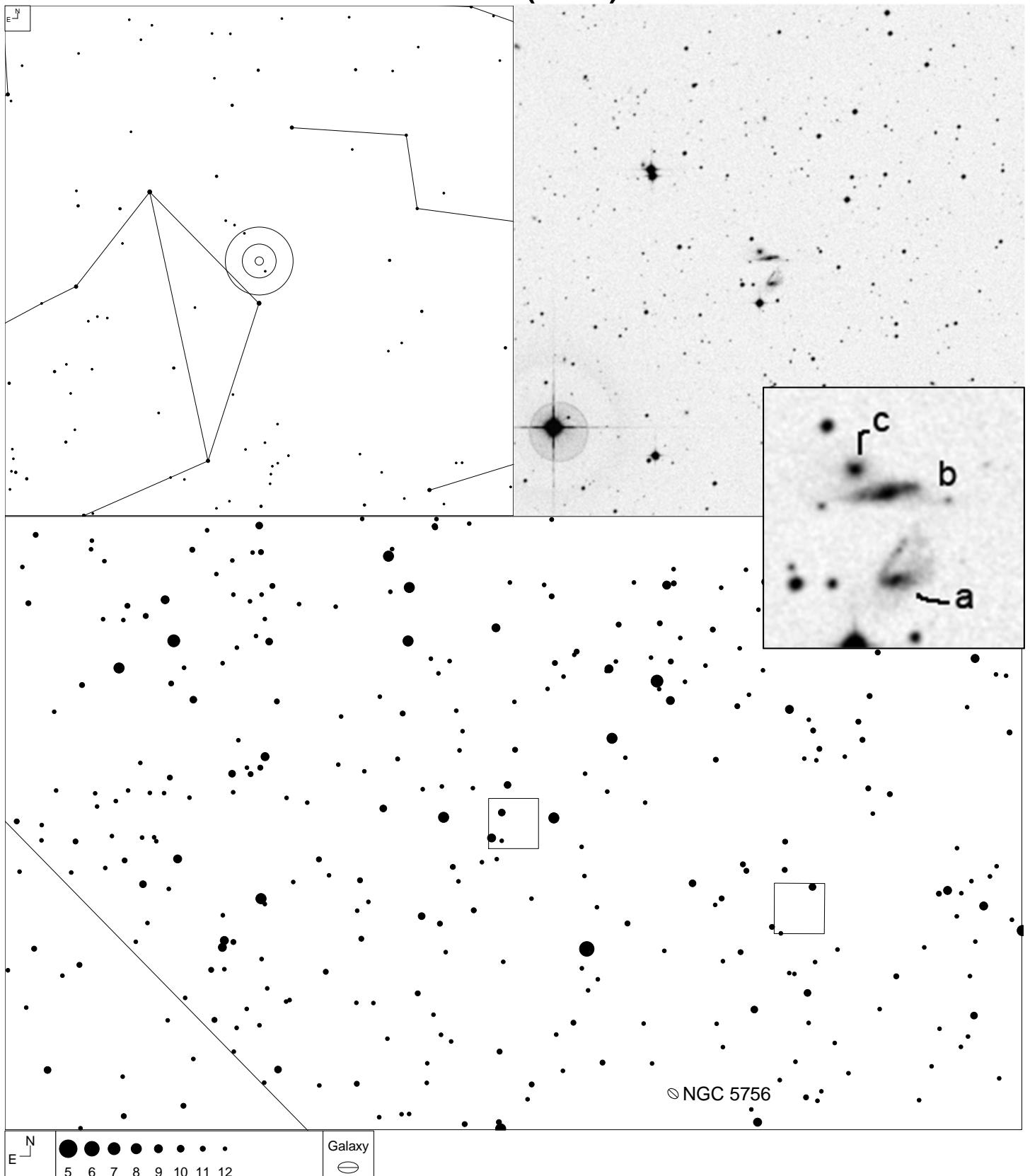
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|-------|-------------|-----------|
| 98 | 14 45 01.6 | -13 56 48 | GGroup | 13.3 | 16x10 | PC |
| 98d | 14 44 57.2 | -13 57 54 | Star | 14.0b | | |
| 98c | 14 45 00.9 | -13 56 56 | G | 14.96 | | |
| 98a | 14 45 01.9 | -13 56 40 | G | 14.96 | | |
| 98b | 14 45 01.9 | -13 56 50 | G | 15.45 | | |

VV 164 (Libra)



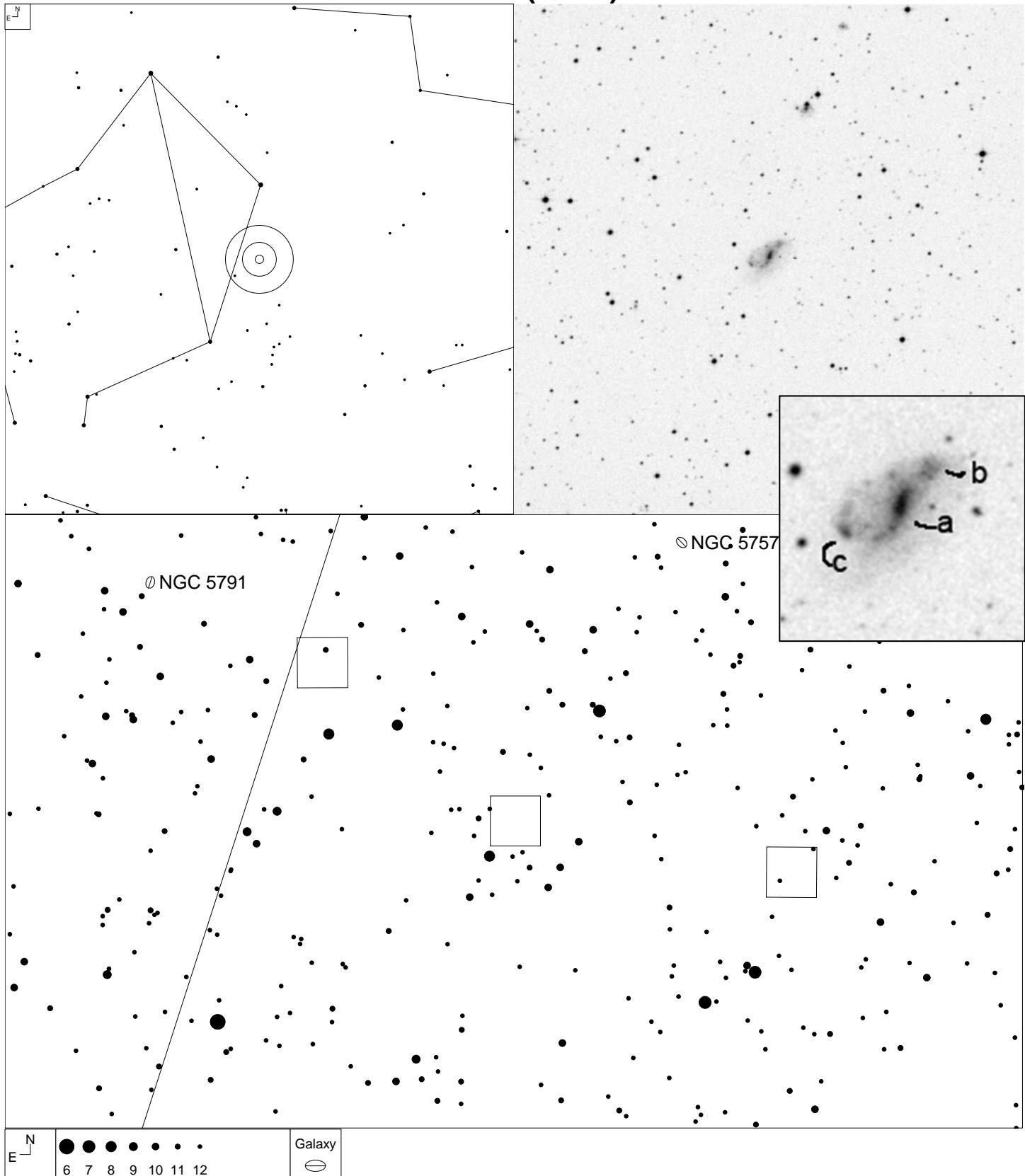
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 164 | 14 45 25.8 | -20 41 07 | G | 15.03 | 14x8 | Ch |
| 164a | 14 45 25.5 | -20 41 13 | PofG | | | |
| 164b | 14 45 25.7 | -20 41 07 | PofG | | | |
| 164d | 14 45 16.1 | -20 40 51 | PofG | | | |
| 164c | 14 45 26.3 | -20 40 45 | PofG | | | |

VV 322 (Libra)



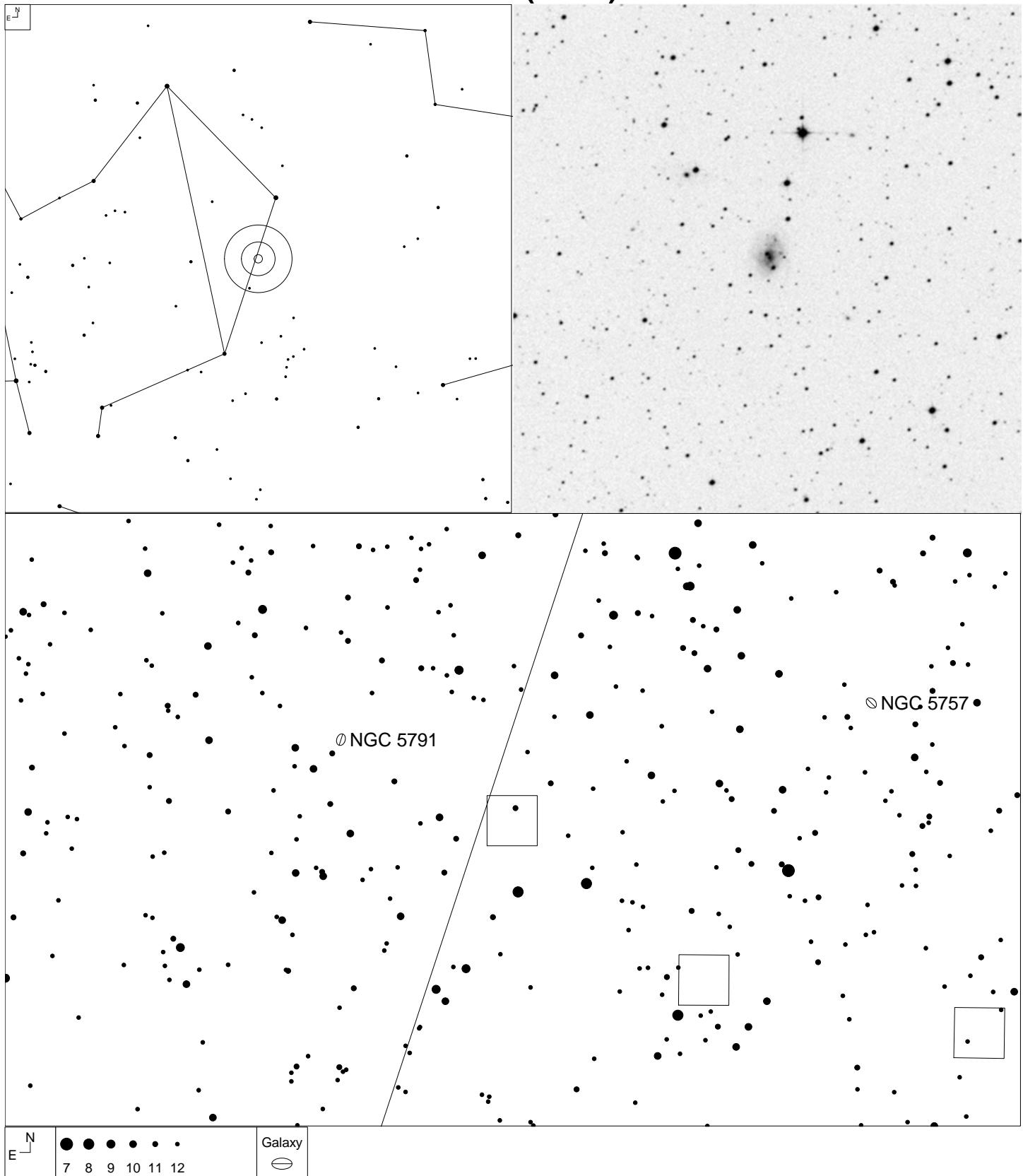
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|------|-------------|-----------|
| 322 | 14 50 48.6 | -13 31 49 | GTrpl | | | NNN |
| 322a | 14 50 47.9 | -13 32 16 | G | 15.5 | 6x5 | |
| 322b | 14 50 48.2 | -13 31 31 | G | 15.5 | 7x2 | |
| 322c | 14 50 49.3 | -13 31 19 | G | 17 | 3x3 | |

VV 130 (Libra)



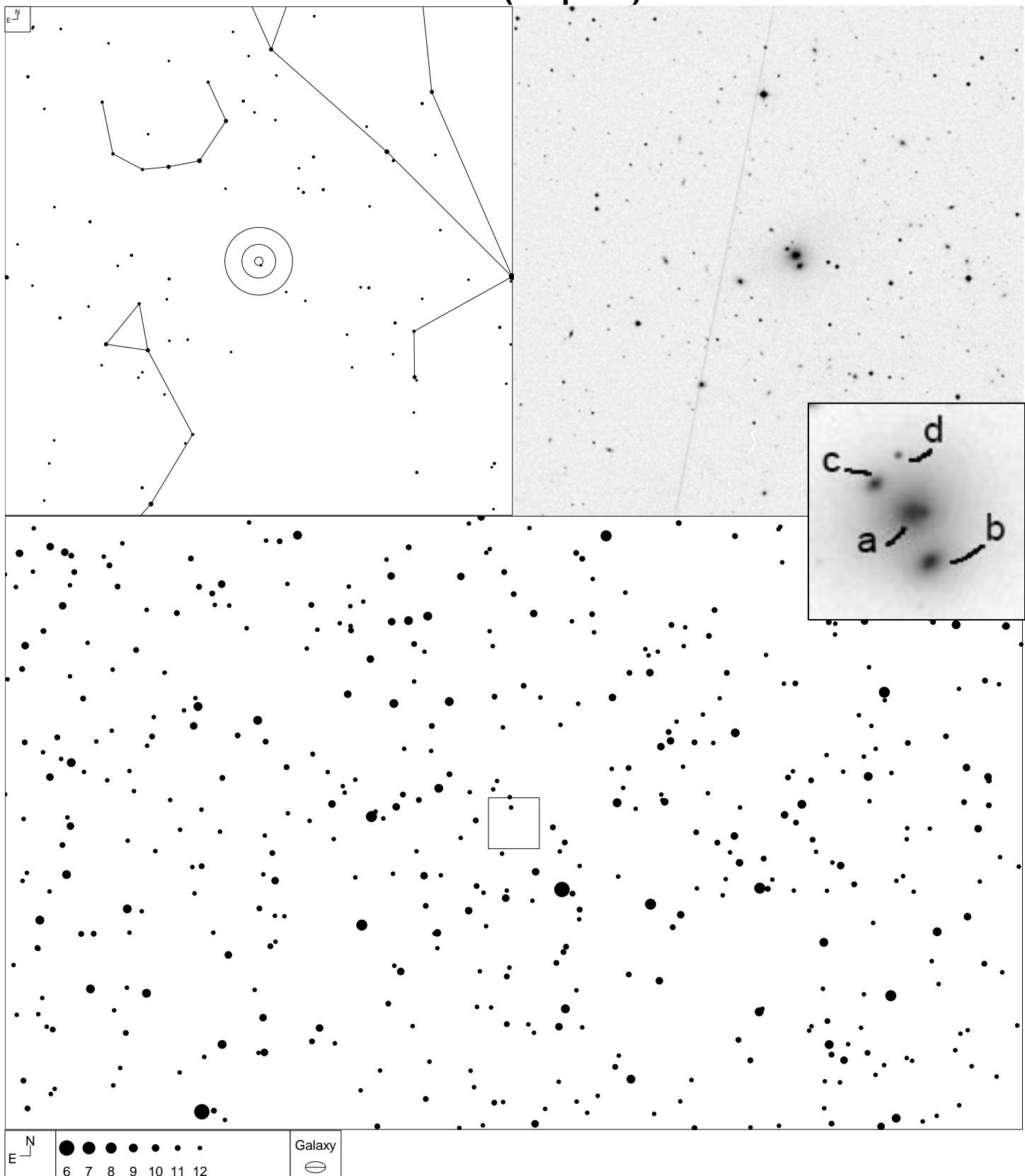
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 130 | 14 51 12.4 | -20 26 27 | G | 13.98 | 20x11 | NNN |
| 130b | 14 51 10.9 | -20 26 03 | PofG | | | |
| 130a | 14 51 12.1 | -20 26 24 | PofG | | | |
| 130c | 14 51 12.5 | -20 26 41 | PofG | | | |

