

Observing the Milky Way Globular Clusters

Alvin Huey
Revised Edition
FaintFuzzies.com

Observing the Milky Way Globular Clusters

by Alvin Huey

www.FaintFuzzies.com

Updated: March 2026

Observing Books by Alvin Huey

Hickson Group Observer's Guide, Second edition
The Abell Planetary Observer's Guide, Second edition
Observing the Arp Peculiar Galaxies, Revised edition
Extragalactic Objects Within Host Galaxies

Observing Guides by FaintFuzzies.com

Observing the Herschel Objects – Parts I, II, and III
Selected Small Galaxy Groups
Galaxy Trios and Triple Galaxy Systems
Observing the Milky Way Globular Clusters
Planetary Nebulae and Supernovae Remnants
Observing Local Group Galaxies
Flat Galaxies
Abell Galaxy Clusters
Voronstov-Velyaminov Catalog in Interacting Galaxies – Part I and II
The Rose Catalogue of Compact Galaxies
Variable Galaxies
Selected Shakhbazian Galaxy Groups
Ring Galaxies
Palomar Compact Galaxy Catalogue
Object of the Week 2012 and 2013 – Deep Sky Forum

Copyright © 2008 – 2026 by Alvin Huey
Copyright granted to individuals to make single copies of works for private, personal and non-commercial purposes.

www.faintfuzzies.com All rights reserved

All Maps by MegaStar™ v5
All DSS images (Digital Sky Survey) archive.stsci.edu/dss/acknowledging.html
Cover: Sloan Digital Sky Survey image of M13 with nearby galaxies

This and other publications by the author are available through www.faintfuzzies.com



Contents

Introduction.....	7
Milky Way Globular Clusters Catalog	8
How to Use this Guide.....	13
Milky Way Globular Clusters.....	15
The Palomar Globular Clusters	108
Terzan Globular Clusters	123
Candidate Globular Clusters and Extremely Faint Globular Clusters.....	133
Planetary Nebulae Within Globular Clusters	153
Objects Omitted from Observing Guide.....	159
Index	160
Additional Resources	161
Revision History	163

Introduction

Observing the Milky Way Globular Clusters focuses exclusively on globular clusters within our galaxy. At the time of writing, [SEDS](#) lists 157 known Milky Way globular clusters.¹ This guide includes 29 Messier objects and 77 NGC/IC objects, most of which are accessible with a 12-inch telescope, and many are visible with apertures as small as 6 inches.

The remaining objects—such as the 15 Palomar clusters, 11 Terzan clusters, and other lesser-known catalog entries—are more challenging. However, an intermediate observer using a 12-inch, 16-inch, or larger telescope should be able to visually detect many of them. The absence of a Messier, NGC, or IC designation does not preclude visual observation; some of these objects may be more observable than expected with careful technique and persistence.

It is worth noting that some clusters in this list may not have originated from the Milky Way. Ongoing research suggests that globular clusters were once associated with dwarf galaxies that have since been tidally disrupted as they passed close to the Milky Way. This guide does not attempt to distinguish native Milky Way clusters from accreted ones, as the catalog is based on the SEDS listing. The purpose of this guide is to provide the information and tools needed to locate and visually observe the known Milky Way globular clusters.

The Atlas is in five sections:

- **Milky Way Globular Clusters:** This section covers globular clusters observable with small to medium telescopes, including all Messier objects, NGC/IC entries, and select lesser-known targets.
- **Palomar Globular Clusters:** A catalog of 15 visually challenging globular clusters discovered in the 1950s through analysis of Palomar Observatory Sky Survey (POSS) plates by astronomers such as Abell, Zwicky, Hubble, Arp, and Baade. These objects are best suited for observers with 16-inch or larger telescopes.
- **Terzan Globular Clusters:** A highly challenging set of 11 globular clusters discovered by Agop Terzan at Lyon Observatory between 1966 and 1971 using infrared observations. Located primarily in Scorpius and Sagittarius and heavily obscured by the Galactic center, these targets test even advanced visual observers using large telescopes.
- **Candidate and Extremely Faint Globular Clusters:** This section includes recently discovered but unconfirmed globular clusters, along with some of the faintest objects on this list. Most are extremely faint or absent on digital sky surveys and represent an extreme observational challenge, even with very large telescopes.
- **Planetary Nebulae Within Globular Clusters:** This section includes globular clusters with member planetary nebulae. This is a visual challenge as the observer tries to identify the nearly stellar planetary nebula in a sea of stars within the globular clusters.

For an excellent read on globular clusters, see Brent A. Archinal and Steven J. Hynes. *Star Clusters*. Richmond, VA: Willmann-Bell, 2003, which is available on [ShopAtSky.com](#).

¹ <http://spider.seds.org/spider/MWGC/mwgc.html>

Milky Way Globular Clusters Catalog

Page	Name	Const	RA	Dec	V _{mag}	HB _{Mag}	Size (')
16	NGC 288	Scl	0:52:45	-26:34:57	8.1	15.3	13
17	NGC 104, 47 Tuc	Tuc	0:24:06	-72:04:52	3.95	14.1	50
18	NGC 362	Tuc	1:03:14	-70:50:55	6.6	15.4	14
19	NGC 1261	Hor	3:12:16	-55:12:58	8.29	16.7	6.8
20	NGC 1851	Col	5:14:07	-40:02:48	7.1	16.1	12
21	M79 (NGC 1904)	Lep	5:24:11	-24:31:29	7.7	16.2	9.6
22	NGC 2298	Pup	6:48:59	-36:00:19	9.3	16.2	5
23	NGC 2419	Lyn	7:38:08	+38:52:57	10.3	20.2	4.6
24	NGC 2808	Car	9:12:03	-64:51:49	6.2	16.2	14
25	E 3	Cha	9:20:57	-77:16:55	11.35	14.8	
26	NGC 3201	Vel	10:17:37	-46:24:45	6.9	14.8	20
27	NGC 4147	Com	12:10:06	+18:32:33	10.4	16.9	4.4
28	M53 (NGC 5024)	Com	13:12:55	+18:10:05	7.7	16.9	13
28	NGC 5053	Com	13:16:27	+17:42:01	9	16.7	10
29	M3 (NGC 5272)	Boo	13:42:12	+28:22:38	6.3	15.6	18
30	NGC 5466	Boo	14:05:27	+28:32:04	9.2	16.6	9
31	NGC 5634	Vir	14:29:37	-05:58:35	9.5	17.8	5.5
32	NGC 4372	Mus	12:25:45	-72:39:32	7.24	15.3	5
33	NGC 4833	Mus	12:59:34	-70:52:35	6.91	15.5	14
34	NGC 5139	Cen	13:26:47	-47:28:47	3.68	14.5	55
35	Rup 106	Cen	12:38:40	-51:09:01	10.9	17.9	2
36	NGC 5286	Cen	13:46:27	-51:22:27	7.34	16.7	11
37	NGC 6229	Her	16:46:59	+47:31:40	9.4	18.0	4.5
38	M13 (NGC 6205)	Her	16:41:41	+36:27:36	5.8	15.0	20
39	M92 (NGC 6341)	Her	17:17:07	+43:08:09	6.5	15.2	14
40	M68 (NGC 4590)	Hyd	12:39:28	-26:44:39	7.3	15.6	11
41	NGC 5694	Hyd	14:39:36	-26:32:20	10.2	18.5	4.3
42	IC 4499	Aps	15:00:18	-82:12:49	9.76	17.7	8
43	NGC 6101	Aps	16:25:48	-72:12:08	9.16	16.6	5
44	NGC 5986	Lup	15:46:03	-37:47:11	7.6	16.5	9.6
45	NGC 5824	Lup	15:03:59	-33:04:06	9.1	18.5	7.4
46	NGC 5927	Lup	15:28:01	-50:40:23	8.01	16.6	6
46	NGC 5946	Nor	15:35:29	-50:39:35	9.61	17.8	3
46	BH 176	Nor	15:39:07	-50:03:10	14	19.0	3
48	Lynga 7	Nor	16:11:04	-55:19:04	10.18	17.3	2.5
49	NGC 5897	Lib	15:17:25	-21:00:37	8.4	16.3	11
50	M5 (NGC 5904)	Oph	15:18:33	+02:04:52	5.7	15.0	23
50	Palomar 5	Oph	15:16:05	-00:06:42	11.8	17.4	8
51	M107 (NGC 6171)	Oph	16:32:32	-13:03:14	7.8	15.6	13

Page	Name	Const	RA	Dec	V _{mag}	HB _{Mag}	Size (')
52	M10 (NGC 6254)	Oph	16:57:09	-04:06:01	6.6	15.1	20
52	M12 (NGC 6218)	Oph	16:47:14	-01:56:55	6.1	14.7	16
53	NGC 6235	Oph	16:53:25	-22:10:39	8.9	16.7	5
53	NGC 6287	Oph	17:05:09	-22:42:30	9.3	17.1	4.8
54	NGC 6284	Oph	17:04:29	-24:45:54	8.9	16.6	6.2
54	NGC 6325	Oph	17:17:59	-23:45:58	10.2	17.3	4.1
55	M14 (NGC 6402)	Oph	17:37:36	-03:14:45	7.6	17.2	11
56	IC 1257	Oph	17:27:09	-07:05:35	13.1	19.8	1.7
56	NGC 6366	Oph	17:27:44	-05:04:48	9.5	15.7	13
57	Haute Provence 1	Oph	17:31:05	-29:58:54	12.5	18.6	1.2
58	NGC 6426	Oph	17:44:55	+03:10:13	10.9	18.1	4.2
59	NGC 6517	Oph	18:01:51	-08:57:32	10.1	18.0	4
59	NGC 6539	Oph	18:04:50	-07:35:09	8.9	18.3	7.9
59	Palomar 7	Oph	18:10:44	-07:12:27	10.3	17.7	8
61	NGC 6535	Oph	18:03:51	-00:17:52	9.3	15.8	3.4
62	M19 (NGC 6273)	Oph	17:02:38	-26:16:05	6.8	17.0	17
62	NGC 6293	Oph	17:10:10	-26:34:56	8.3	16.5	8.2
63	NGC 6355	Oph	17:23:59	-26:21:12	8.6	17.2	4.2
64	M62 (NGC 6266)	Oph	17:01:13	-30:06:49	6.4	16.3	15
64	NGC 6304	Oph	17:14:32	-29:27:43	8.3	16.2	8
64	NGC 6316	Oph	17:16:37	-28:08:24	8.1	17.8	5.4
66	M9 (NGC 6333)	Oph	17:19:11	-18:30:57	7.8	16.2	12
66	NGC 6342	Oph	17:21:10	-19:35:15	9.5	16.9	4.4
66	NGC 6356	Oph	17:23:35	-17:48:47	8.2	17.7	10
68	NGC 6401	Oph	17:38:37	-23:54:34	7.4	18.0	1.8
69	NGC 6440	Sgr	17:48:53	-20:21:37	9.3	18.7	4.4
70	M4 (NGC 6121)	Sco	16:23:35	-26:31:33	5.4	13.4	36
70	NGC 6144	Sco	16:27:14	-26:01:25	9	16.5	7.4
71	M80 (NGC 6093)	Sco	16:17:02	-22:58:34	7.3	16.2	10
72	NGC 6139	Sco	16:27:40	-38:50:56	9.1	17.9	8.2
73	NGC 6256	Sco	16:59:33	-37:07:17	11.3	18.2	4.1
74	NGC 6388	Sco	17:36:17	-44:44:08	6.8	17.2	10.4
75	NGC 6496	CrA	17:59:04	-44:15:57	8.6	16.5	5.6
75	NGC 6541	CrA	18:08:02	-43:42:54	6.3	15.3	15
76	NGC 6380, Ton 1	Sco	17:34:28	-39:04:09	11.5	19.5	3.6
76	Tonantzintlia 2 (Pismis 26)	Sco	17:36:11	-38:33:12	12.2	18.2	2.2
77	NGC 6441	Sco	17:50:13	-37:03:05	7.2	17.5	9.6
77	NGC 6453	Sco	17:50:52	-34:35:57	10.2	17.5	7.6
78	NGC 6352	Ara	17:25:29	-48:25:20	7.96	15.1	9
79	NGC 6362	Ara	17:31:55	-67:02:54	7.73	15.3	15