VV 137 (Libra)



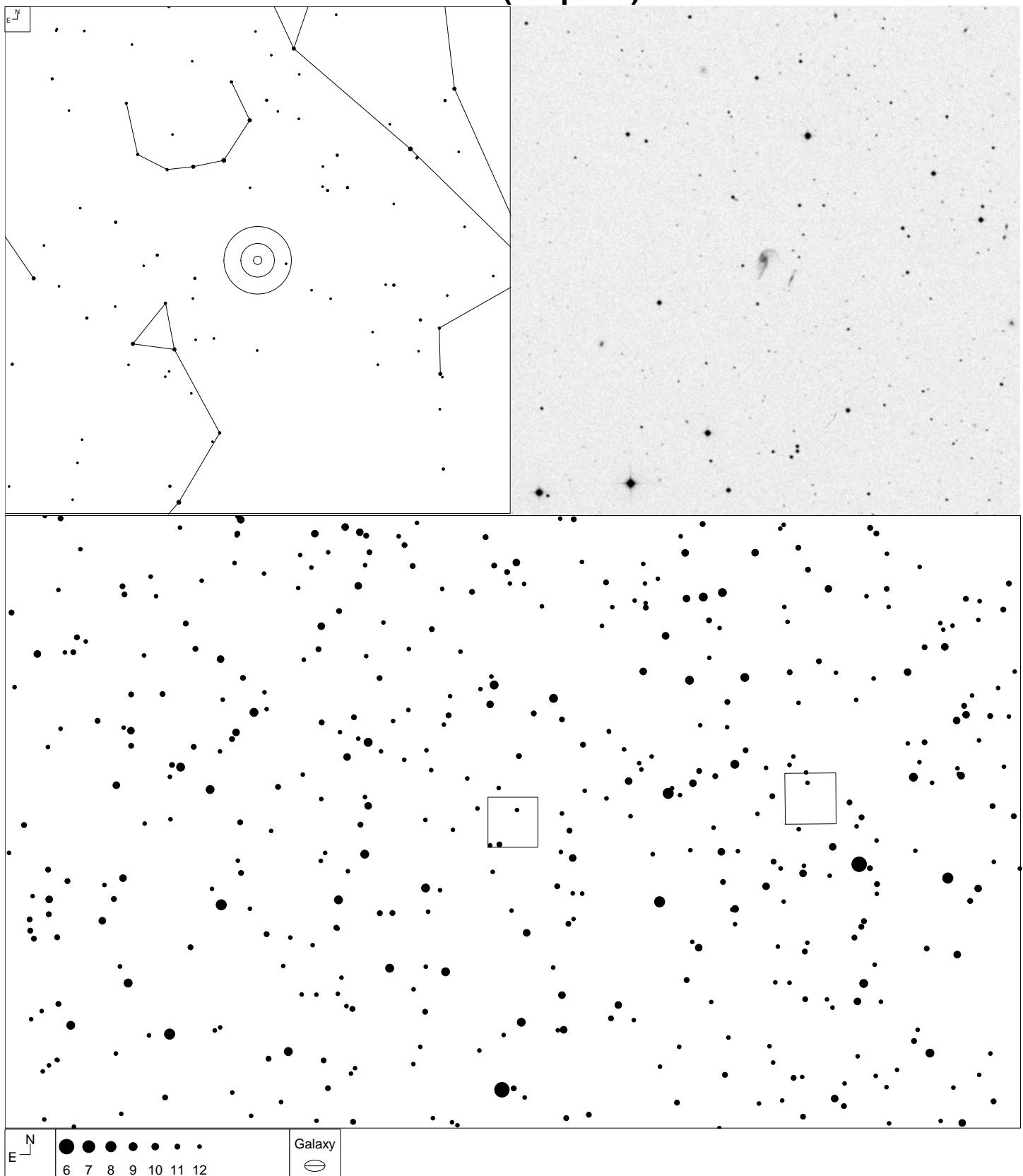
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|-------|-------------|-----------|
| 137 | 14 55 12.8 | -19 39 53 | G | 14.06 | 17x1 | N |

VV 139 (Serpens)



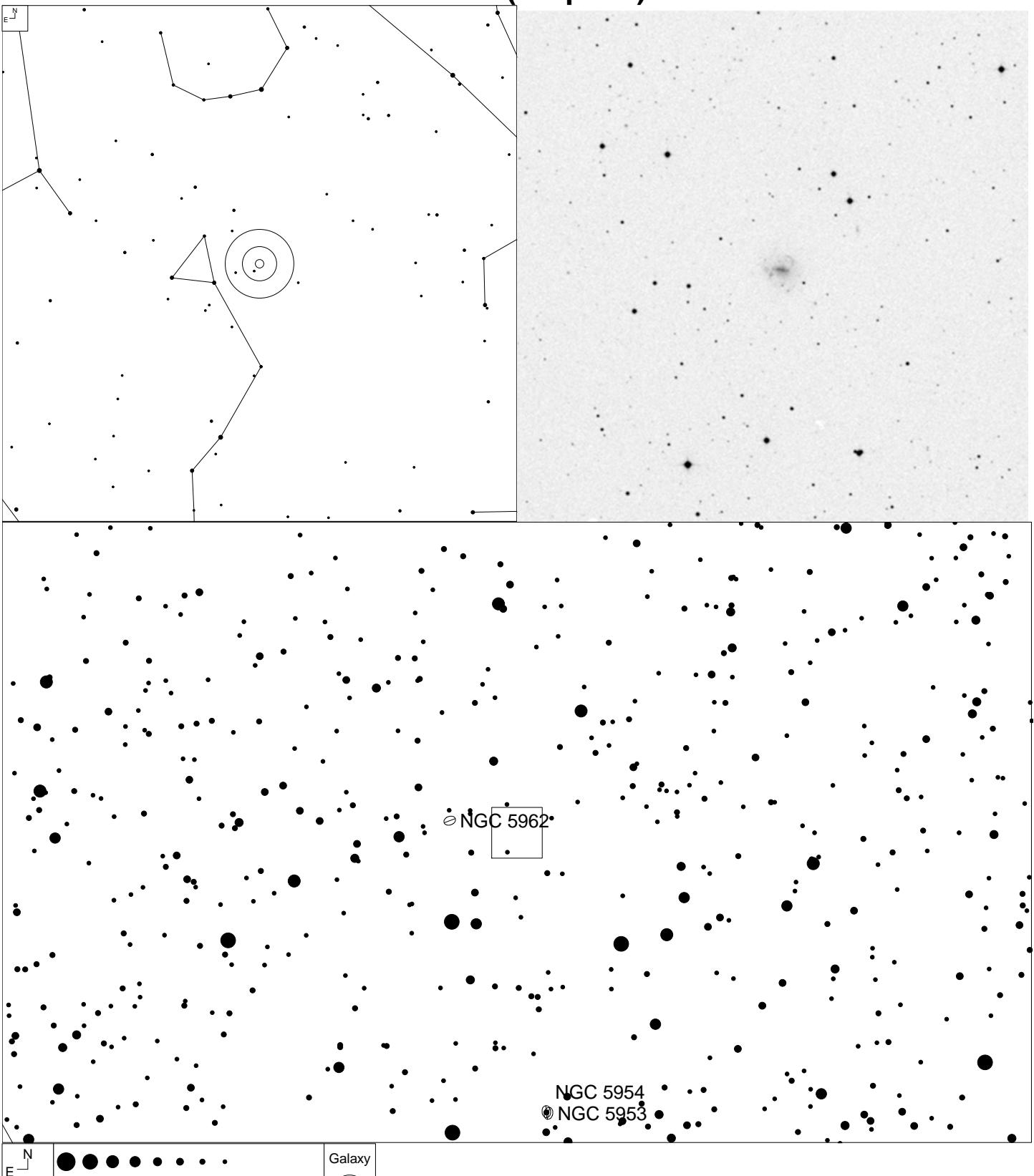
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 139 | 15 19 28.2 | +20 53 37 | GGroup | | | N |
| 139b | 15 19 24.2 | +20 53 27 | G | 15.65 | 6x4 | |
| 139a | 15 19 24.7 | +20 53 47 | G | 14.96 | 8x8 | |
| 139d | 15 19 25.2 | +20 54 10 | G | 19.2g | 1x1 | |
| 139c | 15 19 25.8 | +20 53 58 | G | 17.00 | 5x3 | |

VV 227 (Serpens)



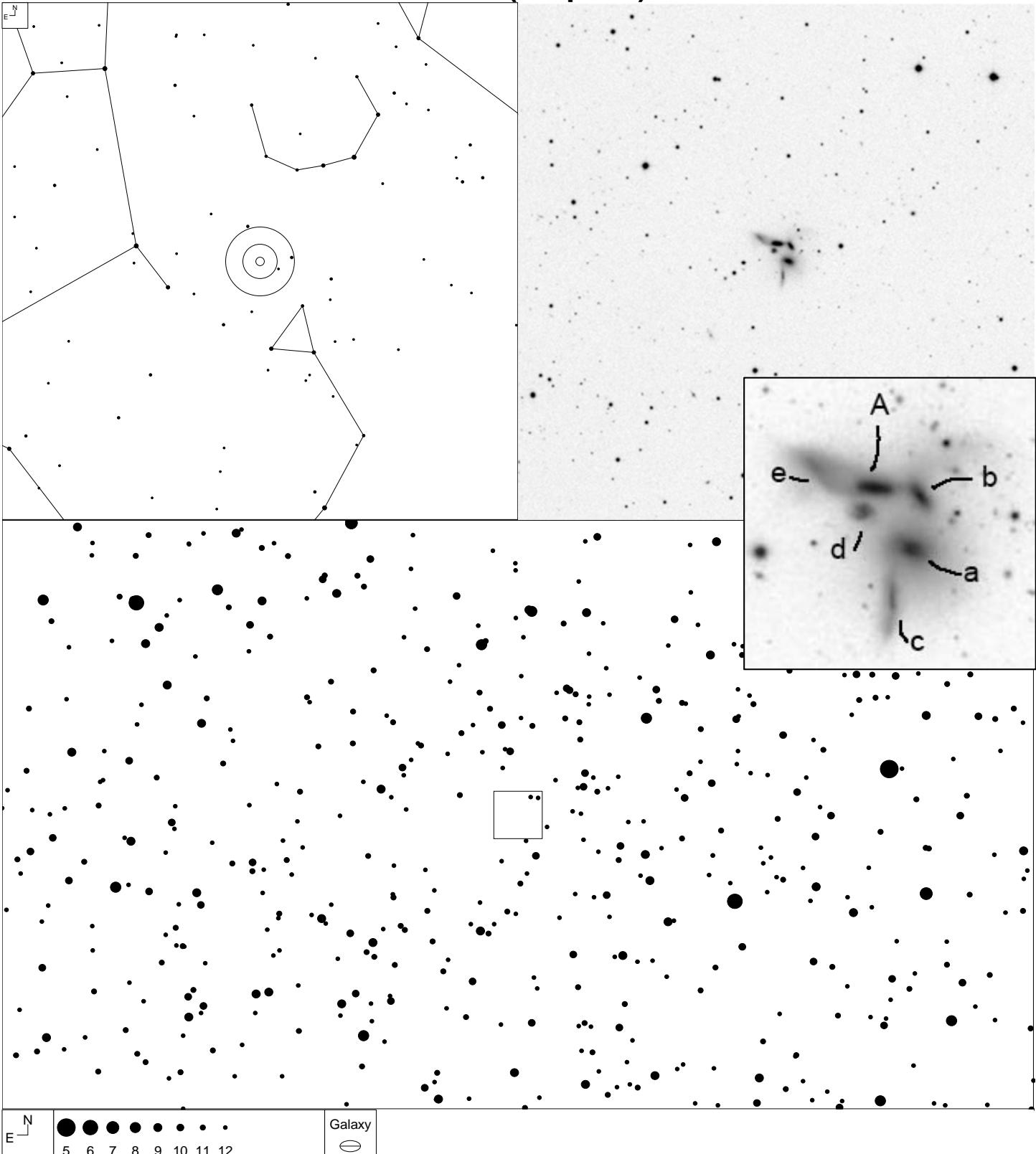
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|------|-------------|-----------|
| 227 | 15 25 39.8 | +20 47 18 | GPair? | 15.5 | 11x7 | PK |

VV 132 (Serpens)