Page	Name	Const	RA	Dec	V _{mag}	HB _{Mag}	Size (')
80	NGC 6397	Ara	17:40:42	-53:40:28	5.73	12.9	31
81	ESO 280-SC06	Ara	18:09:06	-46:25:23	12.0	17.4	1.4
82	NGC 6522	Sgr	18:03:34	-30:02:02	9.9	16.9	9.4
82	NGC 6528	Sgr	18:04:50	-30:03:22	9.6	17.1	5
83	NGC 6558	Sgr	18:10:18	-31:45:50	8.6	16.7	4.2
83	NGC 6569	Sgr	18:13:39	-31:49:37	8.4	17.5	6.4
84	NGC 6624	Sgr	18:23:41	-30:21:40	7.6	16.1	8.8
85	NGC 6544	Sgr	18:07:21	-24:59:50	7.5	14.9	9.2
85	NGC 6553	Sgr	18:09:18	-25:54:31	8.3	16.9	9.2
86	NGC 6540	Sgr	18:06:09	-27:45:55	14.6	15.3	1.5
86	ESO 456-SC38, Djorg 2	Sgr	18:01:49	-27:49:33	9.9	17.6	9.9
87	M22 (NGC 6656)	Sgr	18:36:24	-23:54:17	5.2	14.2	32
87	M28 (NGC 6626)	Sgr	18:24:33	-24:52:11	6.9	15.7	13.8
87	NGC 6638	Sgr	18:30:56	-25:29:51	9.2	16.5	7.3
87	NGC 6642	Sgr	18:31:54	-23:28:31	8.9	16.3	5.8
89	M69 (NGC 6637)	Sgr	18:31:23	-32:20:53	7.7	15.9	9.8
89	M70 (NGC 6681)	Sgr	18:43:13	-32:17:32	7.8	15.6	8
89	NGC 6652	Sgr	18:35:46	-32:59:27	8.5	16.0	6
91	M54 (NGC 6715)	Sgr	18:55:03	-30:28:48	7.7	18.2	12
92	NGC 6723	Sgr	18:59:33	-36:37:56	6.8	15.5	13
93	M55 (NGC 6809)	Sgr	19:40:00	-30:57:53	6.3	14.4	19
93	Arp GC2	Sgr	19:28:44	-30:21:20	13	18.2	2.3
94	M75 (NGC 6864)	Sgr	20:06:05	-21:55:16	8.6	17.5	6.8
95	M56 (NGC 6779)	Cyg	19:16:36	+30:11:01	8.4	16.3	8.8
96	NGC 6584	Tel	18:18:38	-52:12:57	8.27	16.5	6.6
97	NGC 6752	Pav	19:10:52	-59:59:04	5.4	13.7	29
98	M71 (NGC 6838)	Sge	19:53:46	+18:46:45	8.4	14.5	7.2
99	NGC 6749	Aql	19:05:15	+01:54:03	12.4	19.7	4
99	NGC 6760	Aql	19:11:12	+01:01:50	9	17.5	9
100	NGC 6712	Scu	18:53:04	-08:42:22	8.1	16.3	9.8
101	NGC 6934	Del	20:34:11	+07:24:16	8.9	17.1	7.1
102	NGC 7006	Del	21:01:29	+16:11:14	10.6	18.8	3.6
103	M72 (NGC 6981)	Aqr	20:53:28	-12:32:14	9.2	16.9	6.6
104	M30 (NGC 7099)	Cap	21:40:22	-23:10:48	6.9	15.1	12
105	M2 (NGC 7089)	Aqr	21:33:27	-00:49:24	6.6	16.1	16
106	NGC 7492	Aqr	23:08:27	-15:36:41	11.2	17.6	4.2
107	M15 (NGC 7078)	Peg	21:29:58	+12:10:01	6.3	15.9	18

Palomar Globular Clusters

Page	Name	Const	RA	Dec	Vmag	HBMag	Size (')
109	Palomar 1	Cep	3:33:20	+79:34:52	13.6	16.8	2.8
110	Palomar 2	Aur	4:46:06	+31:22:53	13	21.7	2.2
111	Palomar 3	Sex	10:05:32	+00:04:18	13.9	20.5	1.6
112	Palomar 4	UMa	11:29:17	+28:58:25	14.2	20.8	1.3
50	Palomar 5	Oph	15:16:05	-00:06:42	11.8	17.4	8
113	Palomar 6	Oph	17:43:42	-26:13:21	11.6	19.1	1.2
113	Terzan 5	Sgr	17:48:05	-24:46:45	13.9	22.5	2.4
59	Palomar 7	Oph	18:10:44	-07:12:27	10.3	17.7	8
115	Palomar 8	Sgr	18:41:30	-19:49:33	10.9	17.3	5.2
116	Palomar 9 (NGC 6717)	Sgr	18:55:06	-22:42:05	8.4	15.6	5.4
117	Palomar 10	Sag	19:18:02	+18:34:18	13.2	19.4	4.0
118	Palomar 11	Aql	19:45:14	-08:00:26	9.8	17.4	10
119	Palomar 12	Cap	21:46:39	-21:15:09	11.7	17.1	2.9
120	Palomar 13	Peg	23:06:44	+12:46:19	13.8	17.7	0.7
121	Palomar 14	Her	16:11:01	+14:57:28	14.7	20.0	2.5
122	Palomar 15	Oph	16:59:51	-00:32:20	14.2	19.9	3.0

Terzan Globular Clusters

Page	Name	Const	RA	Dec	Vmag	HBMag	Size (')
124	Terzan 1	Sco	17:35:48	-30:28:11	15.9	21.4	2.4
124	Terzan 2	Sco	17:27:33	-30:48:08	14.3	19.8	0.6
124	Terzan 4	Sco	17:30:39	-31:35:44	16	21.6	0.7
126	Terzan 3	Sco	16:28:40	-35:21:13	12	17.3	3.0
113	Terzan 5	Sgr	17:48:05	-24:46:45	13.9	22.5	2.4
127	Terzan 6	Sgr	17:50:46	-31:16:31	13.9	22.3	1.4
128	Terzan 7	Sgr	19:17:44	-34:39:28	12	17.9	1.2
129	Terzan 8	Sgr	19:41:44	-33:59:58	12.4	18.0	3.5
130	Terzan 9	Sgr	18:01:39	-26:50:23	16	20.3	0.2
130	Terzan 10	Sgr	18:03:36	-26:04:21	14.9	21.9	1.5
132	Terzan 11	Sgr	18:12:16	-22:44:31	16.4	20.5	1.0

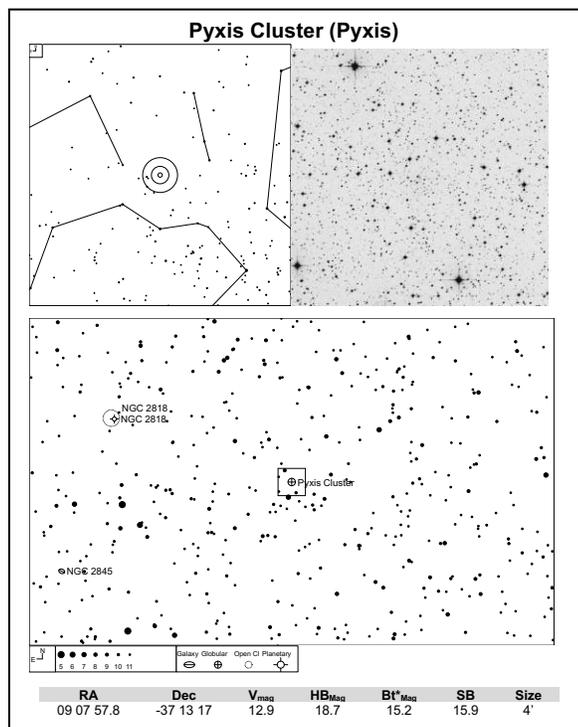
Candidate and Extremely Faint Globular Clusters

Page	Name	Const	RA	Dec	Vmag	HBMag	Size (')
134	Whiting 1	Cet	2:02:57	-03:15:10	15.0	-	1.2
135	E 1, AM 1	Hor	3:55:02	-49:36:55	15.72	21.0	0.5
136	Eridanus Cluster	Eri	4:24:45	-21:11:13	14.7	20.4	-
137	Koposov 2	Gem	7:58:17	+26:15:18	17.6	-	-
138	Pyxis Cluster	Pyx	9:07:58	-37:13:17	12.9	18.7	4
139	Laevens 1	Crt	11:36:16	-10:52:39	17.5	-	-
140	Koposov 1	Vir	11:59:19	+12:15:36	14.2	-	-
141	AM 4	Hyd	13:56:22	-27:10:03	15.9	21.6	3
142	[PWM78] 2	Oph	17:58:39	-05:04:21	-	-	2
143	VVV CL001	Oph	17:41:06	-28:50:42	-	-	-
144	1636-283 (ESO 452-SCII)	Sco	16:39:25	-28:23:55	12	16.6	1.2
145	Liller 1	Sco	17:33:24	-33:23:20	15.8	24.4	0.3
146	Djorgovski 1	Sco	17:47:28	-33:03:56	13.6	20.8	0.8
147	FSR 1735	Ara	16:52:11	-47:03:29	12.9	-	0.8
148	UKS 1	Sgr	17:54:27	-24:08:43	17.3	25.5	2
149	2MASS-GC1	Sgr	18:08:22	-19:49:47	27.7	-	3.3
149	2MASS-GC2	Sgr	18:09:37	-20:46:44	24.6	-	1.9
150	AL 3	Sgr	18:14:07	-28:38:06	14.0	-	1.3
151	GLIMPSE-C01	Aql	18:48:50	-01:29:50	-	-	-
152	Segue 3	Peg	21:21:31	+19:07:02	14.9	-	1.3

Planetary Nebulae Within Globular Clusters

Page	Name	Const	RA	Dec	Vmag	Size (')
154	Pease 1 in M15	Peg	21 29 59.4	+12 10 26	14.1v	1.0"
155	GJC1 in M22	Sgr	18 36 22.8	-23 55 18	-	-
157	JaFu1 in Palomar 6	Oph	17 43 57.4	-26 11 54	-	-
158	JaFu2 in NGC 6441	Sco	17 50 11.1	-37 03 27	-	-

How to Use this Guide



The upper left panel contains the naked eye field with the Telrad™ superimposed on the center of the globular or, if multiple globular clusters, the center of the finder field. The top right panel contains the inverted DSS image. The image is 15' square, unless noted.

The bottom panel is a finder field of about 4.5° 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”, as I do. The limiting magnitude of the field stars is set between 10 and 12. The magnitude scale on the bottom left will indicate the limited magnitude of the corresponding chart. The field of the DSS image is superimposed on the finder chart or a 1-degree circle for the brighter objects.

In some cases, where more than one globular cluster is visible within a finder field, all are included in a single

chart rather than multiple pages.