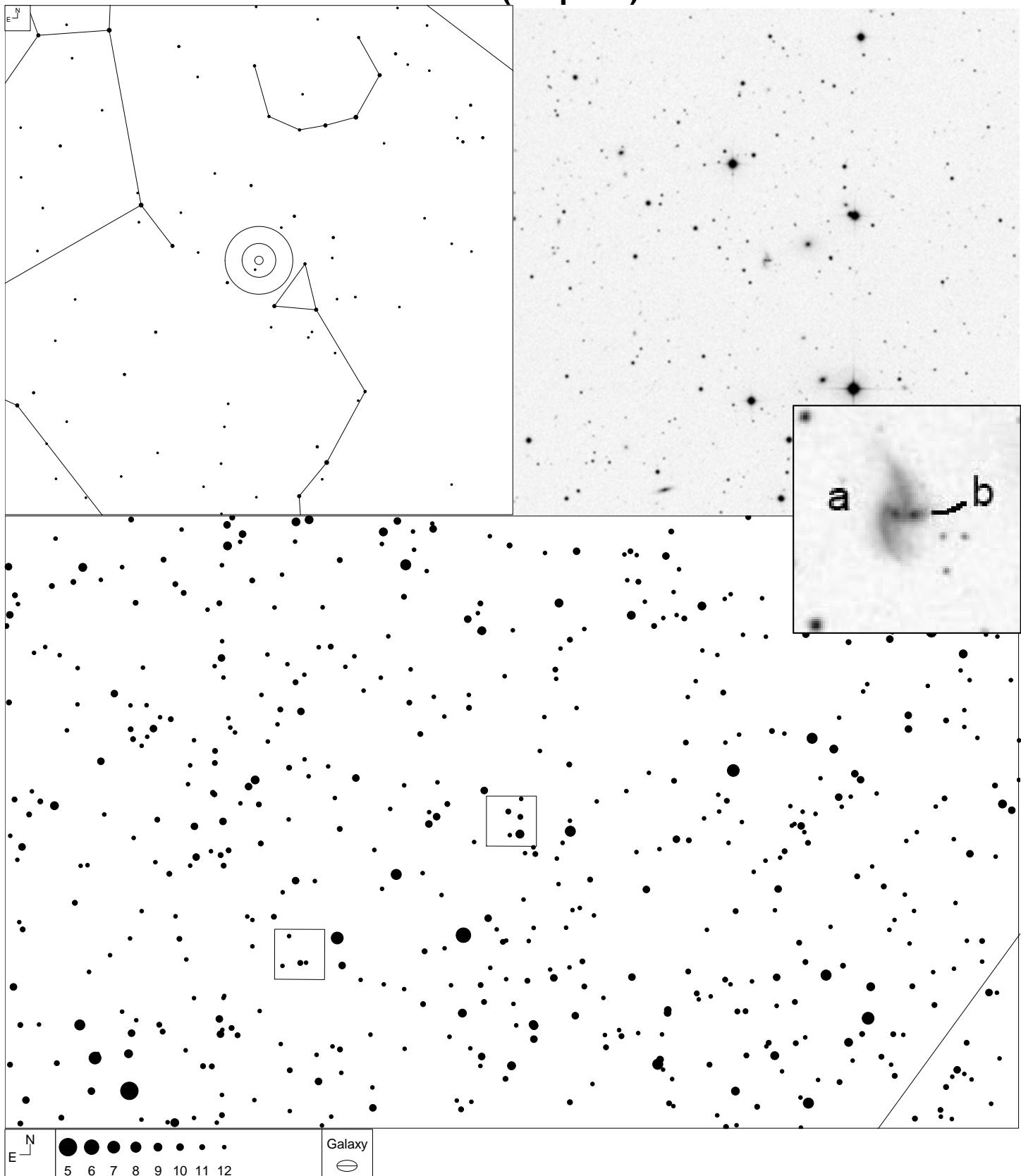
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|-----|-------------|-----------|
| 132 | 15 35 10.5 | +16 32 58 | G | 14 | 17x17 | N |

VV 115 (Serpens)



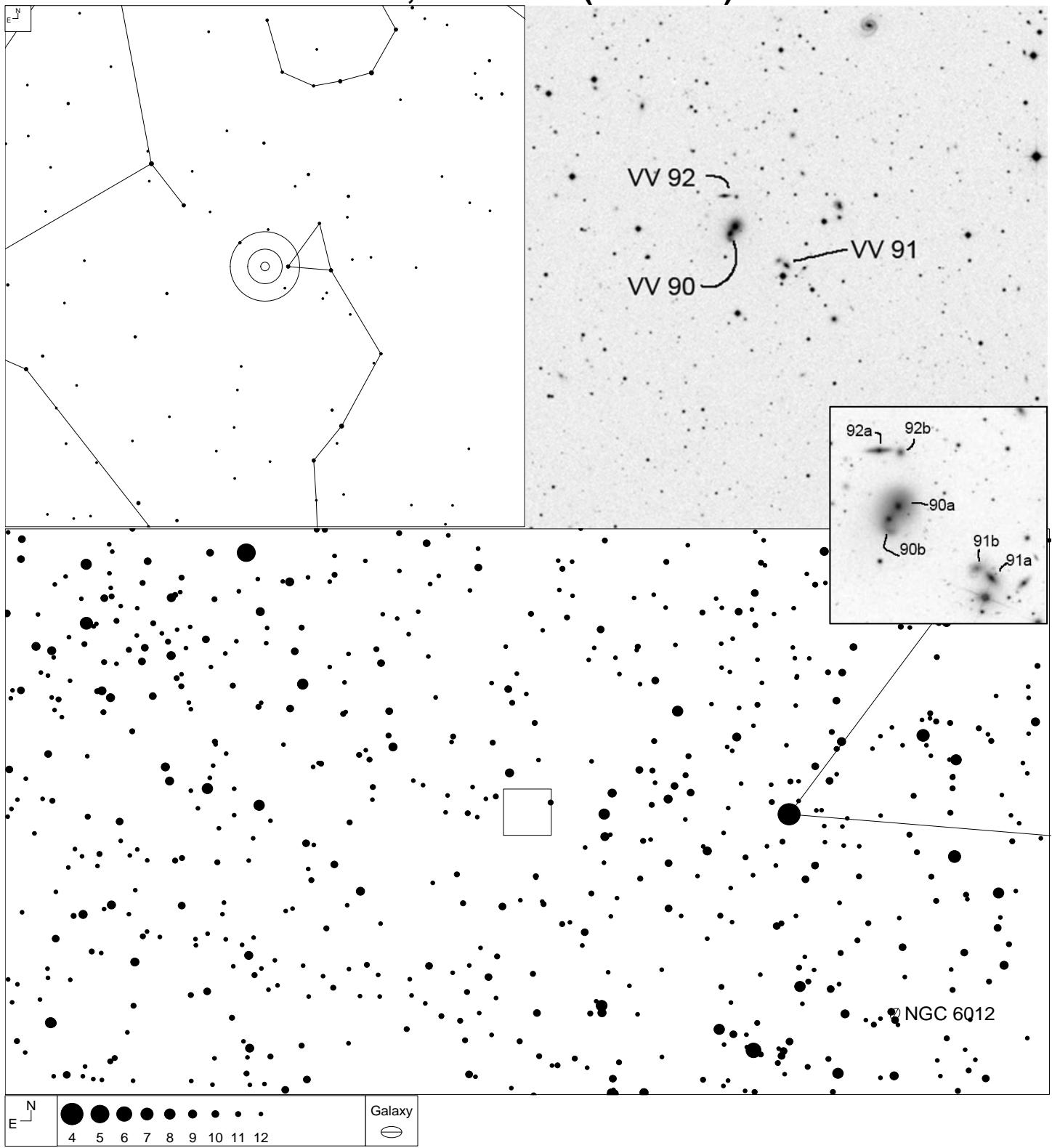
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 115 | 15 59 11.9 | +20 45 31 | GGroup | | | NNN |
| 115b | 15 59 10.8 | +20 45 44 | G | 15.31 | 4x2 | |
| 115a | 15 59 11.1 | +20 45 17 | G | 14.98 | 5x4 | |
| 115c | 15 59 11.8 | +20 44 49 | G | 16.75 | 9x2 | |
| 115A | 15 59 12.5 | +20 45 48 | G | 14.7 | 4x2 | |
| 115d | 15 59 12.9 | +20 45 36 | G | 16.47 | 2x2 | |
| 115e | 15 59 14.5 | +20 45 57 | G | 16.7 | 8x4 | |

VV 156 (Serpens)

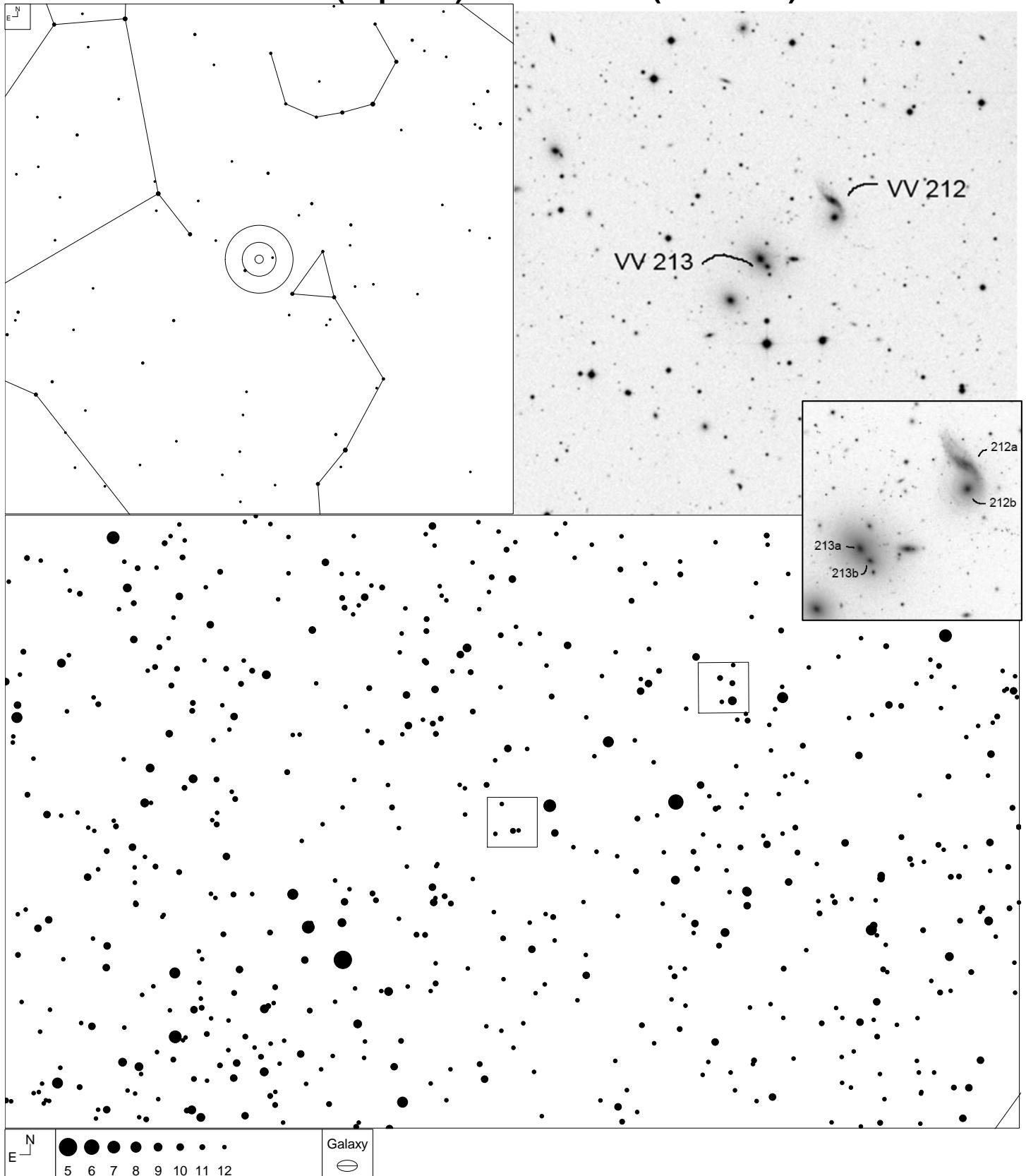


| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 156 | 16 00 14.7 | +18 22 32 | GPair | | | N |
| 156a | 16 00 14.4 | +18 22 33 | G | 17.8g | 4x3 | |
| 156b | 16 00 14.9 | +18 22 33 | G | 14.87 | 5x4 | |

VV 90, 91 and 92 (Hercules)

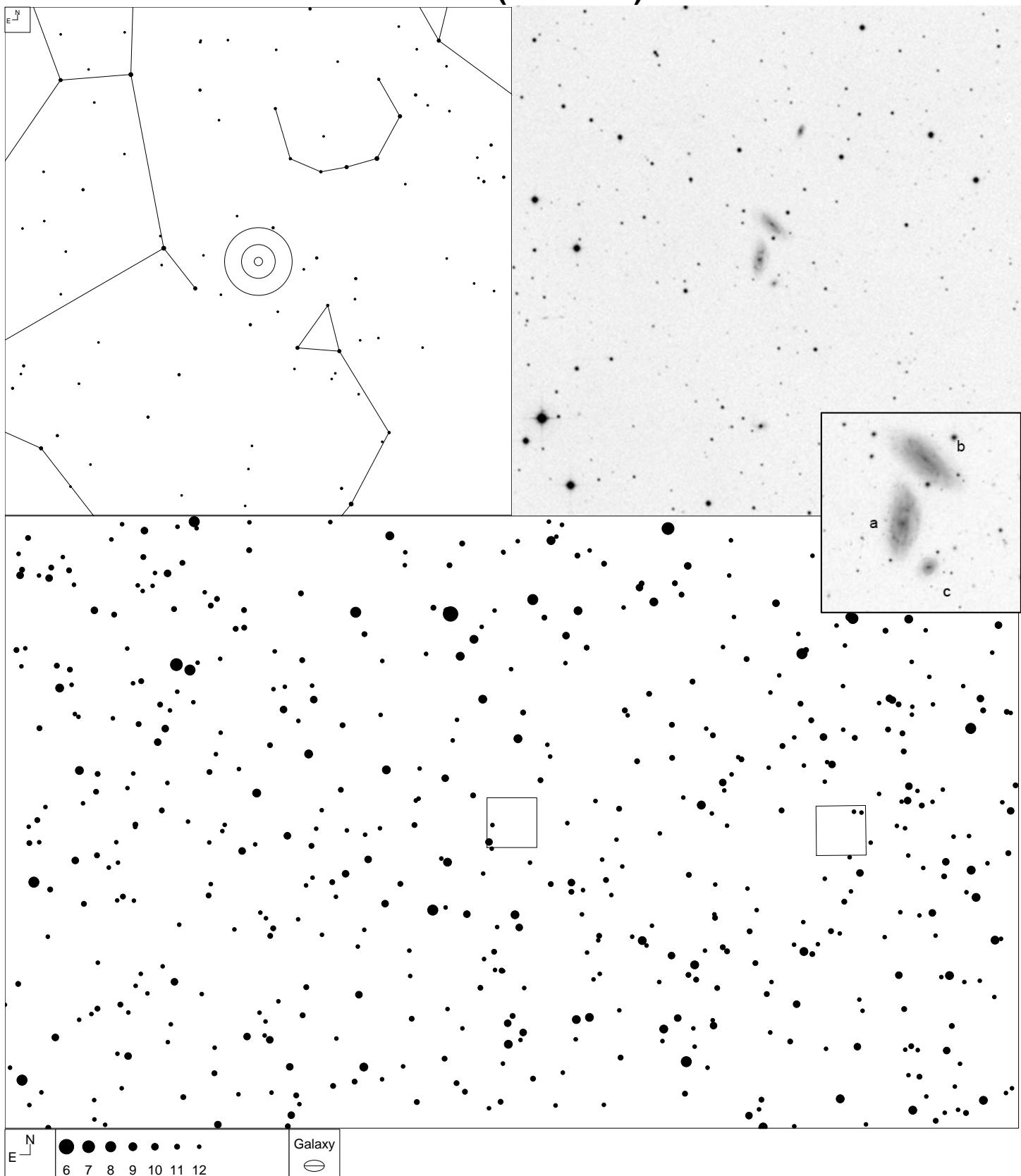


VV 212 (Arp 122) and VV 213 (Hercules)



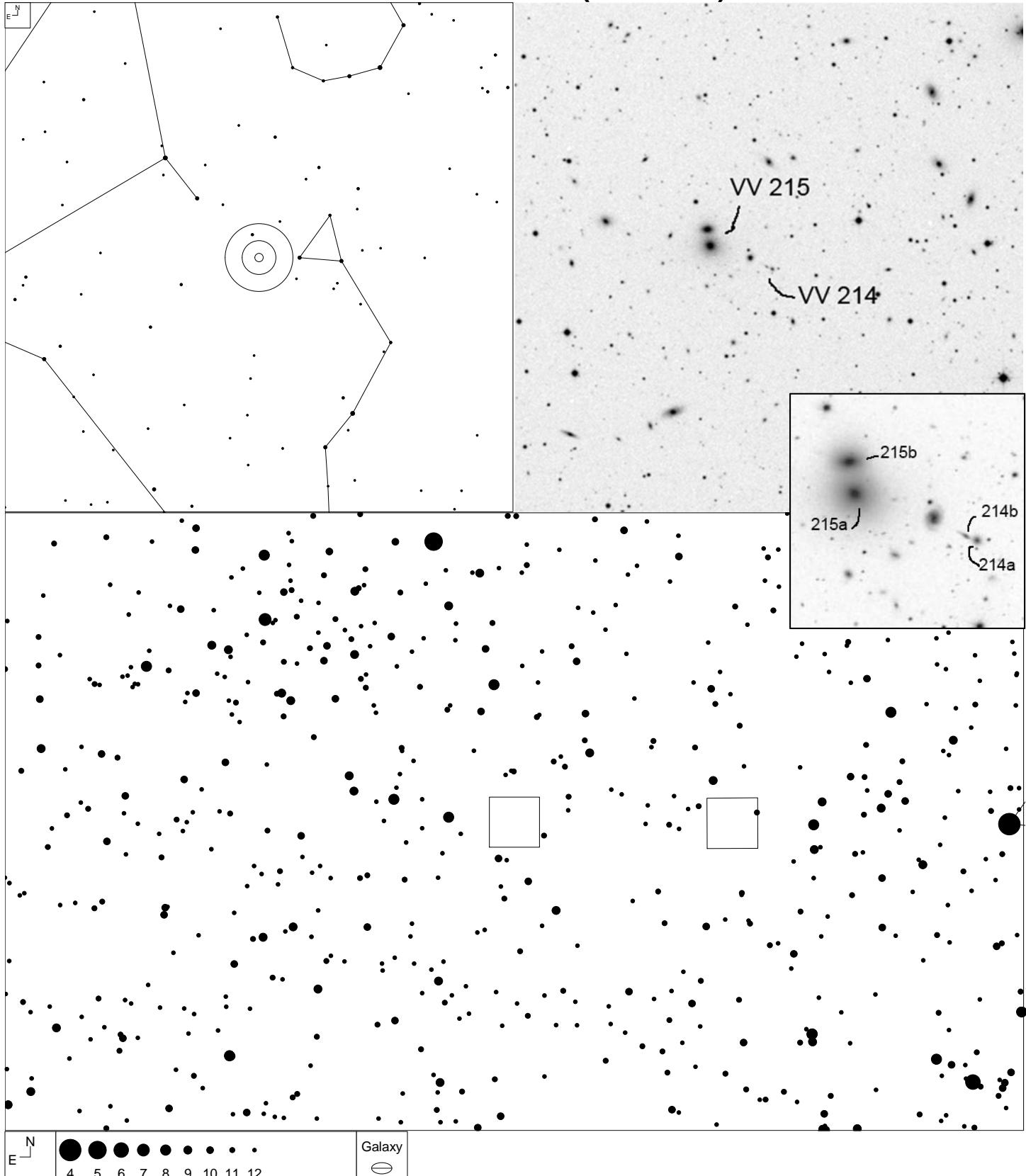
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 213 | 16 04 35.3 | +17 43 09 | GPair | | | PC |
| 213b | 16 04 34.9 | +17 43 03 | G | 15.4g | 7x6 | |
| 213a | 16 04 35.8 | +17 43 18 | G | 14.5g | 11x8 | |

VV 327 (Hercules)



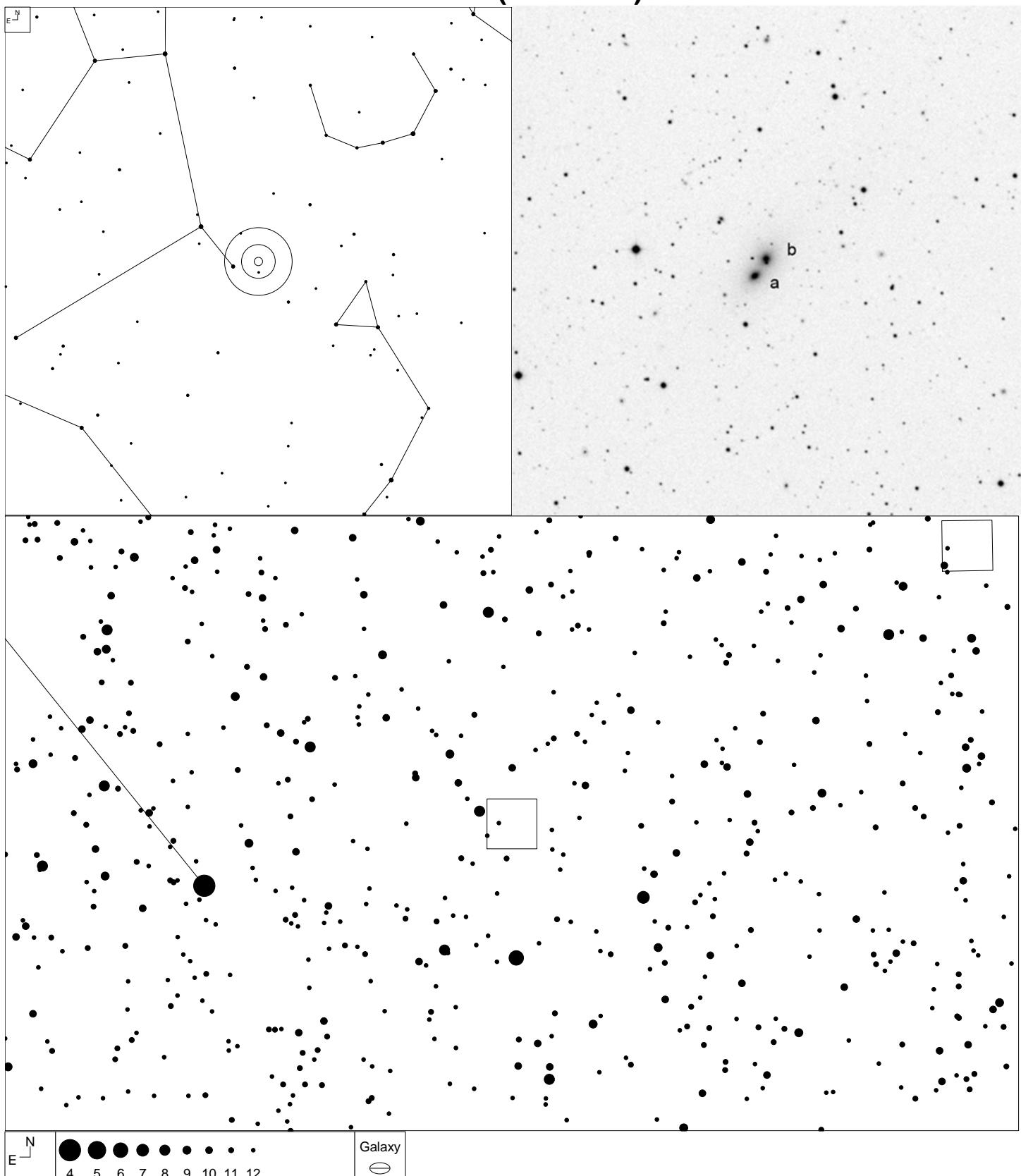
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 327 | 16 06 05.1 | +20 47 13 | GTrpl | | | PD |
| 327c | 16 06 04.1 | +20 46 21 | G | 17.0 | 3x3 | |
| 327b | 16 06 04.4 | +20 48 06 | G | 15.4g | 12x5 | |
| 327a | 16 06 05.9 | +20 47 03 | G | 15.2 | 11x6 | |

VV 214 and VV 215 (Hercules)



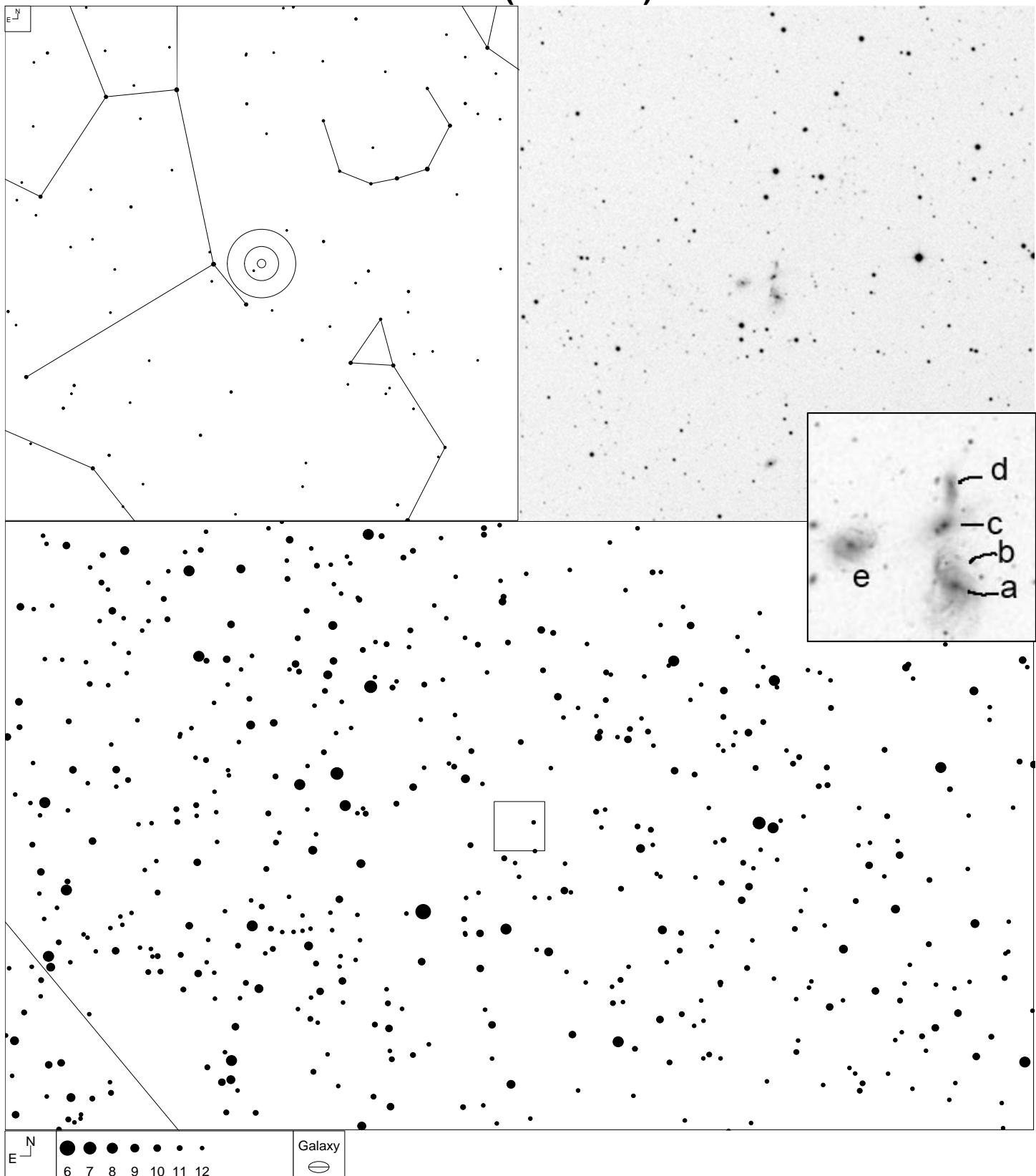
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 214 | 16 06 18.2 | +15 40 29 | GPair | | | PK |
| 214a | 16 06 17.8 | +15 40 27 | G | 18.2g | 2x2 | |
| 214b | 16 06 18.3 | +15 40 49 | G | 18.4g | 2x1 | |
| 215 | 16 06 25.7 | +15 41 23 | GPair | | | PK |
| 215a | 16 06 25.5 | +15 41 07 | G | 13.4 | 8x8 | |
| 215b | 16 06 25.8 | +15 41 37 | G | 15.4 | 6x4 | |

VV 192 (Hercules)