A table provided at the end of the page contains the following data.²

- **RA** and **Dec** – coordinates in 2000 coordinates
- **V_{mag}** – Visual magnitude
- **HB_{mag}** – V magnitude of the horizontal branch of the globular cluster, where a large number of stars become visible, indicates being resolved.
- **Bt*_{mag}** – V magnitude of the brightest star
- **SB** – Surface brightness in V magnitude per square arcminute
- **Size** – Diameter of the object in arcminutes

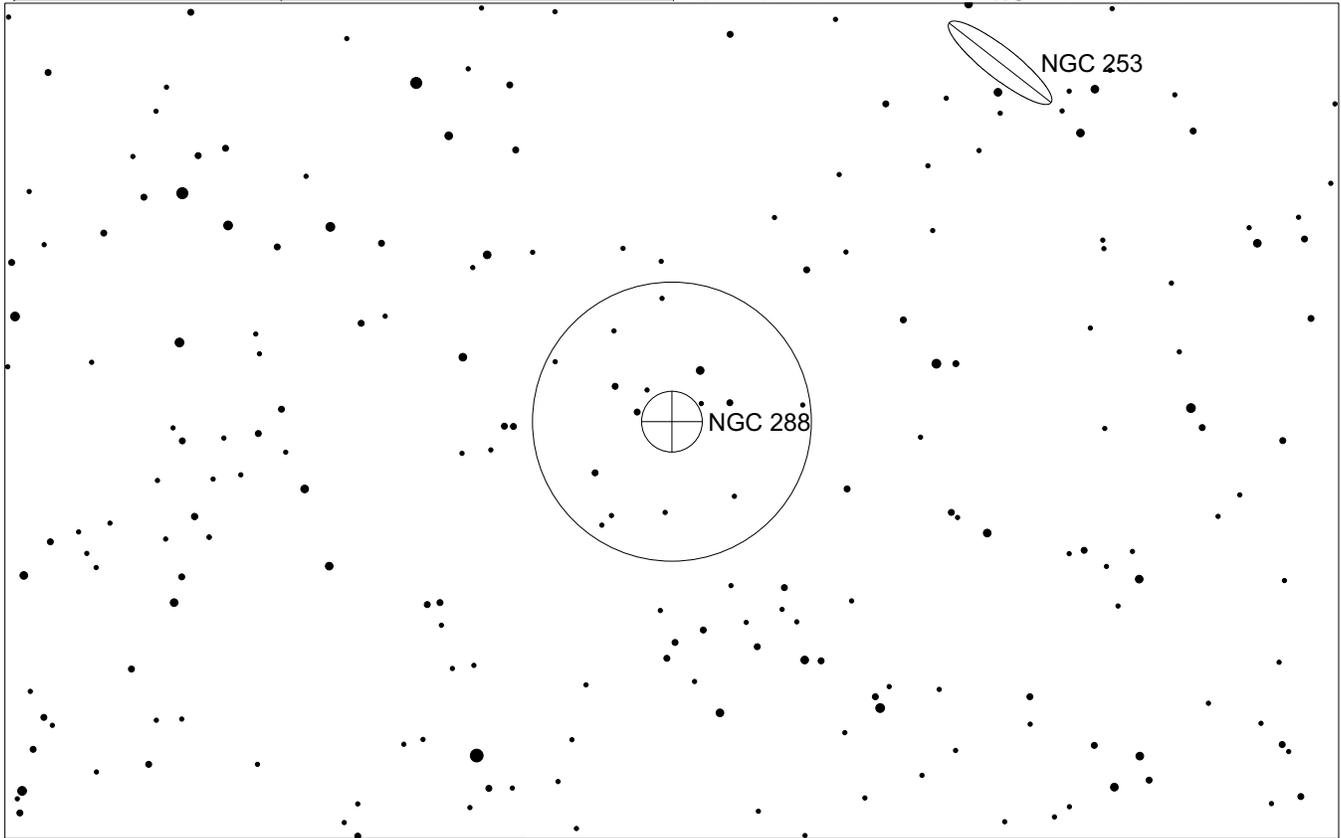
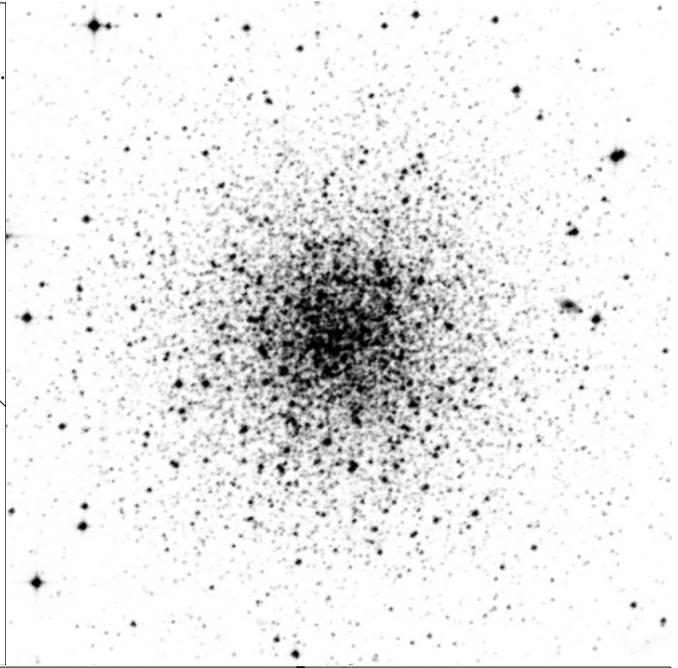
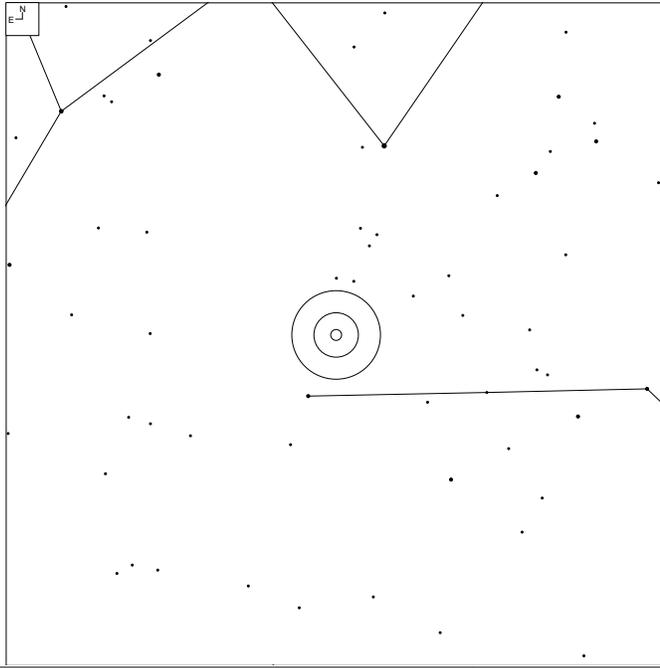
Any comments or to share any observations, send them to Alvin.Huey@FaintFuzzies.com.

Any feedback or suggestions would be greatly appreciated. I hope to keep this resource updated and made available to all of you, the deep sky observer.

² Source data is from Brent A. Archinal and Steven J. Hynes. *Star Clusters*. Richmond, VA: Willmann-Bell, 2003.

Milky Way Globular Clusters

NGC 288 (Sculptor)



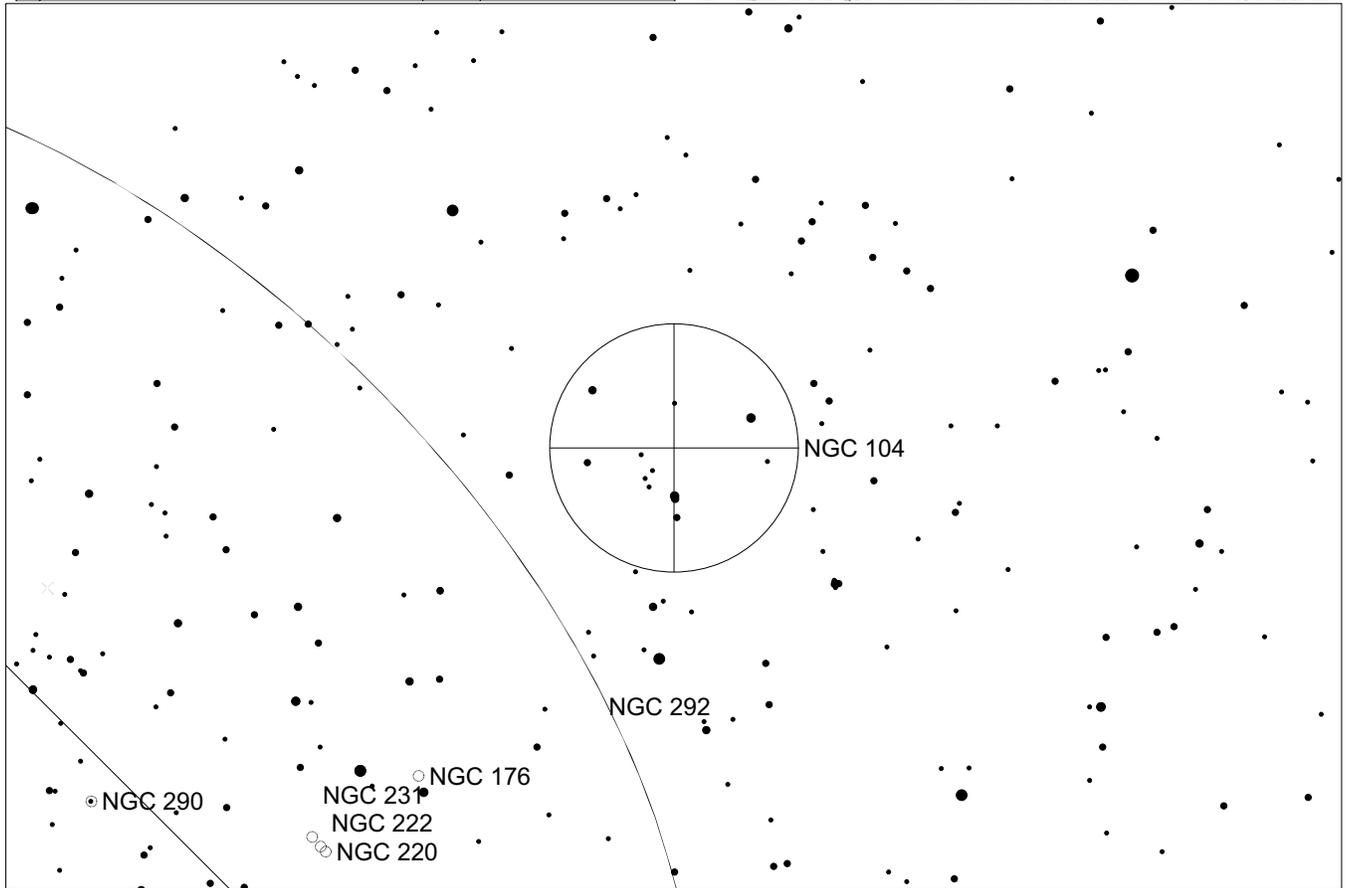
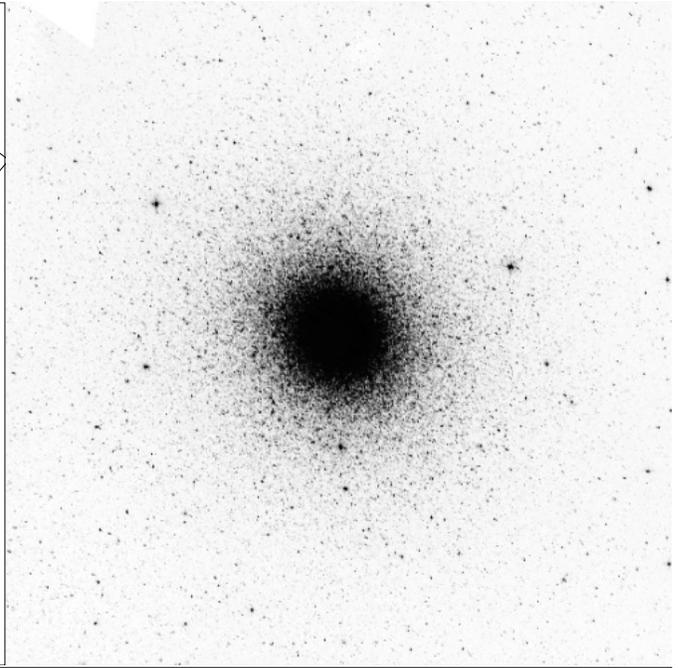
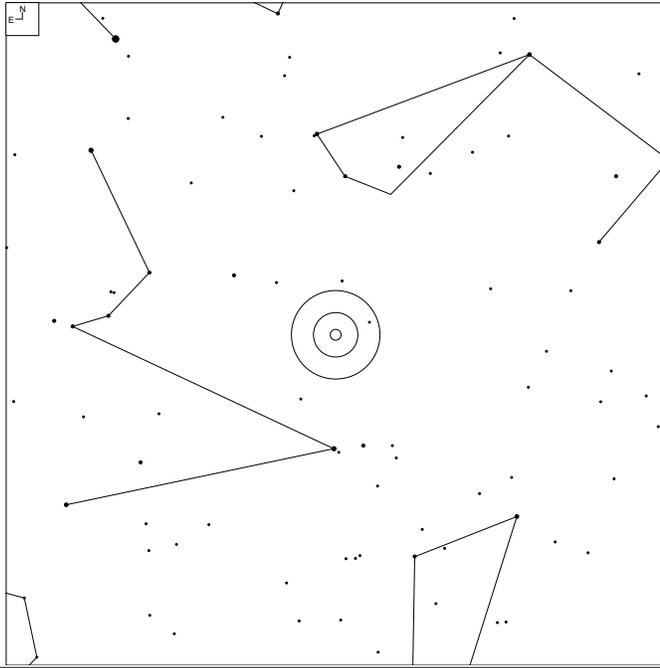
N
E

● ● ● ● ● ●
 6 7 8 9 10 11 12

Galaxy Globular
○ ⊕

RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
00 52 45	-26 34 57	8.1	15.3	12.6	13.7	13'