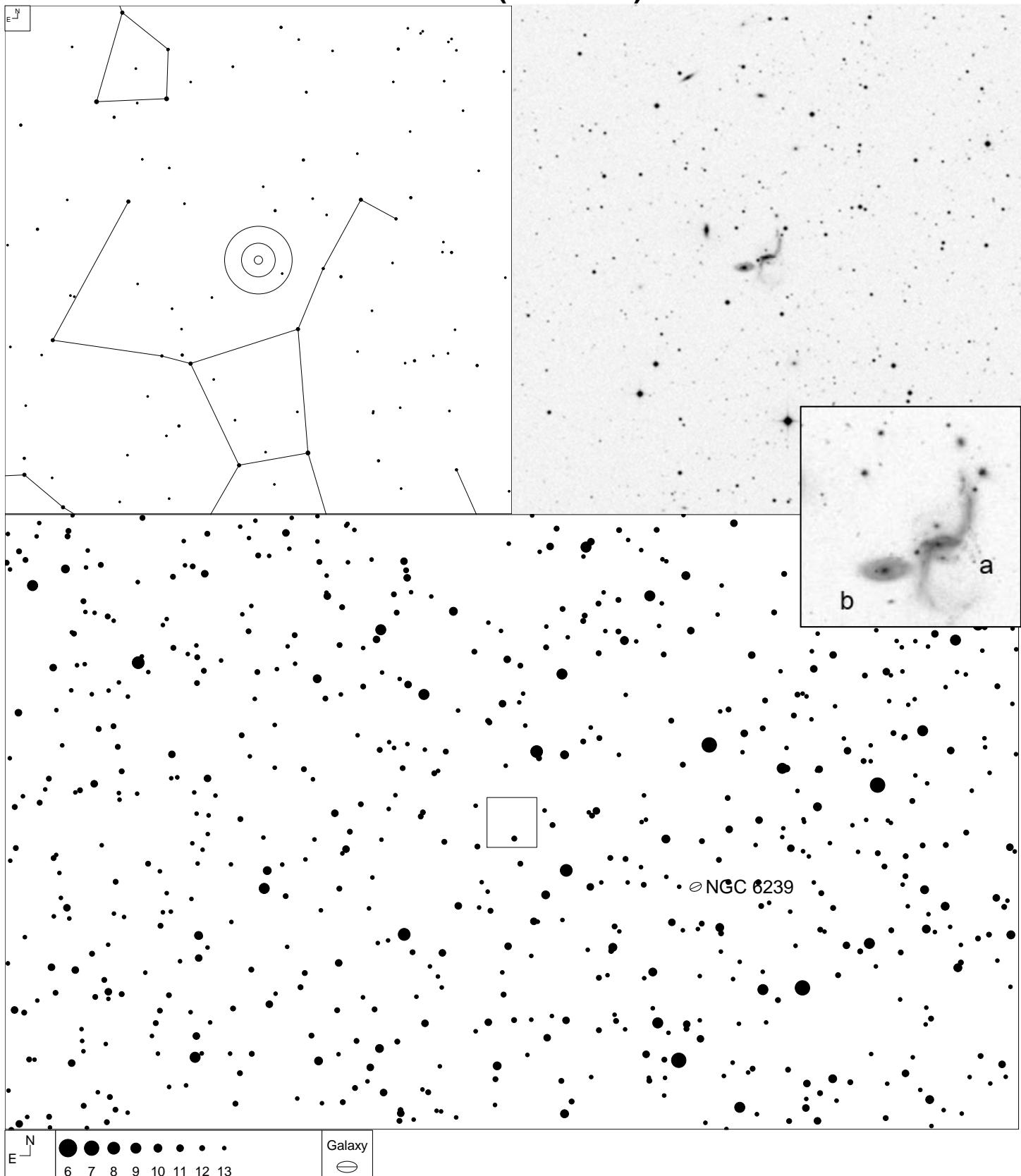
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 192 | 16 15 34.8 | +19 27 27 | GPair | | | PKb |
| 192b | 16 15 34.1 | +19 27 41 | G | 14.4b | 12x9 | |
| 192a | 16 15 35.6 | +19 27 12 | G | 14.3b | 8x6 | |

VV 129 (Hercules)



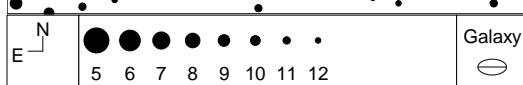
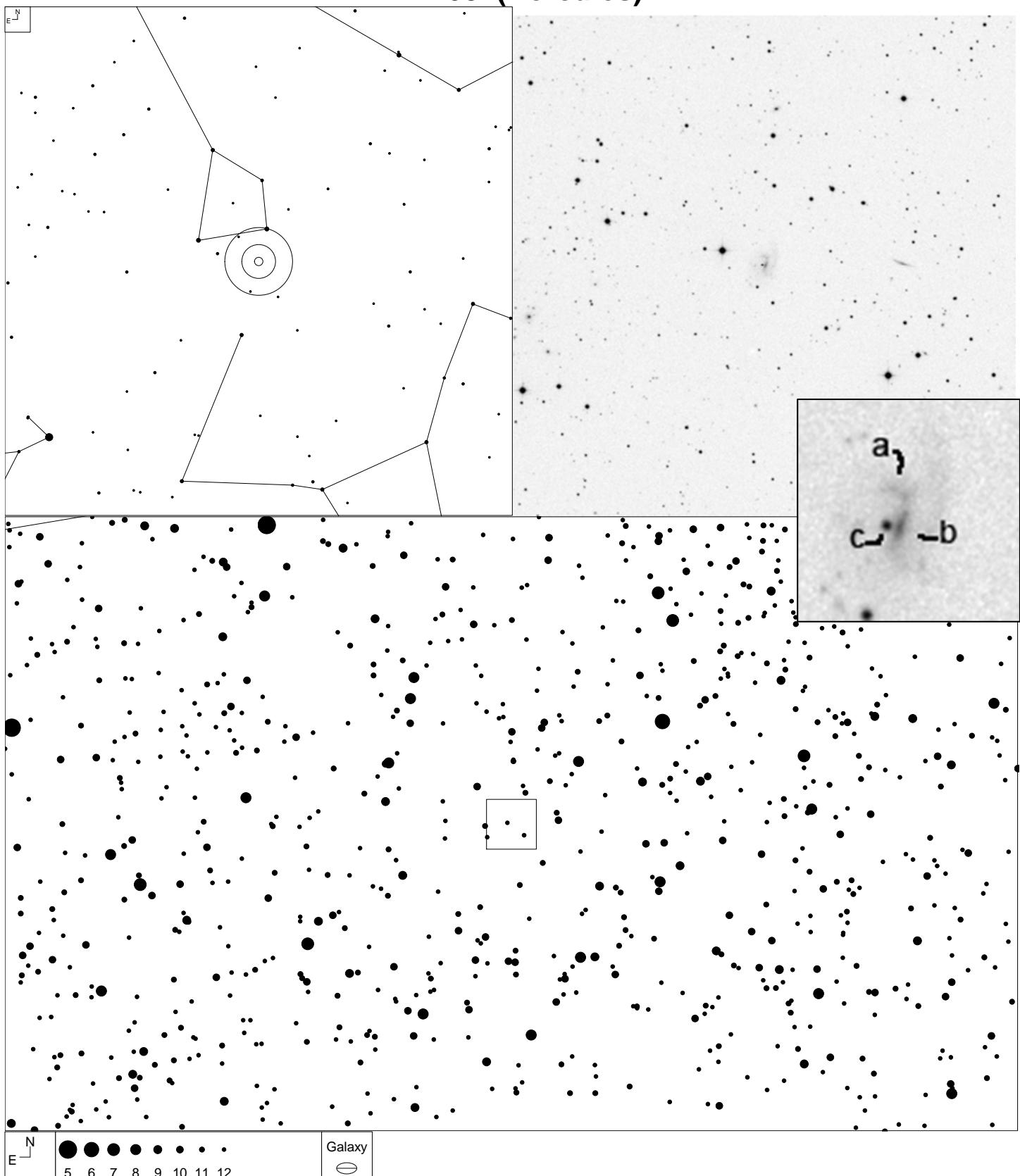
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 129 | 16 18 06.3 | +21 33 39 | GGroup | | | NN |
| 129a | 16 18 05.3 | +21 33 14 | G | 16.1g | 7x4 | |
| 129d | 16 18 05.5 | +21 34 12 | G | 17.7g | 4x1 | |
| 129c | 16 18 05.7 | +21 33 48 | G | 18 | 2x1 | |
| 129b | 16 18 05.9 | +21 33 24 | G | 15.5 | 5x3 | |
| 129e | 16 18 09.7 | +21 33 37 | G | 16.6g | 5x4 | |

VV 289 (Hercules)



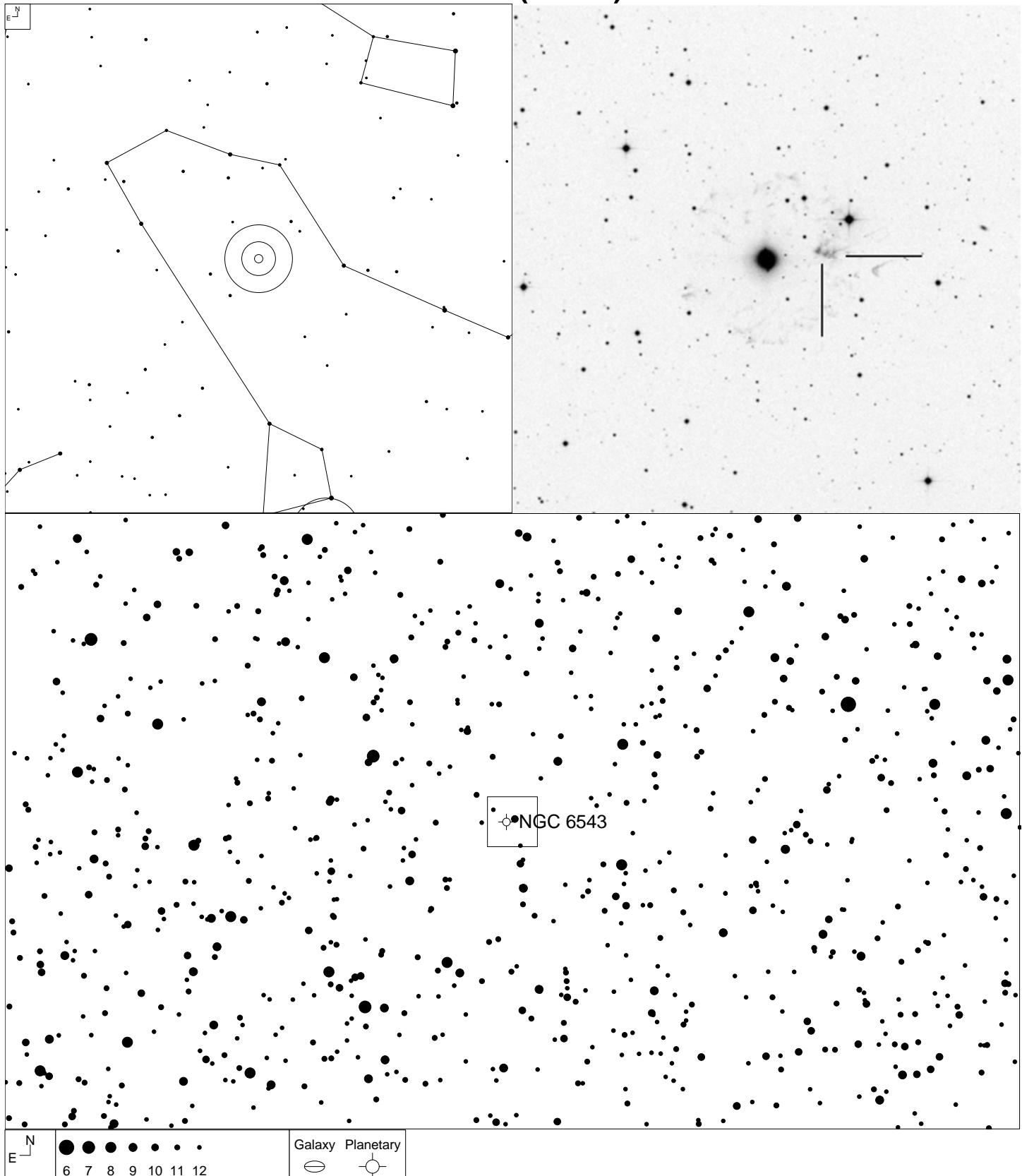
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 289 | 16 55 00.5 | +43 03 30 | GPair | | | PDbt |
| 289a | 16 54 58.7 | +43 03 40 | G | 15.4g | 7x4 | |
| 289b | 16 55 02.4 | +43 03 19 | G | 15.5 | 6x4 | |

VV 268 (Hercules)



| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|------|-------------|-----------|
| 268 | 17 33 38.0 | +50 22 25 | GPair | 16 | 15x9 | N |
| 268a | 17 33 37.8 | +50 22 41 | G | | | |
| 268b | 17 33 37.9 | +50 22 25 | G | | | |
| 268c | 17 33 38.0 | +50 22 22 | PofG | 16.5 | | |

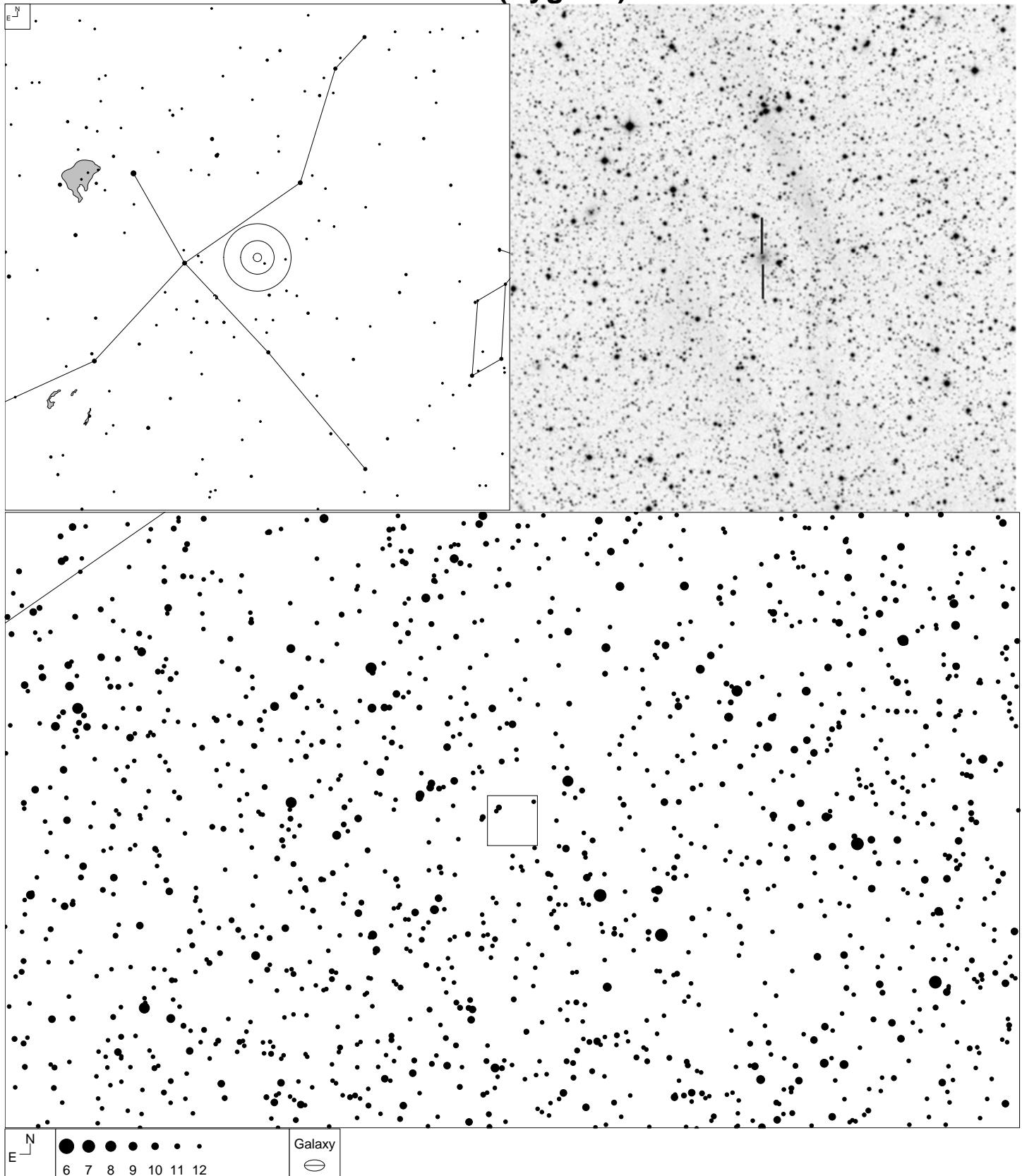
VV 121 (Draco)



| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|-----|------------|-----------|----------|-----|-------------|-----------|
| 121 | 17 58 15.8 | +66 38 00 | Other | 15 | 10x7 | |

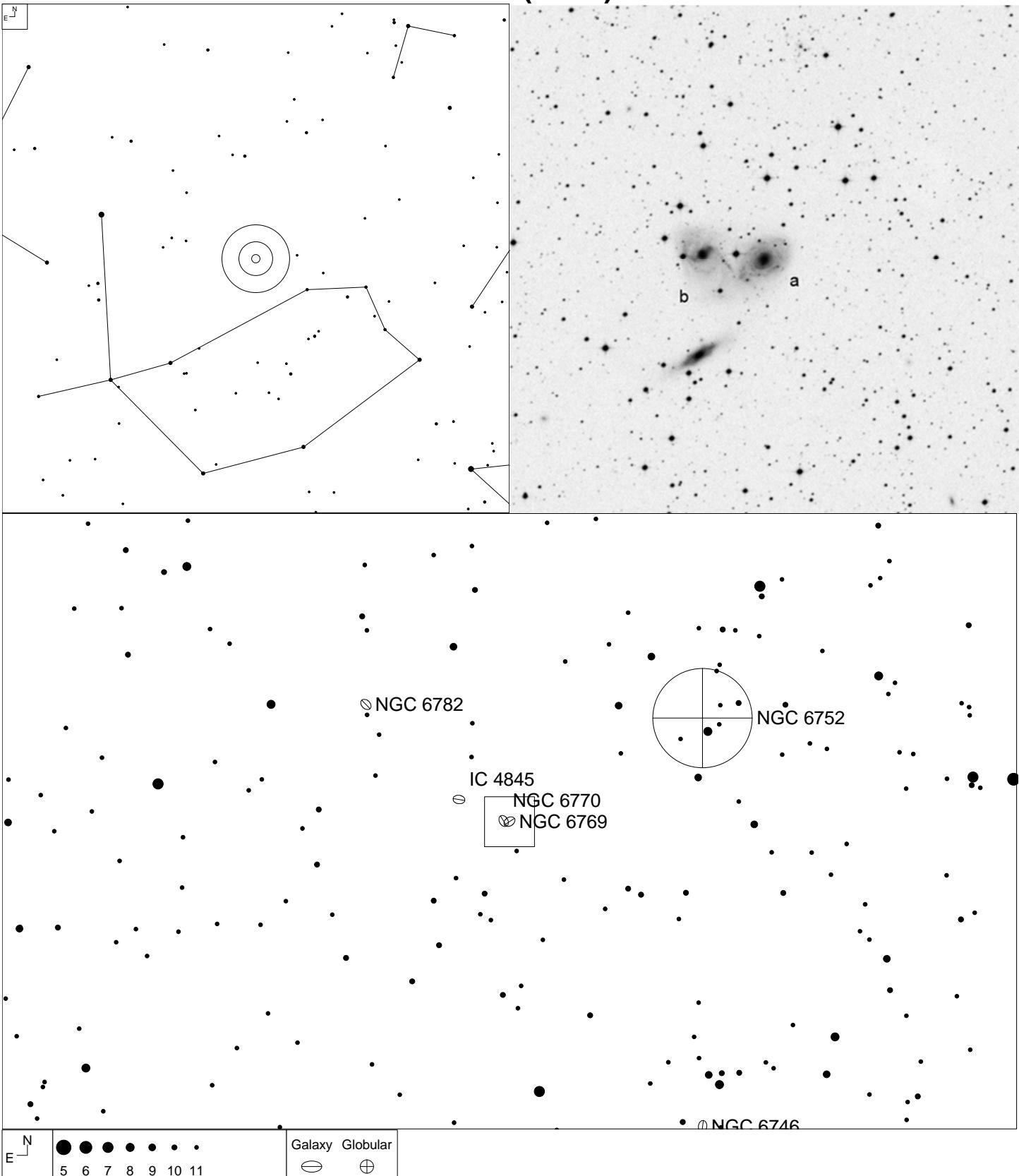
This object is not a galaxy, but rather the brightest segment of the outer halo of NGC 6543.

VV 72 (Cygnus)



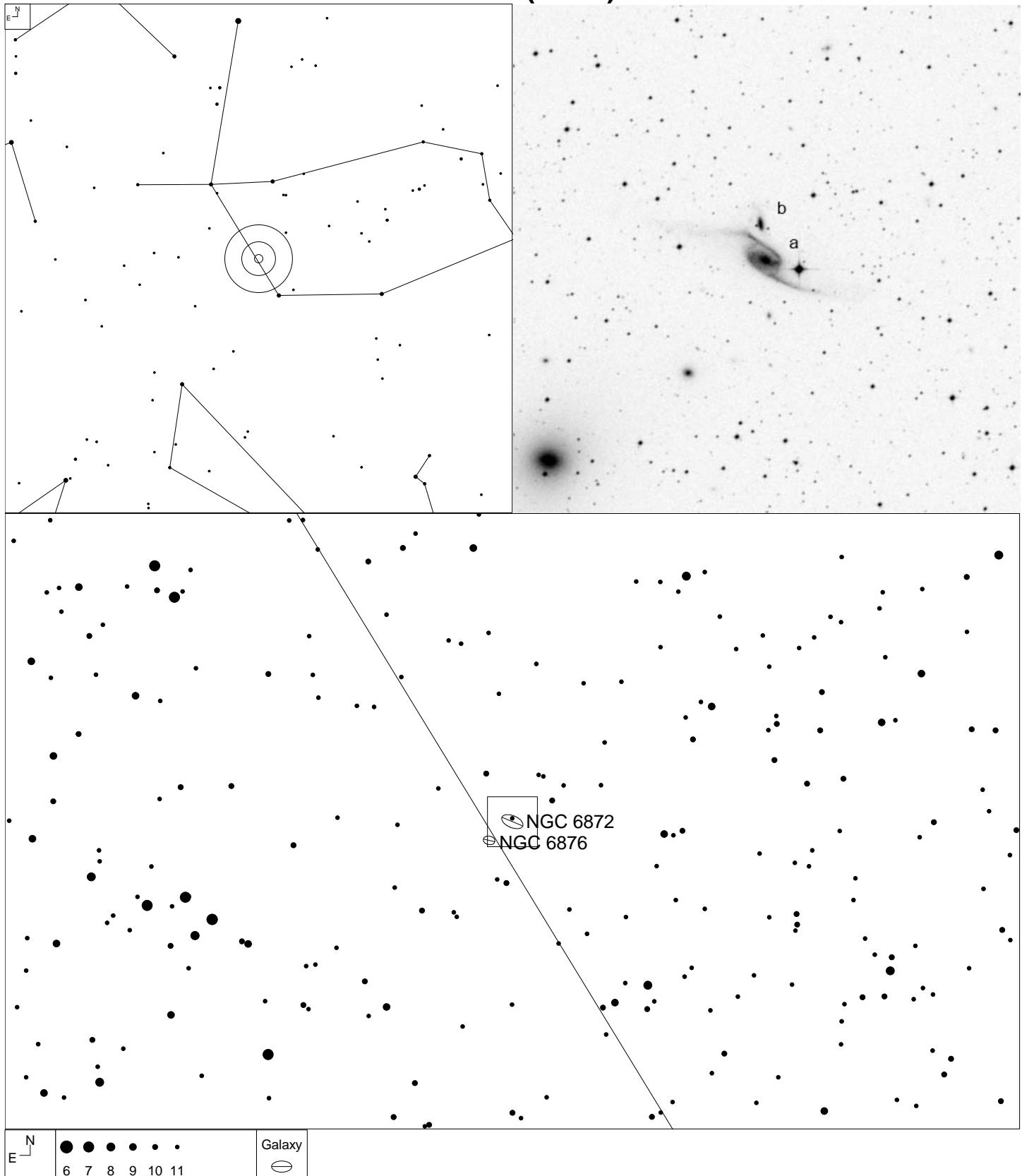
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|----|------------|-----------|----------|-------|-------------|-----------|
| 72 | 19 59 28.3 | +40 44 02 | G | 17.04 | | PC |

VV 304 (Pavo)



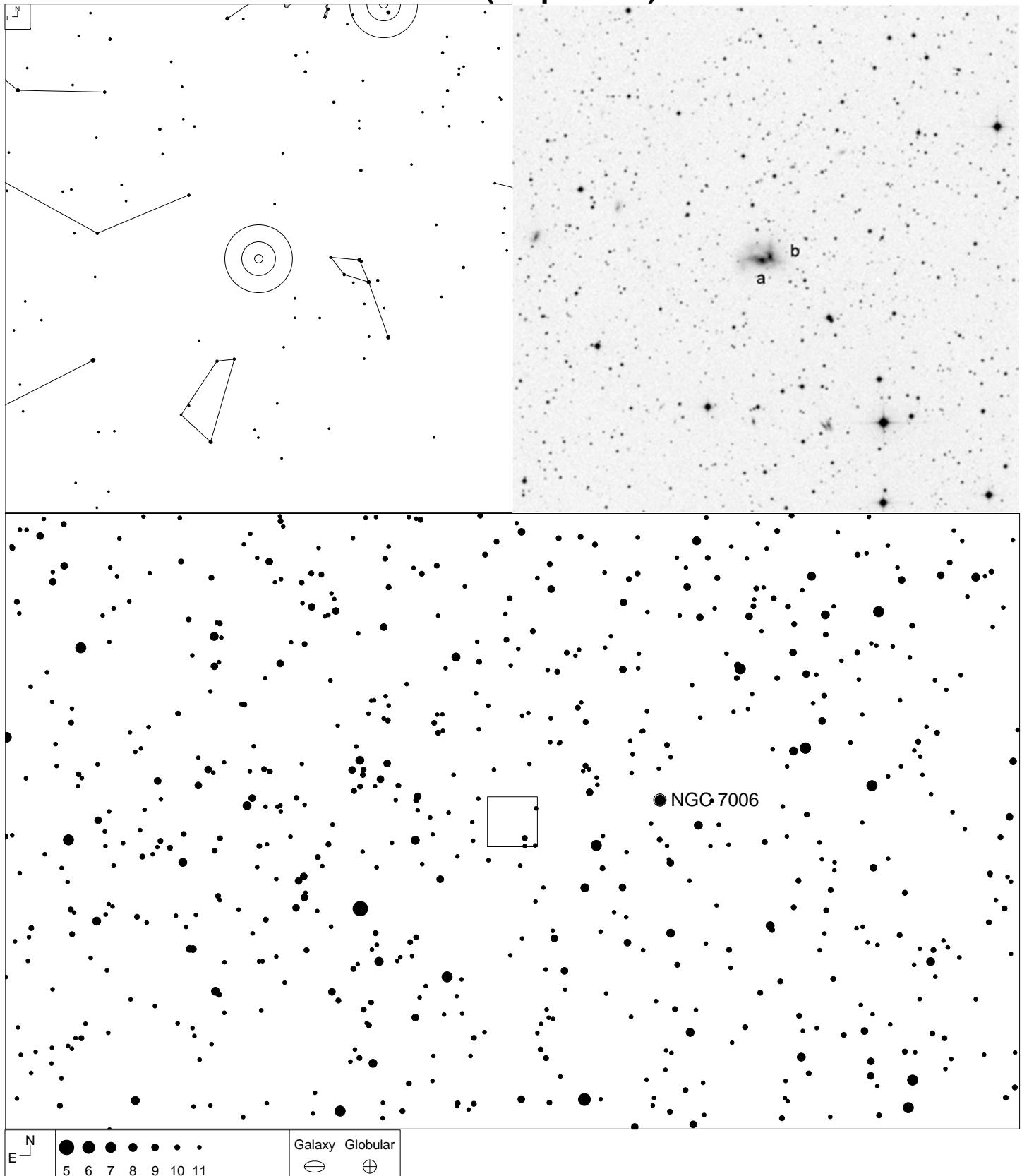
| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 304 | 19 18 30.0 | -60 29 56 | GPair | | | PDdf |
| 304a | 19 18 22.6 | -60 30 03 | G | 12.55 | 23x15 | |
| 304b | 19 18 37.3 | -60 29 50 | G | 12.83 | 23x17 | |

VV 297 (Pavo)

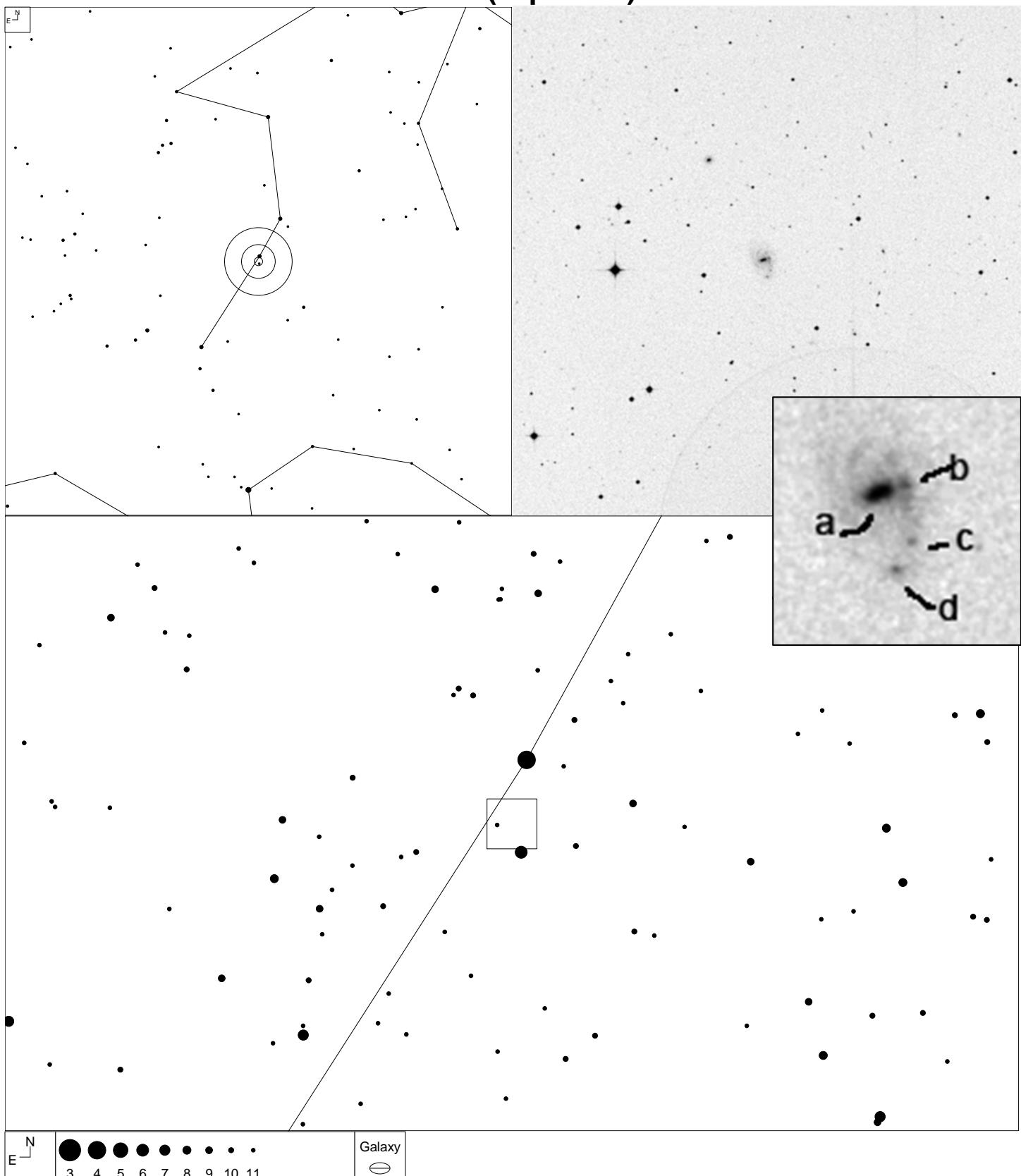


| VV | RA | Dec | NED Type | Mag | Size (0.1') | Int. Type |
|------|------------|-----------|----------|-------|-------------|-----------|
| 297 | 20 16 57.3 | -70 45 30 | GPair | | | PD |
| 297a | 20 16 56.5 | -70 46 03 | G | 12.69 | 60x17 | |
| 297b | 20 16 57.3 | -70 44 57 | G | 14.7 | 7x2 | |