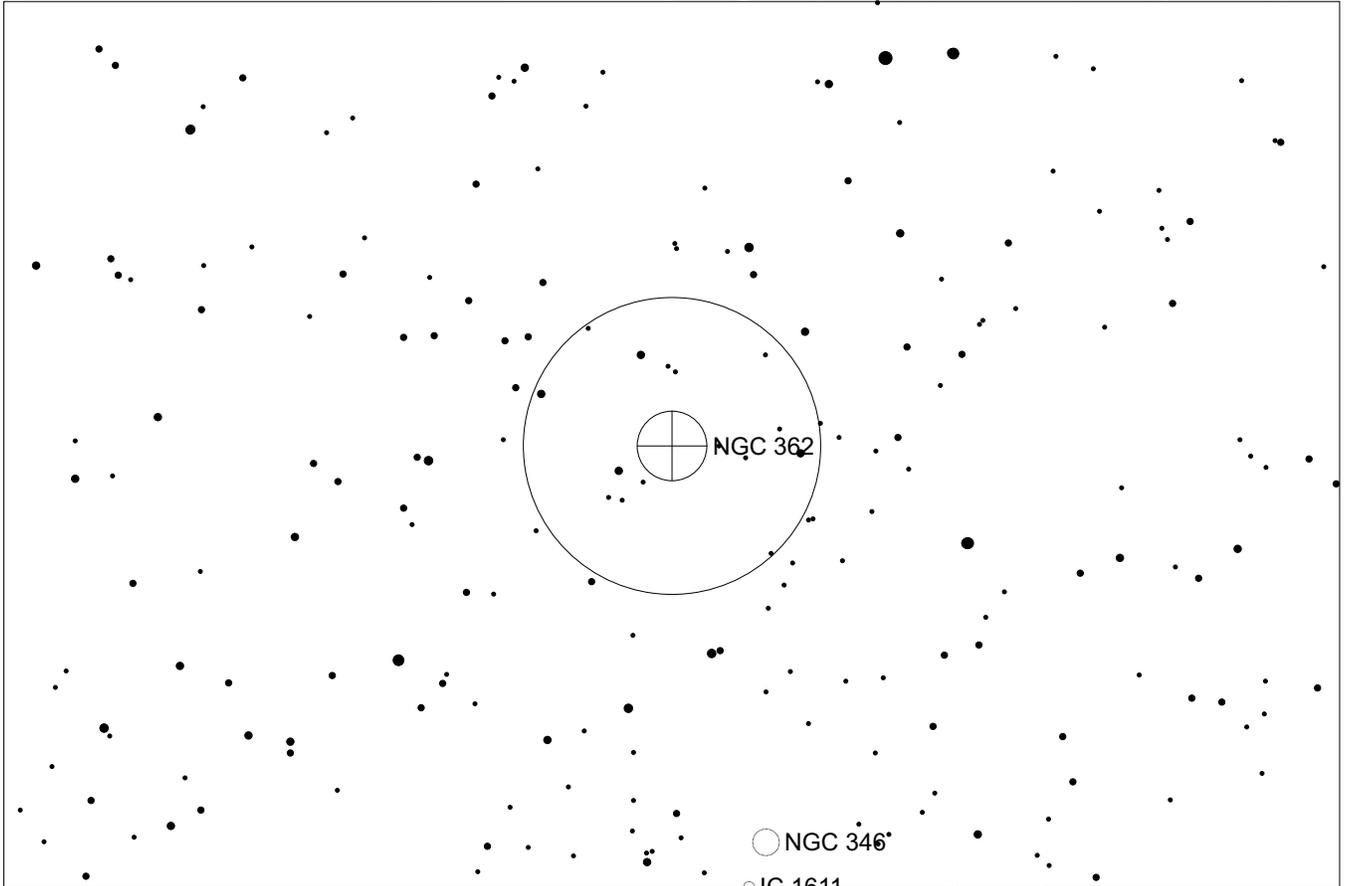
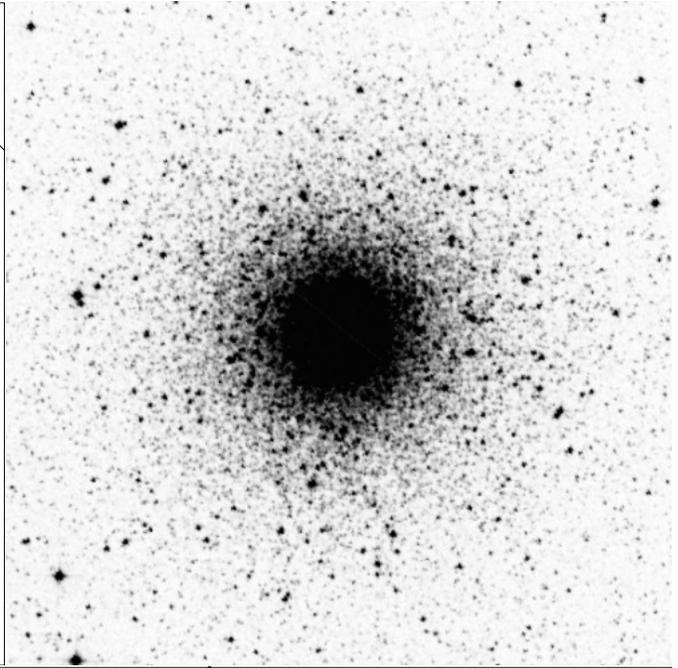
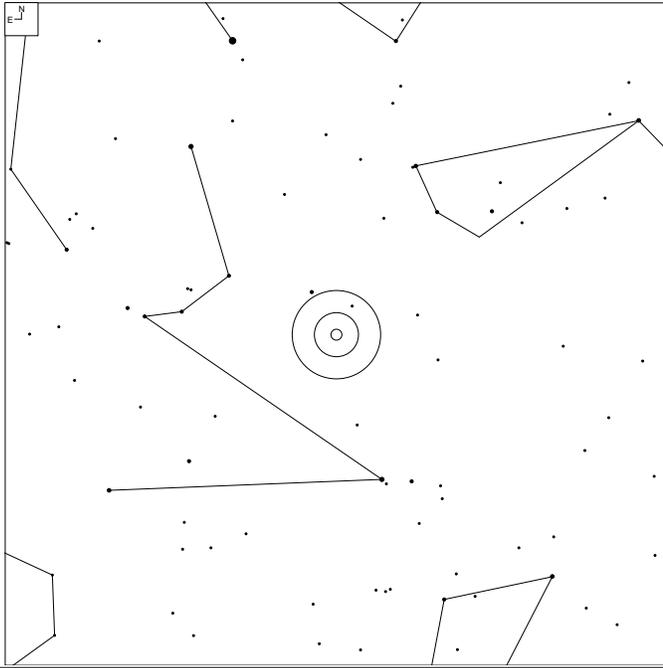
NGC 104, 47 Tucanae (Tucana)



E-N	●	●	●	●	●	Galaxy	Globular	Open Cl	X-Ray
	6	7	8	9	10	11	⊖	⊕	○

RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
00 24 06	-72 04 52	4.1	14.1	11.7	12.5	50

NGC 362 (Tucana)

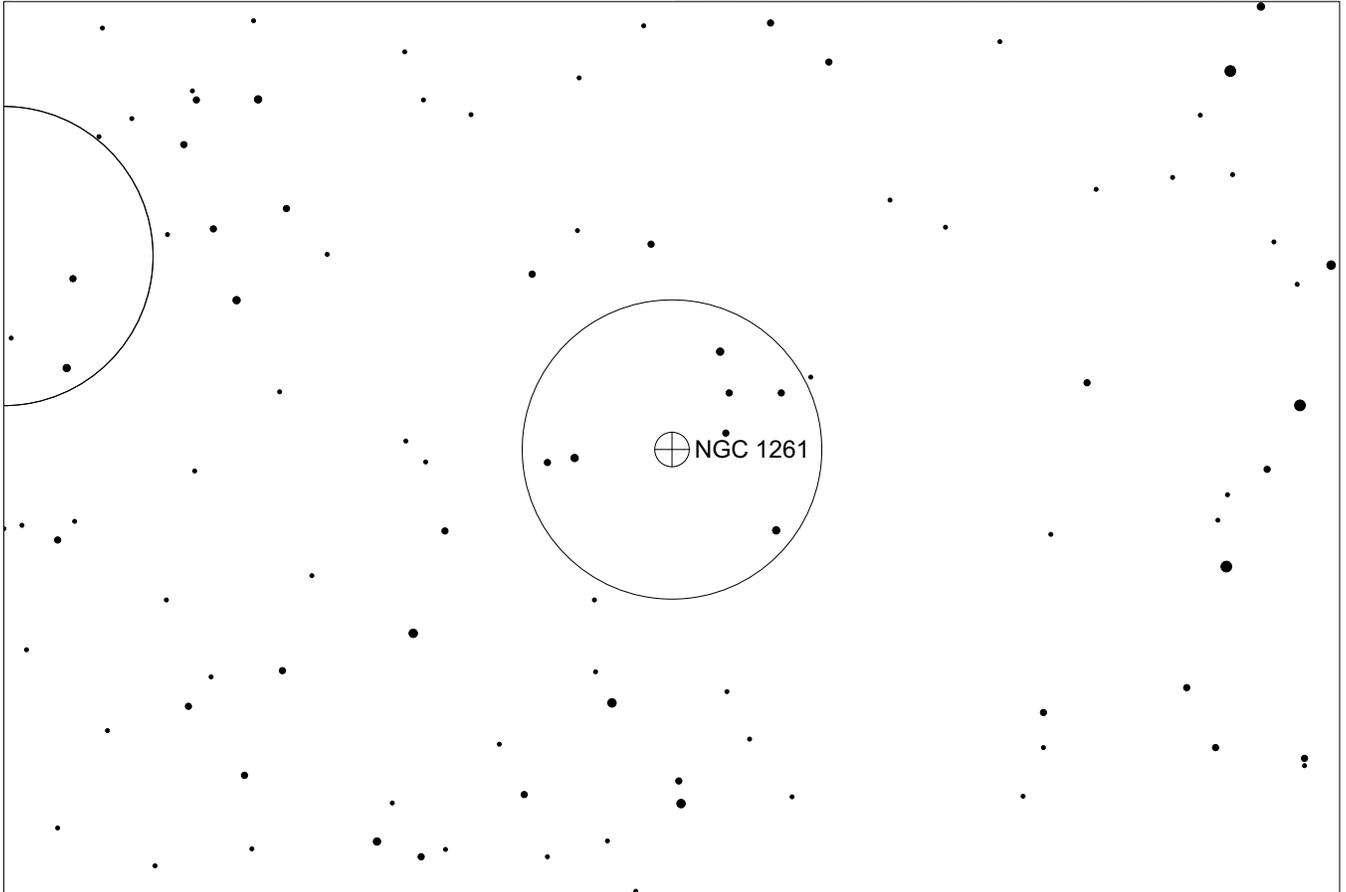
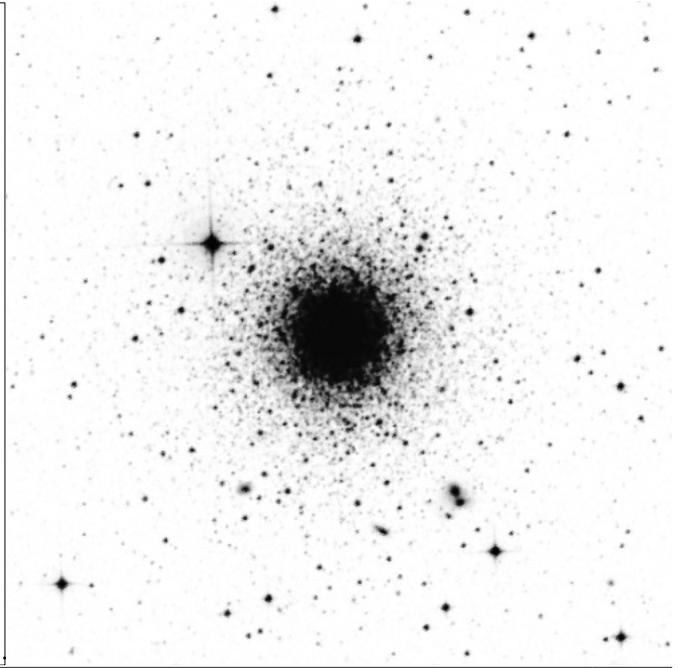
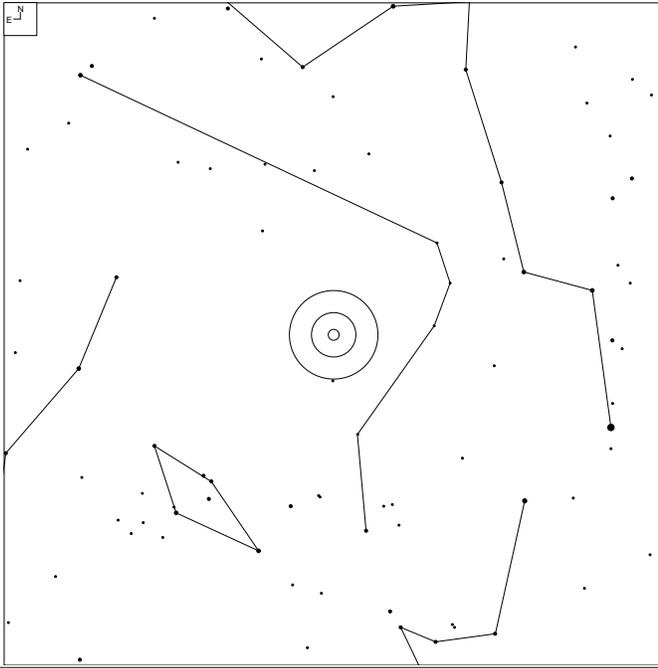