VV 102 (Delphinus)



VV 17 (Aquarius)



The Entire Vorontsov-Velyaminov Catalogue – Part I

| VV | RA | Dec | Arp | VV | RA | Dec | Arp |
|----|------------|-----------|---------|----|------------|-----------|-----|
| 1 | 13 29 52.4 | +47 11 54 | 85 | 46 | 12 04 16.8 | +24 08 49 | |
| 2 | 14 19 52.0 | +51 53 33 | 45 | 47 | 13 10 27.6 | -21 35 21 | |
| 3 | 11 31 01.9 | +20 28 21 | 197 | 48 | 13 58 33.7 | +37 27 13 | 84 |
| 4 | 13 34 14.8 | +31 25 31 | 36 | 49 | 12 06 07.3 | -22 51 00 | |
| 5 | 23 46 58.5 | +29 27 32 | 86 | 50 | 09 17 22.8 | +41 59 58 | 283 |
| 6 | 13 37 23.9 | +06 26 11 | 33, 326 | 51 | 23 36 14.1 | +02 09 19 | 284 |
| 7 | 15 02 42.2 | +23 19 57 | 42 | 52 | 09 43 24.0 | -05 16 48 | 253 |
| 8 | 11 56 07.1 | -19 53 49 | 289 | 53 | 01 48 53.4 | +10 31 18 | 228 |
| 9 | 08 11 13.5 | +25 12 26 | 82 | 54 | 01 48 44.2 | +10 30 26 | |
| 10 | 17 19 17.4 | +49 00 35 | 102 | 55 | 13 39 53.0 | +00 50 22 | 240 |
| 11 | 10 52 17.0 | +36 35 43 | 206 | 56 | 12 43 42.5 | +16 23 36 | 189 |
| 12 | 01 57 26.8 | +17 13 14 | 56 | 57 | 11 56 17.1 | +58 11 47 | |
| 13 | 12 05 45.5 | +31 03 32 | 97 | 58 | 09 31 01.2 | +76 27 27 | 207 |
| 14 | 10 54 35.9 | +56 59 24 | 24 | 59 | 15 08 05.8 | +34 23 24 | |
| 15 | 14 28 45.3 | +28 57 51 | | 60 | 11 29 22.1 | +41 52 17 | |
| 16 | 15 46 53.3 | +17 52 21 | 72 | 61 | 12 06 03.6 | +20 36 28 | |
| 17 | 22 54 56.6 | -16 07 57 | | 62 | 12 06 18.3 | +20 36 40 | |
| 18 | 13 34 39.1 | +04 07 51 | | 63 | 09 25 50.4 | +22 22 11 | |
| 19 | 13 41 39.8 | +55 40 11 | 239 | 64 | 12 44 19.5 | +04 25 31 | |
| 20 | 23 19 27.9 | +09 29 40 | 150 | 65 | 10 27 51.8 | -43 54 09 | - |
| 21 | 14 03 25.0 | -06 04 10 | 271 | 66 | 11 59 30.5 | -19 15 44 | 22 |
| 22 | 11 23 38.4 | +53 50 31 | 155 | 67 | 23 39 54.2 | -12 17 31 | 222 |
| 23 | 03 29 42.0 | -22 16 45 | 39 | 68 | 22 51 39.4 | -05 33 28 | 15 |
| 24 | 14 27 01.6 | +39 57 25 | | 69 | 13 30 17.4 | +31 19 59 | |
| 25 | 23 57 54.4 | -14 02 22 | 50 | 70 | 14 13 38.4 | +07 39 38 | |
| 26 | 14 56 53.1 | +09 16 18 | | 71 | 10 36 59.6 | +18 08 13 | 192 |
| 27 | 02 12 38.7 | +14 22 00 | | 72 | 19 59 28.4 | +40 44 02 | |
| 28 | 08 50 20.0 | -16 34 44 | 7 | 73 | 12 41 32.5 | +41 09 03 | 23 |
| 29 | 16 06 03.9 | +55 25 31 | 188 | 74 | 22 28 36.0 | -24 50 39 | 93 |
| 30 | 12 30 31.2 | +41 41 58 | 269 | 75 | 11 04 23.7 | +04 49 50 | 335 |
| 31 | 11 51 06.6 | +55 04 45 | 224 | 76 | 12 31 39.3 | +03 56 23 | |
| 32 | 11 03 53.2 | +40 50 57 | 148 | 77 | 14 24 06.0 | +34 53 31 | 178 |
| 33 | 13 32 07.9 | +62 42 04 | 104 | 78 | 03 55 45.0 | -42 22 03 | |
| 34 | 23 41 47.4 | -03 40 03 | 295 | 79 | 08 38 24.0 | +25 45 17 | 243 |
| 35 | 11 46 35.0 | -03 51 19 | 248 | 80 | 00 08 46.3 | +15 48 56 | 235 |
| 36 | 01 24 43.9 | +33 26 08 | | 81 | 00 51 01.7 | -07 03 24 | 140 |
| 37 | 02 04 23.8 | +45 46 33 | | 82 | 09 39 16.7 | +32 18 38 | 63 |
| 38 | 00 23 37.7 | -00 30 35 | 201 | 83 | 09 39 24.4 | +32 21 45 | 129 |
| 39 | 13 22 30.5 | +84 29 58 | 204 | 84 | 22 57 51.7 | +26 09 43 | |
| 40 | 09 02 38.6 | +25 56 06 | 287 | 85 | 02 54 24.4 | +41 34 47 | |
| 41 | 08 51 38.0 | -02 21 15 | 257 | 86 | 16 05 12.7 | +20 32 33 | 209 |
| 42 | 12 37 21.7 | +38 44 28 | 211 | 87 | 11 25 32.0 | +38 03 40 | |
| 43 | 12 32 52.3 | +11 24 15 | 175 | 88 | 13 30 58.8 | +19 26 17 | |
| 44 | 02 11 30.4 | +14 17 54 | | 89 | 17 13 07.7 | +59 19 23 | 32 |
| 45 | 12 01 38.8 | +22 39 39 | | 90 | 16 02 08.0 | +15 41 47 | |

| VV | RA | Dec | Arp | | VV | RA | Dec | Arp |
|------|------------|-----------|---------|--|-----|------------|-----------|-----|
| 91 | 16 02 02.0 | +15 40 38 | | | 136 | 12 03 12.0 | +57 53 38 | |
| 92 | 16 02 08.7 | +15 42 39 | | | 137 | 14 55 13.1 | -19 39 56 | |
| 93 | 01 47 00.7 | +12 24 21 | | | 138 | 08 13 14.6 | +45 59 28 | 6 |
| 94 | 02 16 50.9 | +37 21 12 | | | 139 | 15 19 24.3 | +20 53 27 | |
| 95 | 10 25 04.9 | +17 09 49 | 263 | | 140 | 14 49 30.6 | -10 10 24 | 261 |
| 96 | 02 35 37.6 | +37 38 30 | | | 141 | 07 30 56.6 | +72 31 04 | |
| 97 | 10 17 10.9 | -03 29 54 | | | 142 | 14 20 26.5 | +35 11 20 | 69 |
| 98 | 14 45 02.2 | -13 56 50 | | | 143 | 02 39 04.7 | +18 23 38 | 258 |
| 99 | 13 55 33.9 | -05 58 18 | | | 144 | 11 25 36.3 | +54 22 56 | 151 |
| 100 | 13 55 45.5 | -06 00 11 | | | 145 | 11 13 19.4 | +02 32 46 | |
| 101 | 17 27 24.9 | +58 31 00 | 310 | | 146 | 14 35 38.7 | +13 09 58 | |
| 102 | 21 04 28.7 | +16 05 01 | | | 147 | 12 12 11.6 | +18 05 37 | |
| 103 | 14 07 00.1 | +10 27 44 | | | 148 | 11 37 52.1 | +56 08 36 | |
| 104 | 12 13 44.2 | +36 37 58 | | | 149 | 10 56 50.9 | +06 54 21 | |
| 105 | 11 52 43.5 | +01 44 28 | | | 150 | 11 32 35.3 | +52 56 50 | 322 |
| 106 | 09 27 50.2 | +68 24 47 | 300 | | 151 | 12 43 03.0 | +30 22 42 | |
| 107 | 02 29 01.5 | +38 05 55 | | | 152 | 14 29 50.8 | +44 26 52 | |
| 108 | 13 39 13.0 | +04 37 26 | | | 153 | 11 15 53.2 | +53 45 12 | |
| 109 | 14 46 02.8 | +08 30 11 | | | 154 | 09 24 50.0 | +21 34 16 | |
| 110 | 09 50 56.5 | -04 59 53 | | | 155 | 09 15 55.6 | +44 19 57 | 55 |
| 111 | 09 54 33.1 | -06 51 25 | | | 156 | 16 00 14.9 | +18 22 33 | |
| 112 | 10 42 48.7 | +13 27 34 | 291 | | 157 | 08 27 49.0 | +73 39 01 | |
| 113 | 10 41 53.5 | +00 47 34 | | | 158 | 13 56 19.3 | +28 32 11 | |
| 114 | 01 07 47.6 | -17 30 29 | 236 | | 159 | 16 02 09.0 | +15 53 17 | 324 |
| 115 | 15 59 11.0 | +20 45 42 | | | 160 | 11 15 25.0 | +53 41 27 | |
| 116 | 09 38 53.2 | -04 51 34 | 321 | | 161 | 05 16 36.1 | +06 26 00 | |
| 117 | 07 46 53.0 | +39 01 55 | 143 | | 162 | 05 45 27.7 | -25 55 52 | |
| 118 | 11 28 27.3 | +58 34 42 | 296 | | 163 | 13 44 24.9 | +20 24 44 | |
| 119 | 10 03 57.4 | +40 45 25 | 264 | | 164 | 14 45 26.2 | -20 41 12 | |
| 120 | 14 01 40.8 | +33 49 46 | 111 | | 165 | 14 47 53.4 | +19 04 37 | 328 |
| 121 | 17 58 15.8 | +66 37 59 | | | 166 | 00 18 12.2 | +30 03 19 | 113 |
| 122 | 01 58 05.5 | +03 04 57 | 126 | | 167 | 22 06 22.2 | -21 04 21 | 325 |
| 123 | 07 14 20.9 | +73 28 51 | 141 | | 168 | 08 52 45.3 | -01 48 52 | |
| 124 | 09 16 03.6 | +52 50 25 | | | 169 | 05 21 45.2 | +06 41 20 | 327 |
| 125 | 14 11 27.2 | +50 12 34 | | | 170 | 13 41 51.2 | +02 04 34 | |
| 126 | 11 57 55.8 | +36 23 11 | 194 | | 171 | 09 23 24.4 | +22 18 46 | |
| 127 | 12 44 25.1 | +34 23 23 | | | 172 | 11 32 05.5 | +70 48 24 | 329 |
| 128 | 12 13 38.7 | +16 07 21 | 260 | | 173 | 01 32 29.2 | +04 35 45 | 306 |
| 129 | 16 18 05.3 | +21 33 14 | | | 174 | 01 32 42 | +04 38.4 | 306 |
| 130 | 14 51 12.5 | -20 26 32 | | | 175 | 01 56 22.6 | +05 37 40 | |
| 131 | 09 15 18.0 | +48 39 56 | | | 176 | 01 42 06.4 | +07 39 46 | |
| 132 | 15 35 11.6 | +16 33 06 | | | 177 | 01 42 04.8 | +07 38 57 | |
| 133 | 13 39 19.4 | +24 46 32 | | | 178 | 06 47 39.8 | -26 44 47 | |
| 134* | 06 39 50.2 | -27 12 25 | Defect! | | 179 | 12 04 01.5 | +20 13 57 | |
| 135 | 13 49 09.8 | -07 13 54 | | | 180 | 05 47 24.6 | -25 15 23 | |

*Note: VV134 was determined to be a group of reflection nebulosity. So I left it out.

| VV | RA | Dec | Arp | VV | RA | Dec | Arp |
|-----|------------|-----------|-----|-----|------------|-----------|-----|
| 181 | 23 17 12.0 | +18 42 03 | 170 | 226 | 00 01 26.9 | +31 26 02 | 112 |
| 182 | 11 10 12.2 | +36 57 53 | | 227 | 15 25 39.6 | +20 47 16 | |
| 183 | 12 14 48.8 | +59 54 21 | | 228 | 11 39 43.6 | +31 55 12 | 294 |
| 184 | 13 21 36.7 | -16 17 10 | | 229 | 11 09 51.5 | +24 15 44 | 301 |
| 185 | 12 00 49.3 | +15 27 07 | | 230 | 11 58 05.0 | +27 52 41 | |
| 186 | 00 00 21.0 | +22 59 42 | 249 | 231 | 01 24 35.1 | +03 47 33 | 157 |
| 187 | 23 34 04.5 | +01 35 03 | | 232 | 17 22 43.0 | +62 10 27 | 30 |
| 188 | 12 27 40.5 | +13 04 44 | 120 | 233 | 10 52 15.0 | +30 03 28 | 107 |
| 189 | 01 57 32.5 | +33 12 36 | 166 | 234 | 00 28 34.8 | -11 35 07 | 100 |
| 190 | 13 48 14.1 | +25 43 57 | | 235 | 13 23 16.6 | +52 39 13 | |
| 191 | 13 48 21.8 | +25 40 30 | | 236 | 12 10 36.7 | +34 57 24 | |
| 192 | 16 15 34.1 | +19 27 41 | | 237 | 11 11 13.0 | +28 42 43 | 105 |
| 193 | 01 07 23.9 | +32 24 13 | 331 | 238 | 02 28 10.9 | +19 35 59 | 276 |
| 194 | 16 05 33.1 | +17 36 05 | 172 | 239 | 11 07 19.6 | +18 25 47 | 191 |
| 195 | 13 41 49.0 | +26 22 28 | | 240 | 10 06 33.3 | +14 26 01 | |
| 196 | 09 07 56.5 | +49 35 49 | | 241 | 11 57 25.9 | +57 55 47 | |
| 197 | 16 49 48.5 | +46 43 05 | 312 | 242 | 22 19 26.2 | +29 23 55 | 278 |
| 198 | 11 16 55.8 | +35 15 33 | | 243 | 08 53 54.5 | +35 09 01 | 195 |
| 199 | 12 15 35.9 | +28 10 39 | 106 | 244 | 15 34 32.3 | +15 11 42 | 91 |
| 200 | 02 40 27.4 | -12 52 33 | | 245 | 12 01 52.8 | -18 51 54 | 244 |
| 201 | 12 54 35.9 | -12 34 09 | | 246 | 10 49 49.8 | +32 58 50 | 270 |
| 202 | 13 53 41.4 | +33 12 45 | | 247 | 18 12 54.7 | +68 21 50 | 81 |
| 203 | 13 53 45.4 | +33 13 12 | | 248 | 07 02 26.0 | +86 34 43 | 96 |
| 204 | 15 04 56.2 | +26 00 52 | | 249 | 11 57 36.9 | +32 16 39 | 313 |
| 205 | 01 17 28.7 | +14 42 12 | | 250 | 13 15 29.4 | +62 07 43 | 238 |
| 206 | 12 43 32.3 | +11 34 55 | 116 | 251 | 11 24 24.8 | +03 19 39 | 5 |
| 207 | 01 23 39.8 | +33 15 23 | 229 | 252 | 10 53 23.4 | +16 46 24 | |
| 208 | 23 54 10.1 | +00 22 58 | 323 | 253 | 13 52 16.3 | +02 06 02 | |
| 209 | 10 23 27.0 | +19 53 54 | 94 | 254 | 00 01 40.2 | +23 29 23 | |
| 210 | 14 17 02.5 | +36 34 17 | 199 | 255 | 23 56 44.6 | +16 48 10 | 262 |
| 211 | 13 35 14.4 | +10 41 10 | | 256 | 14 00 54.5 | +40 59 17 | |
| 212 | 16 04 26.5 | +17 44 31 | 122 | 257 | 00 22 22.6 | -01 18 12 | 35 |
| 213 | 16 04 35.2 | +17 43 10 | | 258 | 01 12 59.7 | -19 00 14 | |
| 214 | 16 06 18.3 | +15 40 49 | | 259 | 12 02 29.4 | +62 25 02 | |
| 215 | 16 06 25.5 | +15 41 07 | | 260 | 03 08 27.5 | -23 03 11 | 332 |
| 216 | 11 58 42.5 | +25 02 13 | 138 | 261 | 12 14 09.6 | +54 31 35 | 160 |
| 217 | 02 29 09.4 | -10 49 37 | 309 | 262 | 14 31 55.8 | +36 18 18 | |
| 218 | 11 51 26.6 | +22 01 40 | | 263 | 00 02 37.8 | +16 39 08 | 130 |
| 219 | 12 36 32.7 | +11 15 28 | | 264 | 14 37 50.4 | +30 29.0 | 241 |
| 220 | 16 05 22.3 | +17 45 10 | 272 | 265 | 11 27 21.3 | +50 16 41 | |
| 221 | 02 50 20 | +12 53.4 | 190 | 266 | 12 53 52.9 | +36 05 13 | 265 |
| 222 | 12 59 59.6 | +37 11 36 | | 267 | 10 59 45.2 | +17 39 01 | 198 |
| 223 | 14 13 41.3 | +08 13 07 | | 268 | 17 33 38.0 | +50 22 25 | |
| 224 | 12 46 10.1 | +30 43 55 | 242 | 269 | 12 04 26.1 | -18 31 00 | |
| 225 | 05 21 56.3 | +03 29 09 | | 270 | 12 04 52.8 | +58 05 49 | |

| VV | RA | Dec | Arp | VV | RA | Dec | Arp |
|-----|------------|-----------|-----|-----|------------|-----------|-----|
| 271 | 16 51 01.4 | +47 13 25 | 208 | 316 | 09 37 44.2 | +02 45 38 | 142 |
| 272 | 00 06 27.1 | -13 24 58 | 144 | 317 | 13 47 01.2 | +33 53 38 | |
| 273 | 11 50 47.7 | +56 27 21 | | 318 | 16 04 28.2 | +14 46 53 | 101 |
| 274 | 14 55 28.2 | +32 50 24 | | 319 | 10 28 16.5 | +79 49 24 | 181 |
| 275 | 14 55 29.8 | +32 49 54 | | 320 | 11 43 46.4 | +55 02 52 | |
| 276 | 12 03 53.5 | +25 25 57 | | 321 | 09 59 52.2 | +45 16 58 | |
| 277 | 14 01 09.2 | +21 14 16 | | 322 | 14 50 47.9 | -13 32 18 | |
| 278 | 02 43 26.6 | +16 40 12 | | 323 | 02 21 28.8 | +39 22 31 | 273 |
| 279 | 12 27 53.7 | +28 38 15 | | 324 | 14 50 56.5 | +35 34 18 | |
| 280 | 23 20 30.0 | +17 13 32 | 212 | 325 | 13 29 44.5 | +33 20 20 | |
| 281 | 13 55 28.4 | +25 04 25 | | 326 | 13 30 36.5 | +31 17 10 | |
| 282 | 11 37 51.6 | +21 58 27 | 320 | 327 | 16 06 05.1 | +20 47 03 | |
| 283 | 13 01 49.9 | +04 20 02 | | 328 | 14 04 54.2 | +12 42 48 | |
| 284 | 07 43 47.6 | +52 21 27 | | 329 | 23 28 46.8 | +03 30 41 | 216 |
| 285 | 02 34 37.4 | -08 47 08 | | 330 | 10 24 10.0 | +78 37 44 | |
| 286 | 11 53 39.0 | +43 27 24 | 62 | 331 | 02 55 09.7 | -00 10 40 | 118 |
| 287 | 12 39 15.2 | +27 42 52 | | 332 | 23 57 32.4 | -22 00 03 | |
| 288 | 22 35 52.0 | +33 56 41 | 319 | 333 | 12 16 57.0 | -26 12 34 | |
| 289 | 16 54 58.7 | +43 03 38 | | 334 | 03 11 14.7 | -08 55 20 | 304 |
| 290 | 12 47 40.3 | -26 11 58 | | 335 | 13 55 59.0 | +17 29 57 | |
| 291 | 15 47 59.4 | +69 27 52 | 109 | 336 | 02 47 19.9 | -14 48 07 | 131 |
| 292 | 13 06 45.0 | +35 06 04 | | 337 | 03 08 10.8 | -22 57 39 | 332 |
| 293 | 09 25 54.9 | -11 59 42 | 275 | 338 | 01 47 42.2 | +27 22 59 | |
| 294 | 10 30 25.1 | +70 03 02 | | 339 | 14 00 19.8 | +12 57 26 | |
| 295 | 22 58 01.0 | -03 46 08 | 314 | 340 | 14 57 00.5 | +24 36 20 | 302 |
| 296 | 14 51 27.9 | +09 19 19 | 173 | 341 | 01 23 26.8 | +30 46 20 | 70 |
| 297 | 20 16 56.0 | -70 46 03 | | 342 | 09 53 17.4 | +07 52 08 | 255 |
| 298 | 13 16 47.5 | +14 25 40 | 57 | 343 | 23 27 56.7 | +08 46 44 | 182 |
| 299 | 14 13 06.9 | +08 37 31 | | 344 | 14 05 01.3 | +53 39 44 | |
| 300 | 11 40 44.0 | +22 25 49 | 87 | 345 | 12 12 39.3 | +34 42 13 | |
| 301 | 01 32 08.6 | +32 06 12 | 98 | 346 | 03 03 05.4 | -22 13 02 | 108 |
| 302 | 02 18 19.2 | -12 12 38 | | 347 | 01 19 24.2 | +12 26 49 | 119 |
| 303 | 14 35 00.2 | +26 31 56 | 95 | 348 | 01 09 22.1 | +14 20 30 | 11 |
| 304 | 19 18 22.6 | -60 30 03 | | 349 | 07 44 41.6 | +73 49 16 | 17 |
| 305 | 23 23 32.6 | +19 35 59 | | 350 | 11 40 09.4 | +15 19 38 | 83 |
| 306 | 13 48 05.0 | +07 23 32 | | 351 | 13 54 26.5 | -26 34 31 | |
| 307 | 10 17 48.0 | +21 52 24 | 316 | 352 | 00 18 50.1 | -10 21 42 | 256 |
| 308 | 11 20 15.0 | +12 59 30 | 317 | 353 | 11 43 02.0 | +26 15 30 | 115 |
| 309 | 02 03 44.6 | +14 42 31 | 290 | 354 | 10 25 35.7 | -02 12 58 | 44 |
| 310 | 13 59 51.1 | +38 10 55 | | 355 | 13 29 21.2 | +37 24 32 | 40 |
| 311 | 15 53 35.4 | +18 36 26 | 218 | | | | |
| 312 | 10 23 47.4 | +53 06 26 | | | | | |
| 313 | 12 54 50.9 | +02 39 12 | 277 | | | | |
| 314 | 23 33 38.6 | +30 02 20 | 46 | | | | |
| 315 | 13 34 55.5 | +13 44 30 | 288 | | | | |

Note: The coordinates is from the original catalogue, there may be a few typos. I just left them alone. The idea of this table is to list all V-V Part I objects with associated Arp Peculiar Galaxies.

Recommended Further Material

Papers

Vorontsov-Velyaminov, B.A. *Atlas of Interacting Galaxies, Part II and the Concept of Fragmentation of Galaxies.* Astron. Astrophys. Suppl. Vol 28, p1-117, 1977

Vorontsov-Velyaminov, B. *Correspondence – Morphological Catalogue of Galaxies Discriminated Against.* The Observatory, Vol. 94, p319-320 (1974)

Vorontsov-Velyaminov, B.A. *Interaction of Multiple Systems* Problems of Extra-Galactic Research, Proceedings from IAU Symposium no. 15.

Vorontsov-Veliaminov, B. A. *Interacting Galaxies and the Tidal Theory of Intergalactic Bridges.* Soviet Astronomy Letters, vol. 1, Nov.-Dec. 1975, p. 215-217

Vorontsov-Velyaminov, B.A. *Some Characteristics of Galaxy Chains.* Soviet Astronomy Letters, vol. 5, Sept.-Oct. 1979, p. 267-269

Vorontsov-Velyaminov, B.A. *Nine Enigmatic New Objects.* Soviet Astronomy Letters, vol. 1, p.23 Feb 1975

Vorontsov-Vel'Yaminov, B. A. & Metlov, V. G. The nature of the peculiar object VV 794 Soviet Astronomy Letters, vol. 6, Mar.-Apr. 1980, p. 109, 110

Vorontsov-Veliaminov, B. A. et al VV 644, a Very Compact Nest of Galaxies Soviet Astronomy Letters, vol. 6, July-Aug. 1980, p. 217-219

Jokimäki, A et al *A Catalogue of M51 type Galaxy Associations.* Astrophysics and Space Science, 315(1):249-283

Zasov, A. V. & Arkhipova, V. P. Vorontsov-Velyaminov' nests: what are they? Small Galaxy Groups: IAU Colloquium 174, ASP Conference Series, Volume 209

Pustilnik S. et al *Possibly Interacting Vorontsov-Velyaminov Galaxies.* A&A 2 Feb 2008

Chernin, A.D. et al *Vorontsov-Velyaminov Rows: Straight Segments in the Spiral Arms of Galaxies.* Astronomy Letters, Vol 26, No. 5 2000, pp 285-296

General Recommended Reading and Web Sources

Burnham, Robert. 1978. *Burnham's Celestial Handbook*, Vol. 1 to 3. Dover Books, New York, N.Y.

Coe, Steven R. 2000. *Deep Sky Observing. The Astronomical Tourist.* Springer Publishing Company, N.Y.

Eicher, David J. 1992. *Galaxies and the Universe.* Kalmbach Publishing Co., W.I.

Harrington, Philip S. 2010; *Cosmic Challenge: The Ultimate Observing List for Amateurs,* Cambridge University Press, MA

Kepple, George R. and Glen W. 1998. *The Night Sky Observer's Guide, Vol. 1 and 2.* Willmann-Bell, Richmond, VA.

Luginbuhl, Christian B. and Brian A. Skiff. 1989. *Observing Handbook and Catalogue of Deep-Sky Objects*. Cambridge University Press, N.Y.

Steinicke, Wolfgang and Richard Jakiel. 2007. *Galaxies and How to Observe Them*. Springer Publishing Company, N.Y.

Webb Society 1982; *Webb Society Deep-Sky Observer's Handbook, Volume 4 Galaxies* Enslow Publishers Hillside, N.J.

Recommended Web Sites

http://ned.ipac.caltech.edu/level5/VV_Cat/frames.html - The Atlas and Catalogue of Interactive Galaxies by B.A. Vorontsov-Velyaminov (Part I only)

<http://www.sai.msu.su/sn/vv/> - The Catalogue of Interacting Galaxies by Vorontsov-Velyaminov. This is the complete list. I've used this list to generate this observing guide, but focused on Part I only.

www.deepskyforum.com - The premier Deep Sky forum where advanced deep sky observers converge and discuss observing the deep sky

www.astronomy-mall.com/Adventures.In.Deep.Space/ - Great source of observing projects for all skill levels.

<http://nedwww.ipac.caltech.edu/> - NASA-IPAC Extragalactic Database – NED

http://archive.stsci.edu/cgi-bin/dss_form - The STScI Digitized Sky Survey

<http://skyserver.sdss3.org/dr8/en/tools/chart/chart.asp> - SkyServer DR8 Tools for Visual Exploration (SDSS)

www.cloudynights.com – Great resource for like-minded amateurs discussing most aspects of the hobby.

www.galaxyzoo.com – Galaxy Zoo

Sources of charts and images

Charts by *Megastar version 5* Willmann-Bell Richmond, VA

<http://archive.stsci.edu/dss/acknowledging.html> - DSS images (Digital Sky Survey)

<http://www.sdss.org> - Sloan Digital Sky Survey – Data Release 8 (SDSS DR8)

Revision History

| Date | Revision |
|--------------|--------------|
| May 30, 2013 | New document |