6
 7
 8
 9
 10
 11
 12

Galaxy
 Globular
 Open Cl

RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
01 03 14	-70 50 56	6.6v	15.4	12.7	12.5	14

NGC 1261 (Horologium)

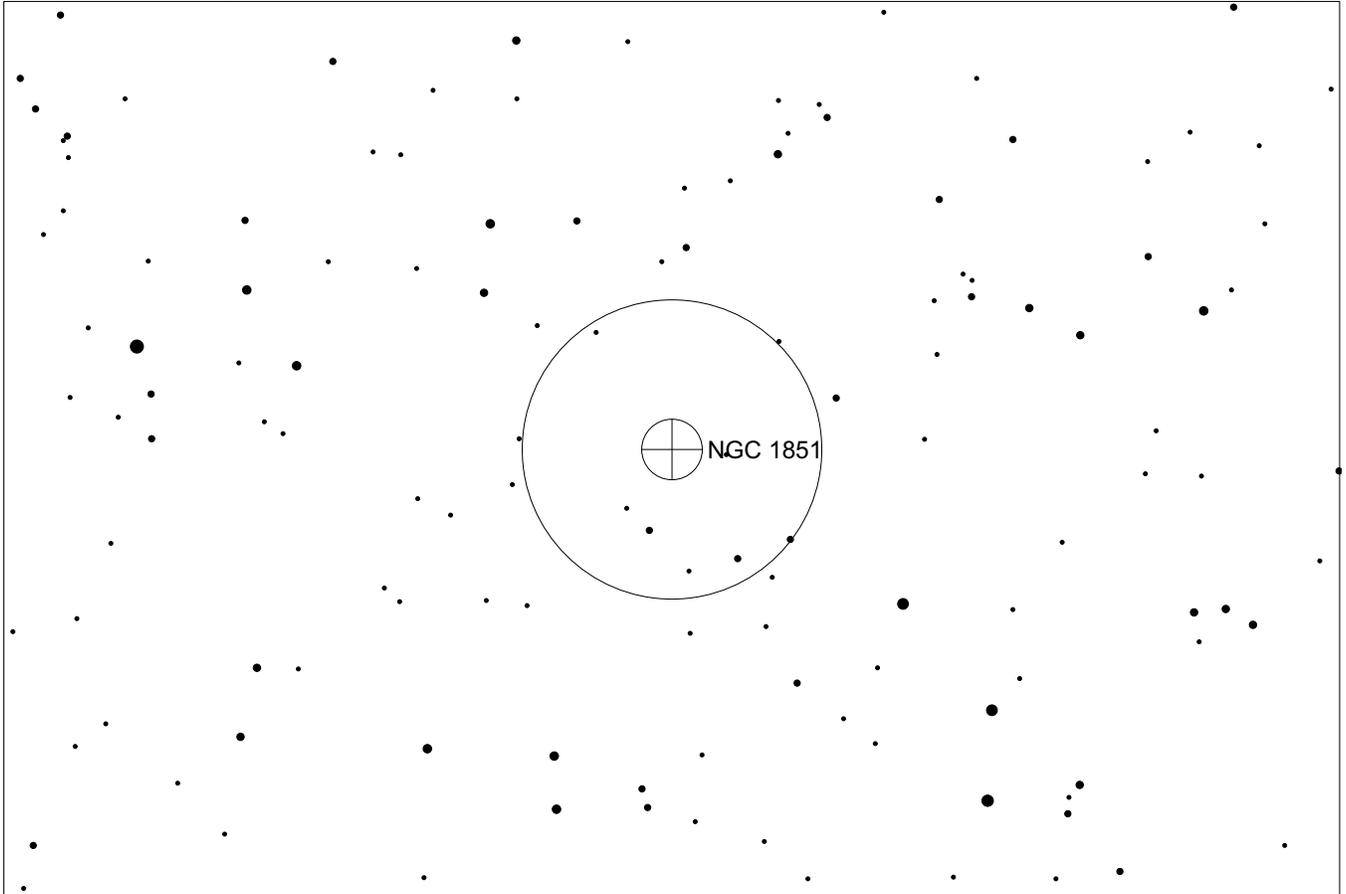
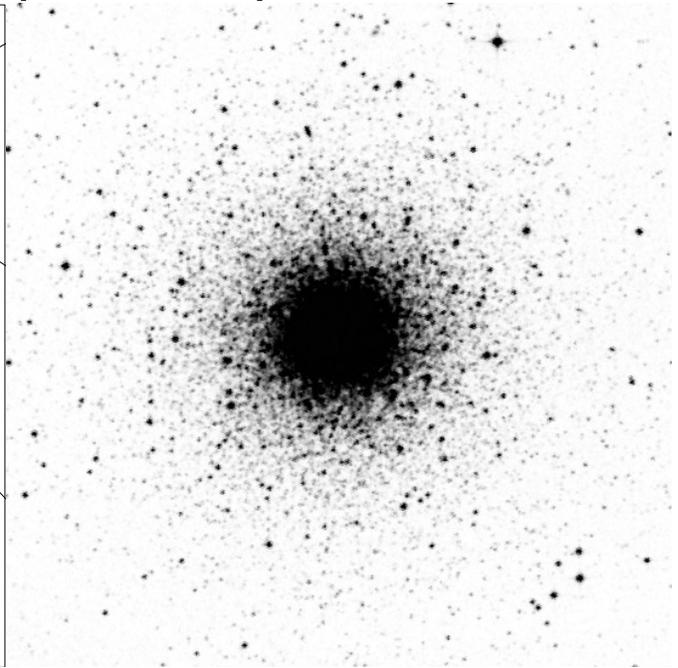
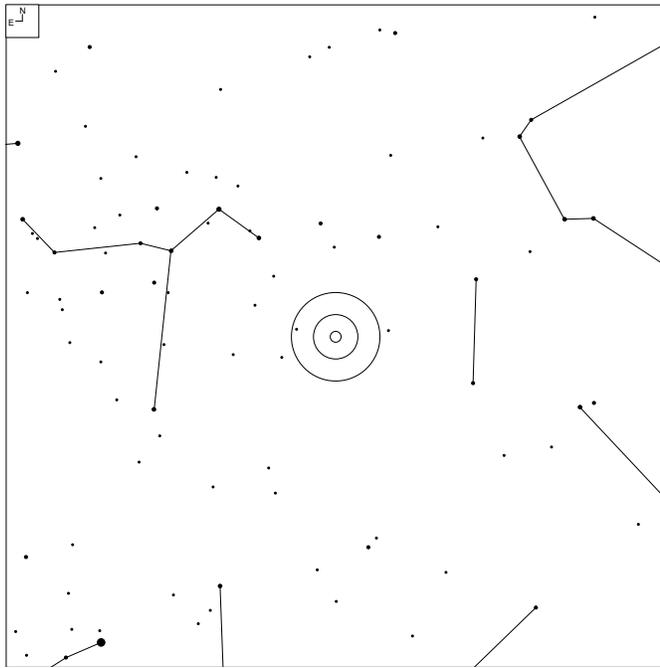


E N └┘
● ● ● ● ●
7 8 9 10 11

Galaxy Globular
⊖ ⊕

RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
03 12 16	-55 12 58	8.29	16.7	13.5	12.5	6.8

NGC 1851 (Columba)



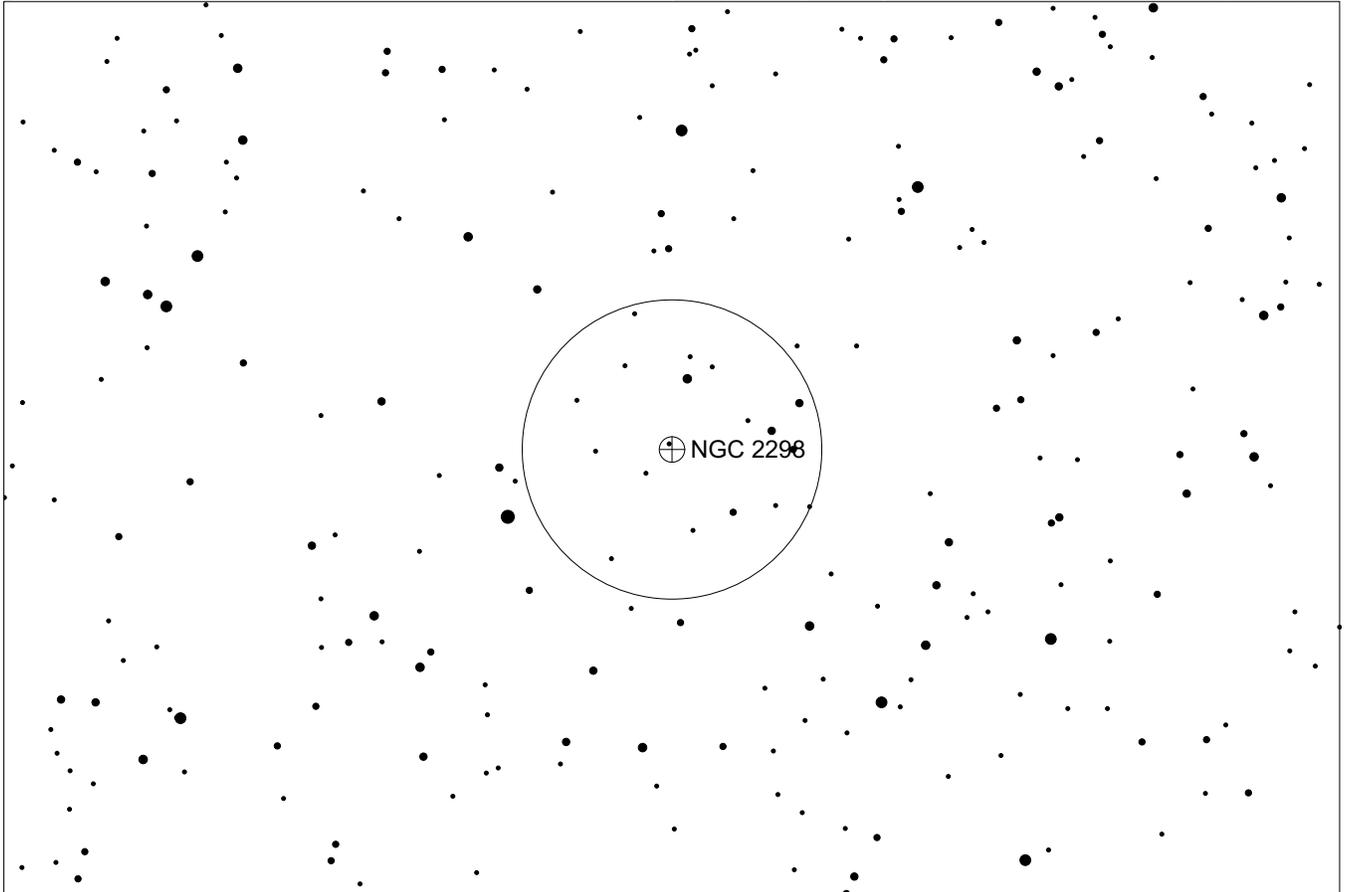
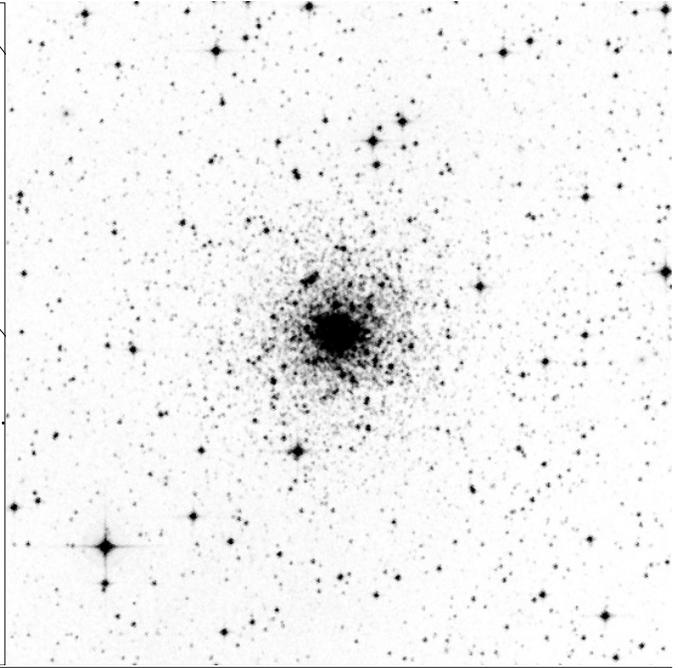
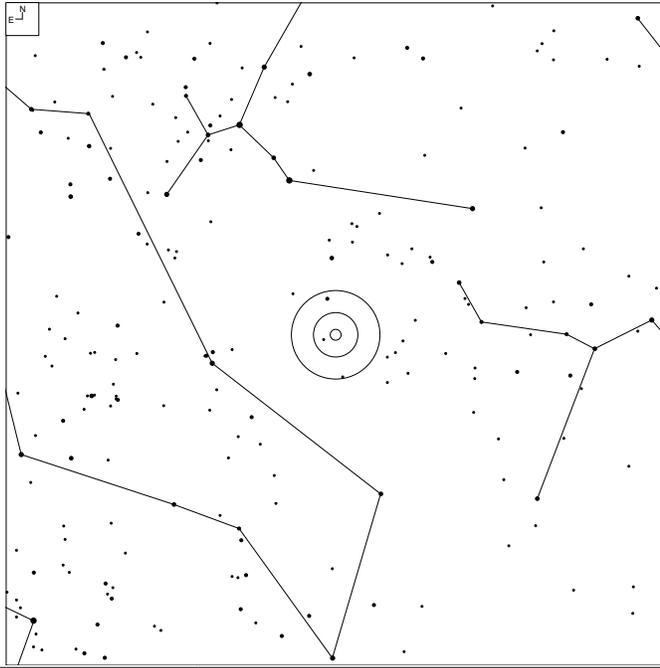
E-N

 ● ● ● ● ●
 6 7 8 9 10 11

 Galaxy Globular
 ⊖ ⊕

RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
05 14 06.3	-40 02 50	7.1	16.1	13.2	12.5	12'

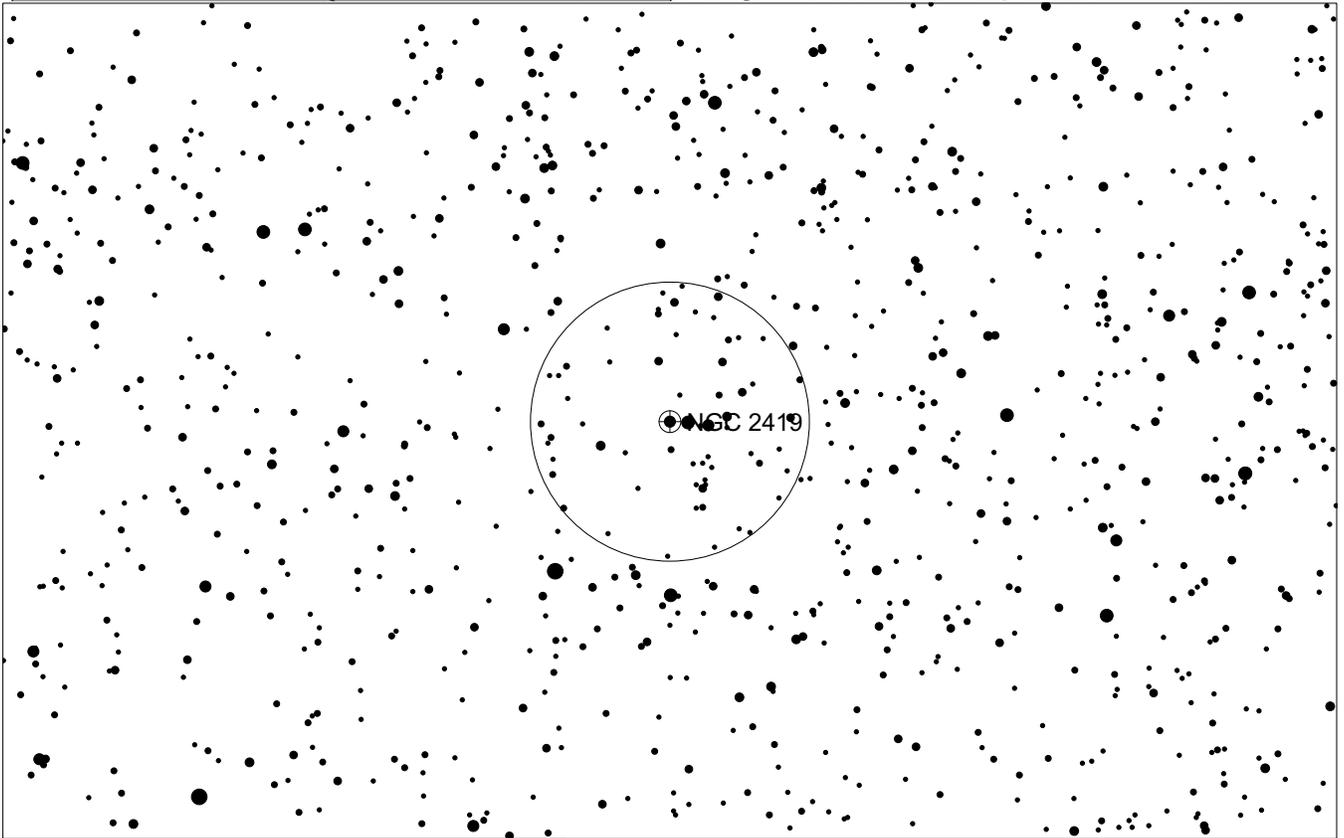
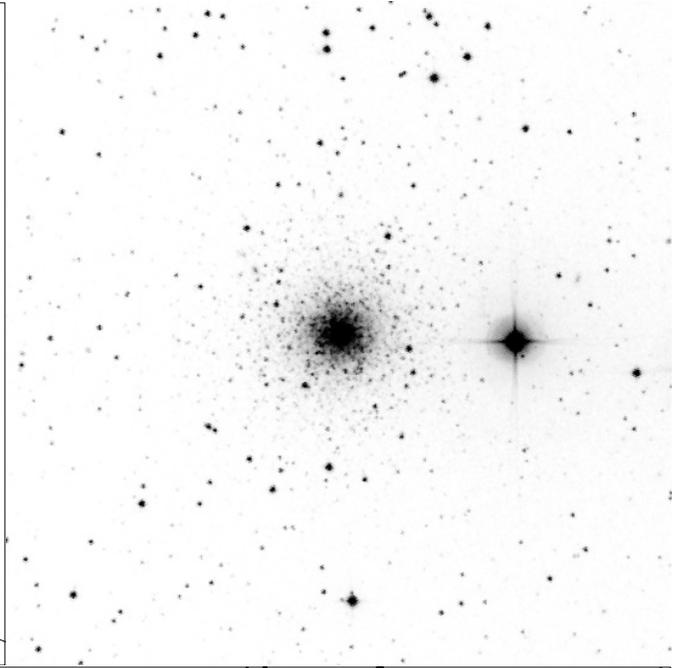
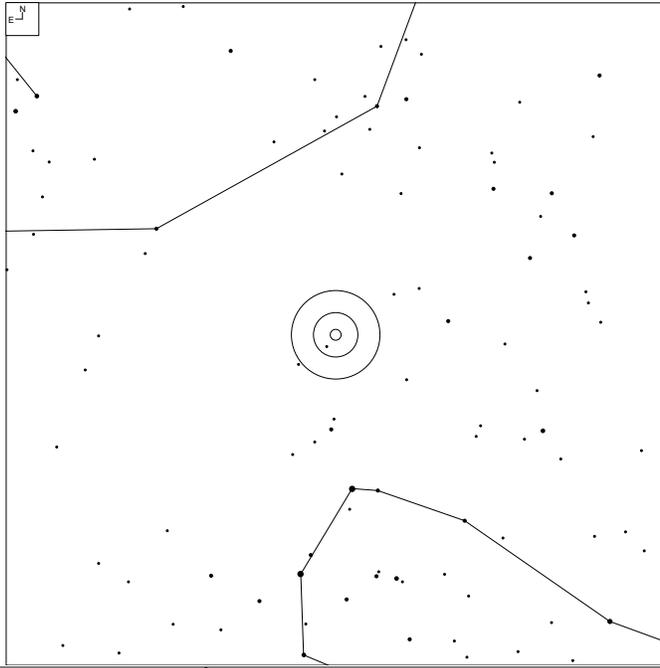
NGC 2298 (Puppis)



E-N
● ● ● ● ● Galaxy Globular
6 7 8 9 10 11 ⊖ ⊕

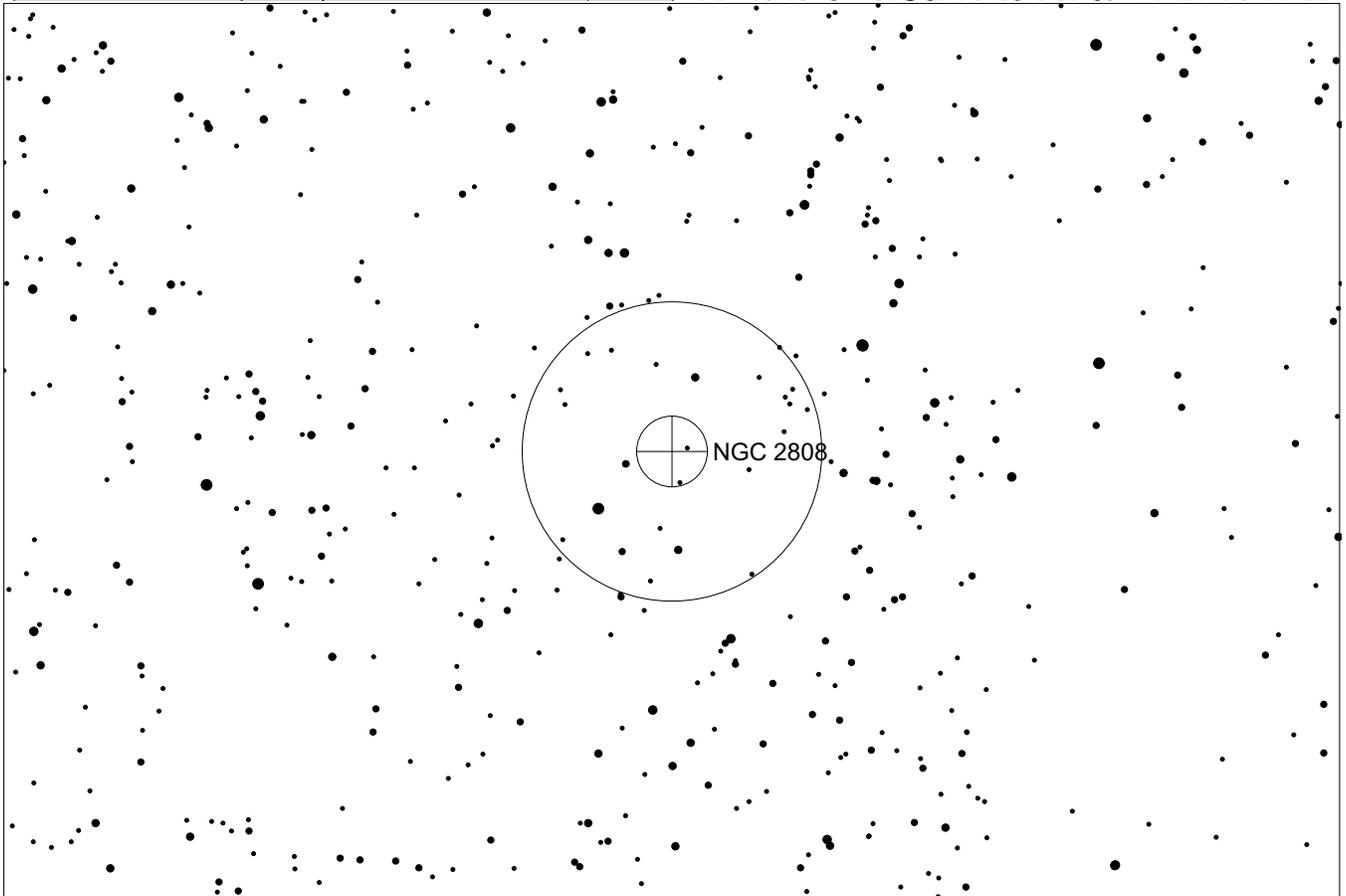
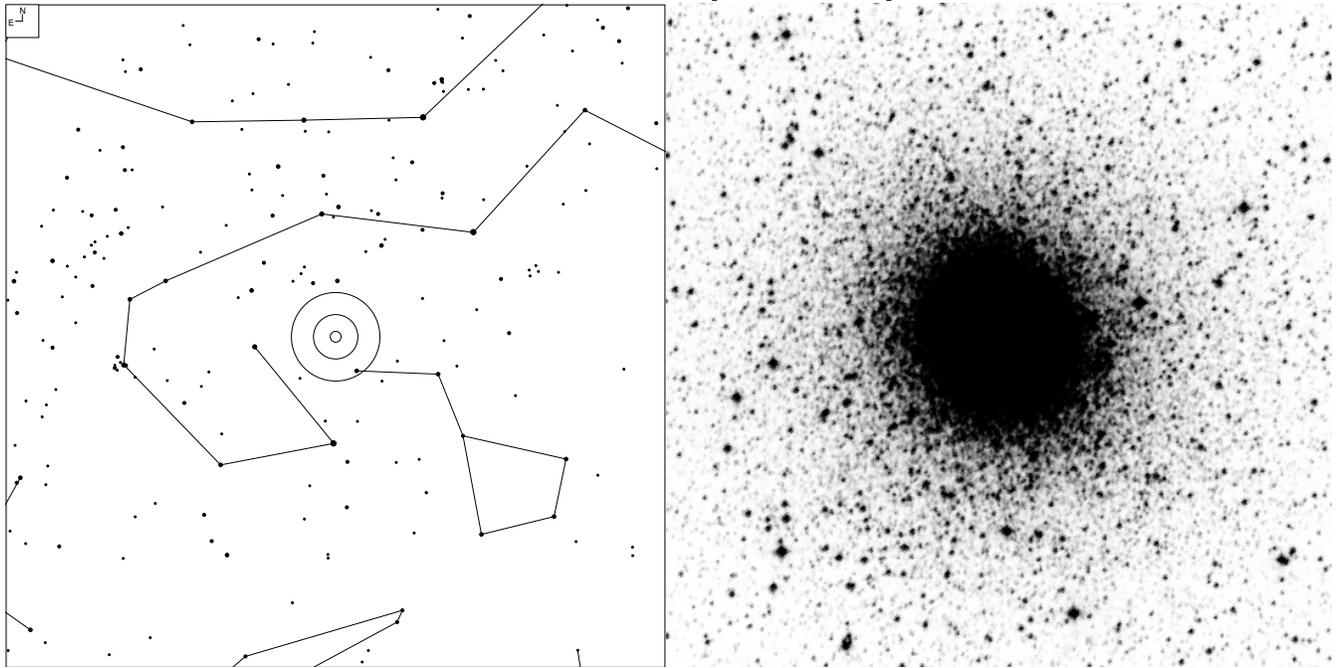
RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
06 48 59.2	-36 00 19	9.3	16.2	13.4	12.8	5'

NGC 2419 (Lynx)



RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
07 38 08.5	+38 52 55	10.3	20.2	17.3	13.6	4.6'

NGC 2808 (Carina)



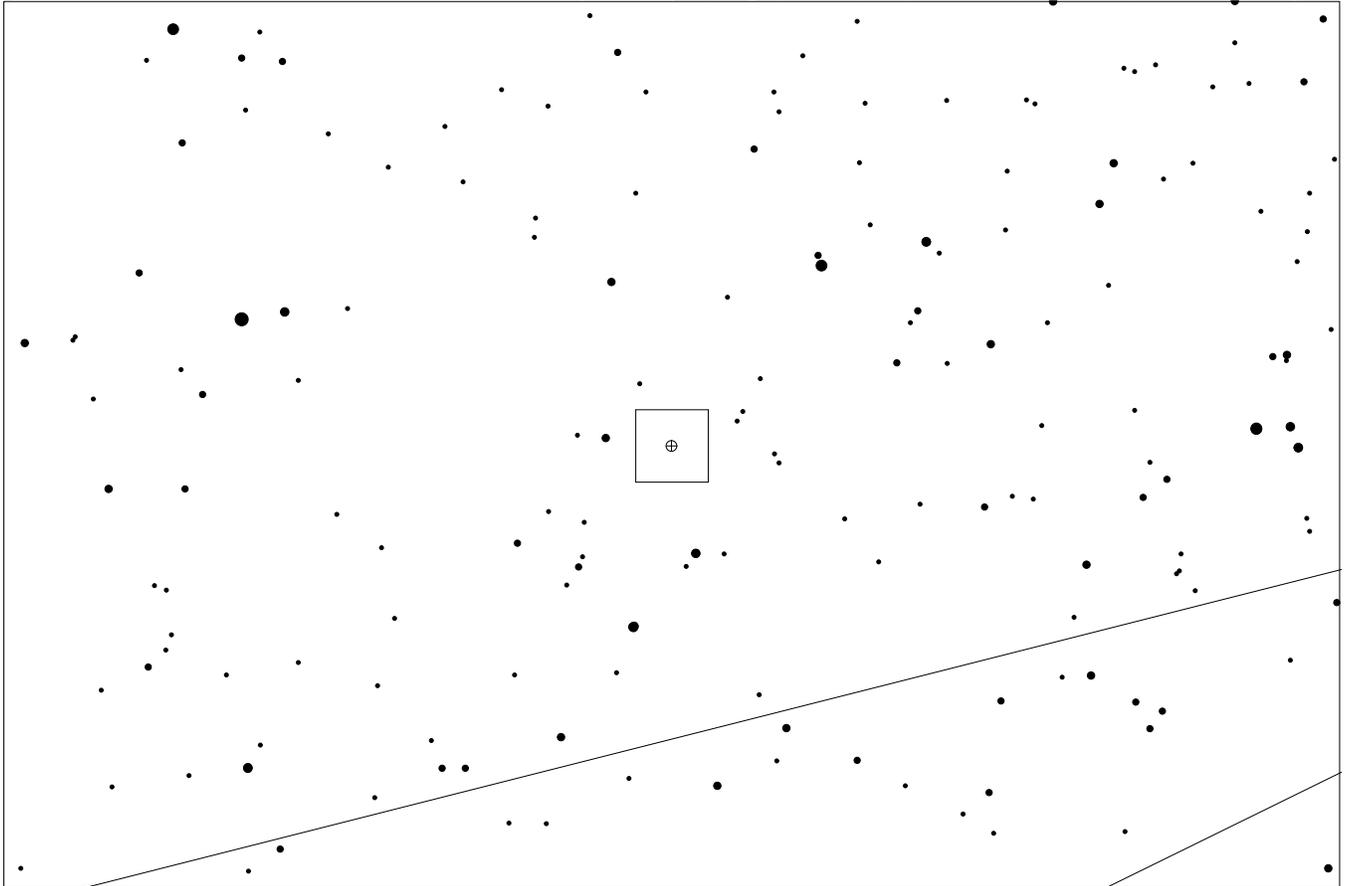
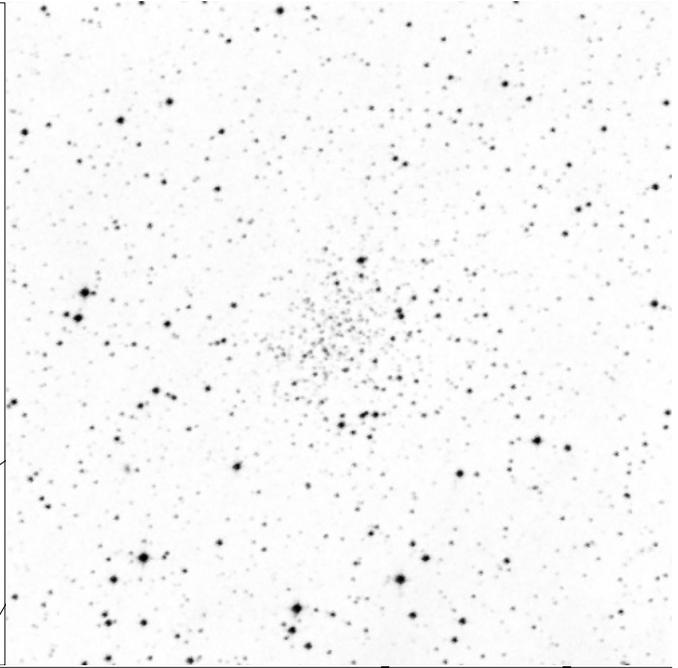
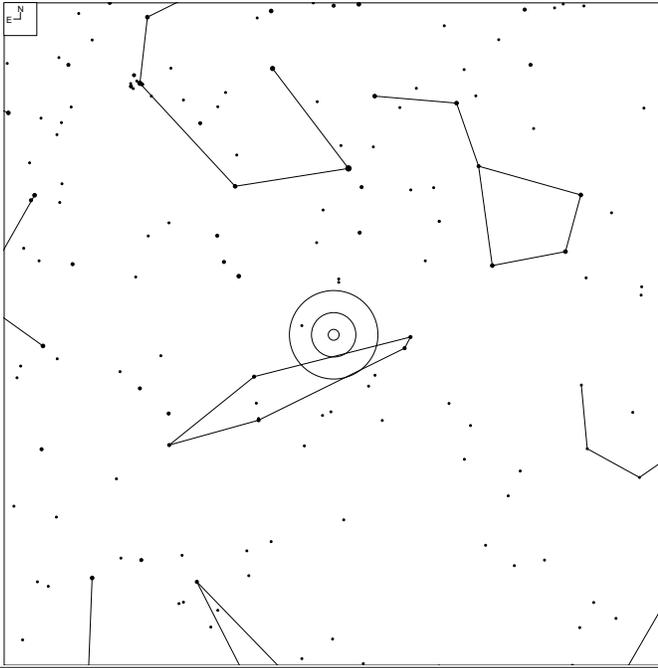
E ↘ N ↑

 ● ● ● ● ●
 6 7 8 9 10 11

 Galaxy Globular
 ⊖ ⊕

RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
09 12 03	-64 51 49	6.2	16.2	13.4	12.8	14

E 3 (Chamaeleon)

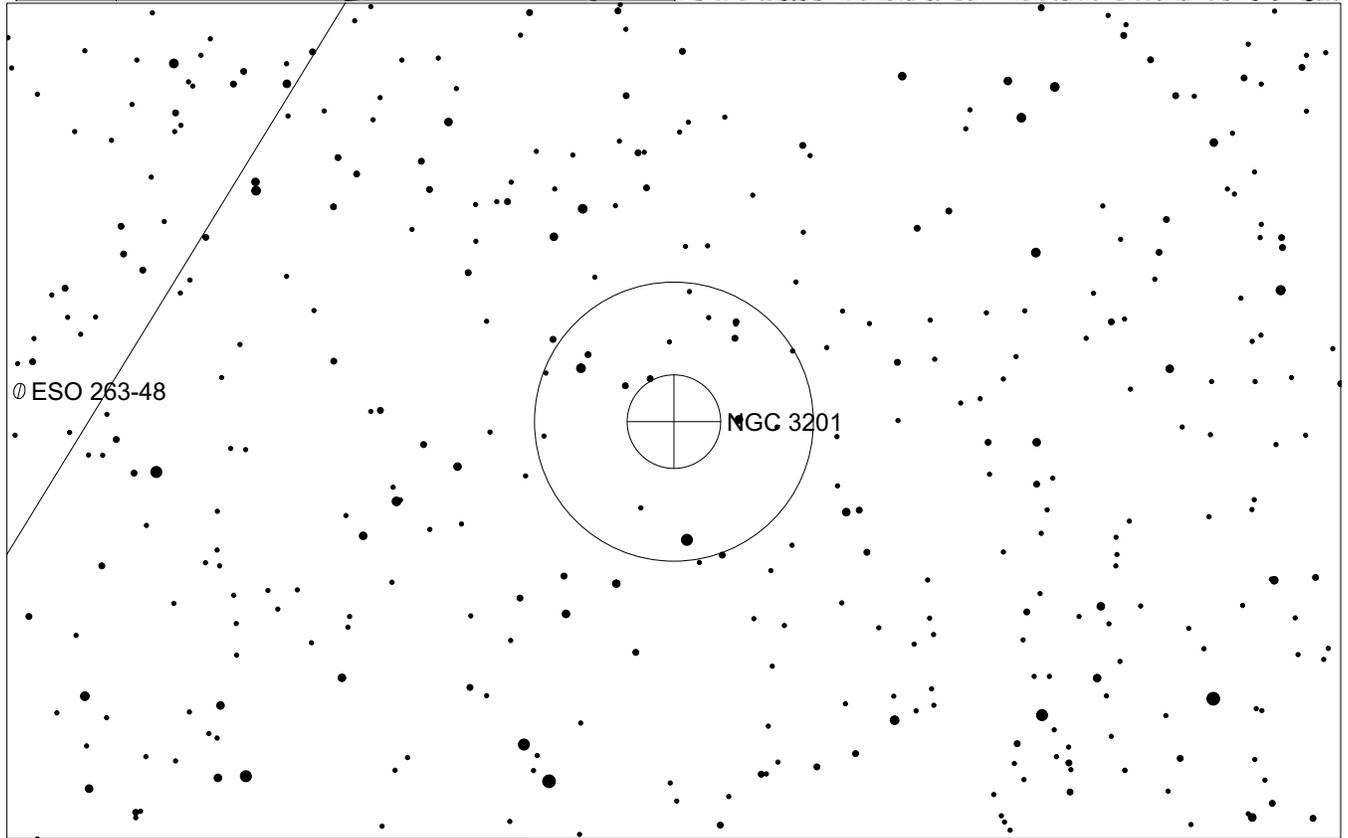
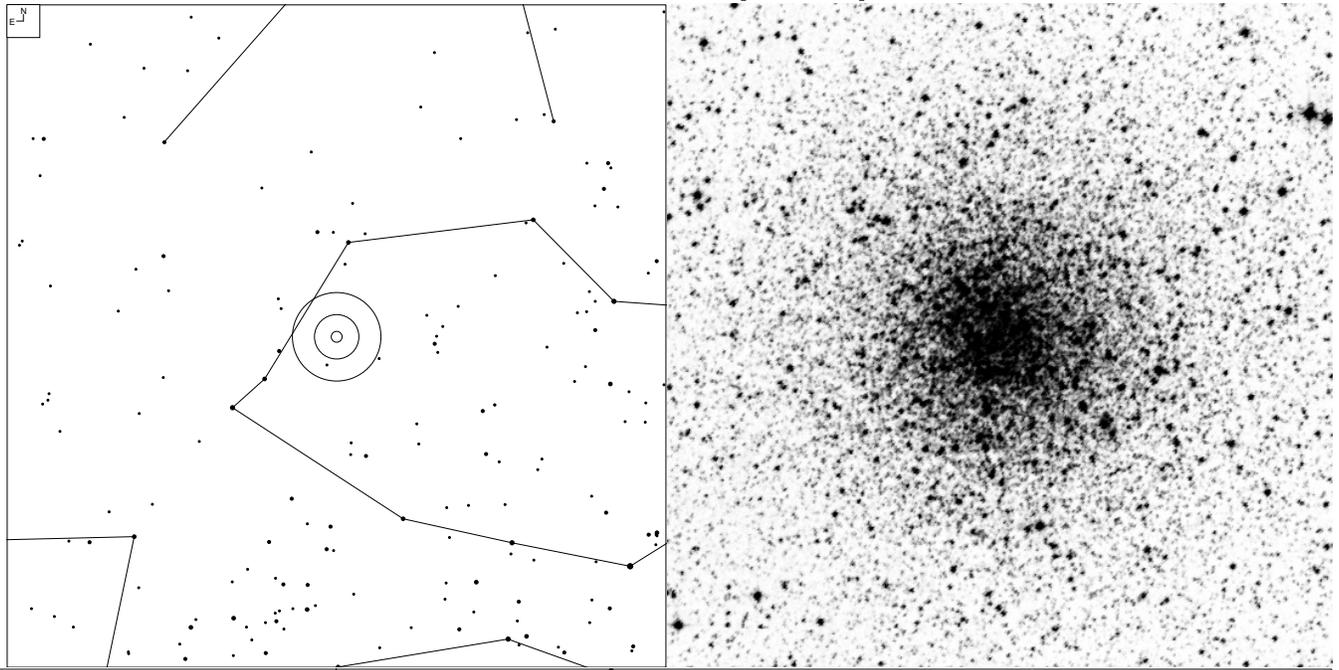


E N
5 6 7 8 9 10 11

Galaxy Globular
⊖ ⊕

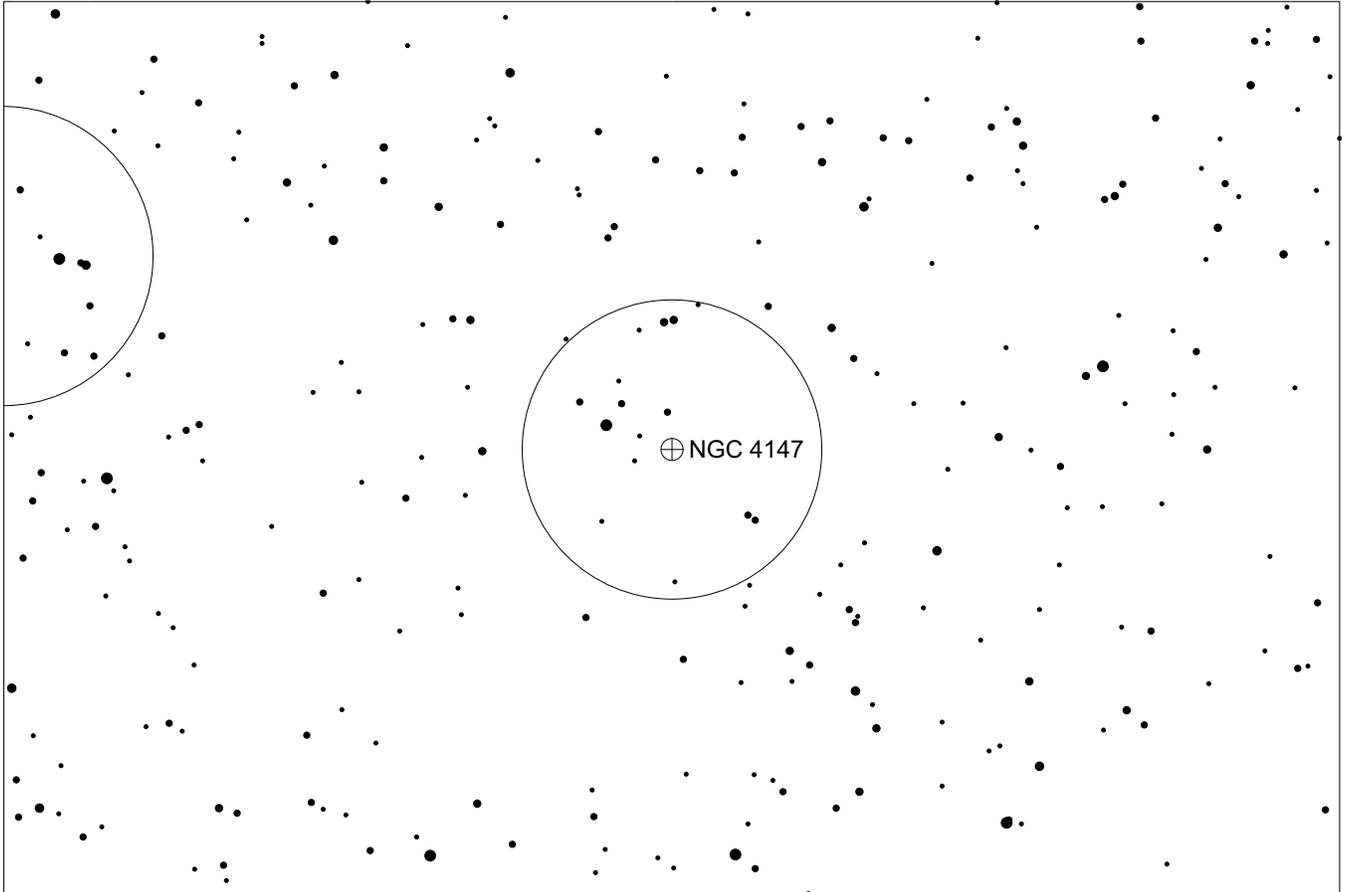
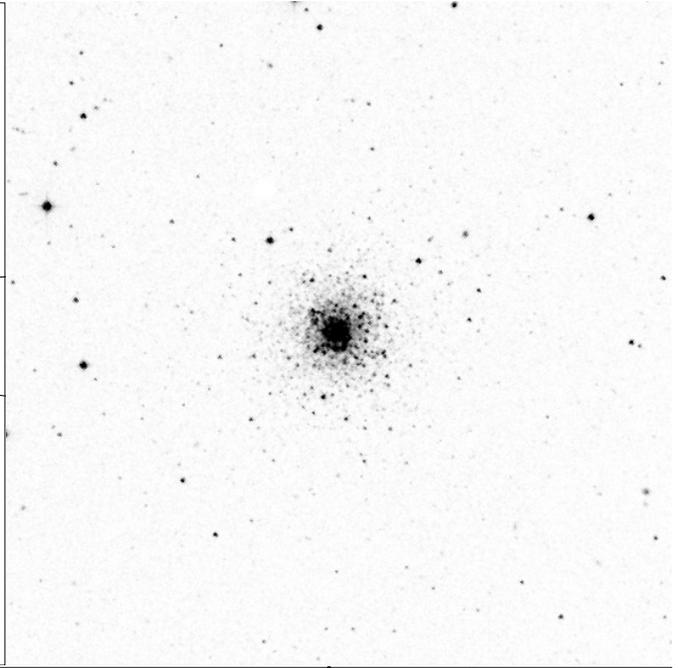
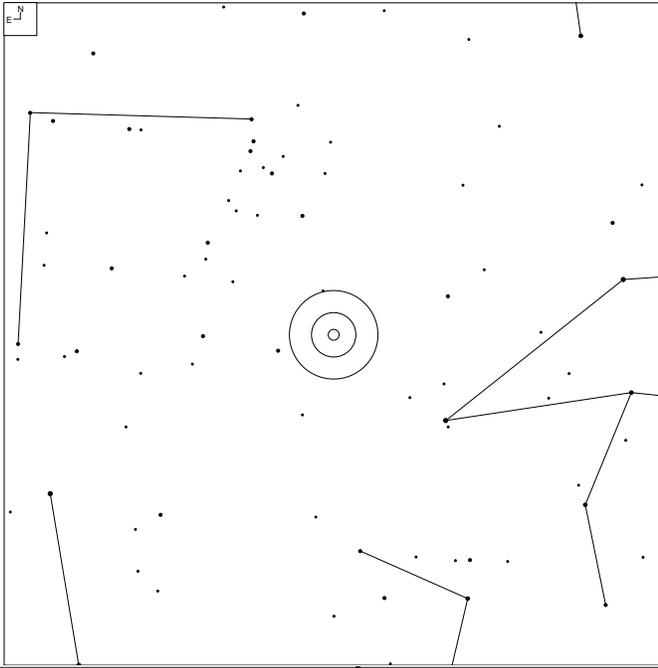
RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
09 20 57	-77 16 55	11.35	14.8	17.0	-	-

NGC 3201 (Vela)



RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
10 17 36.8	-46 24 40	6.9	14.8	11.7	13.4	20'

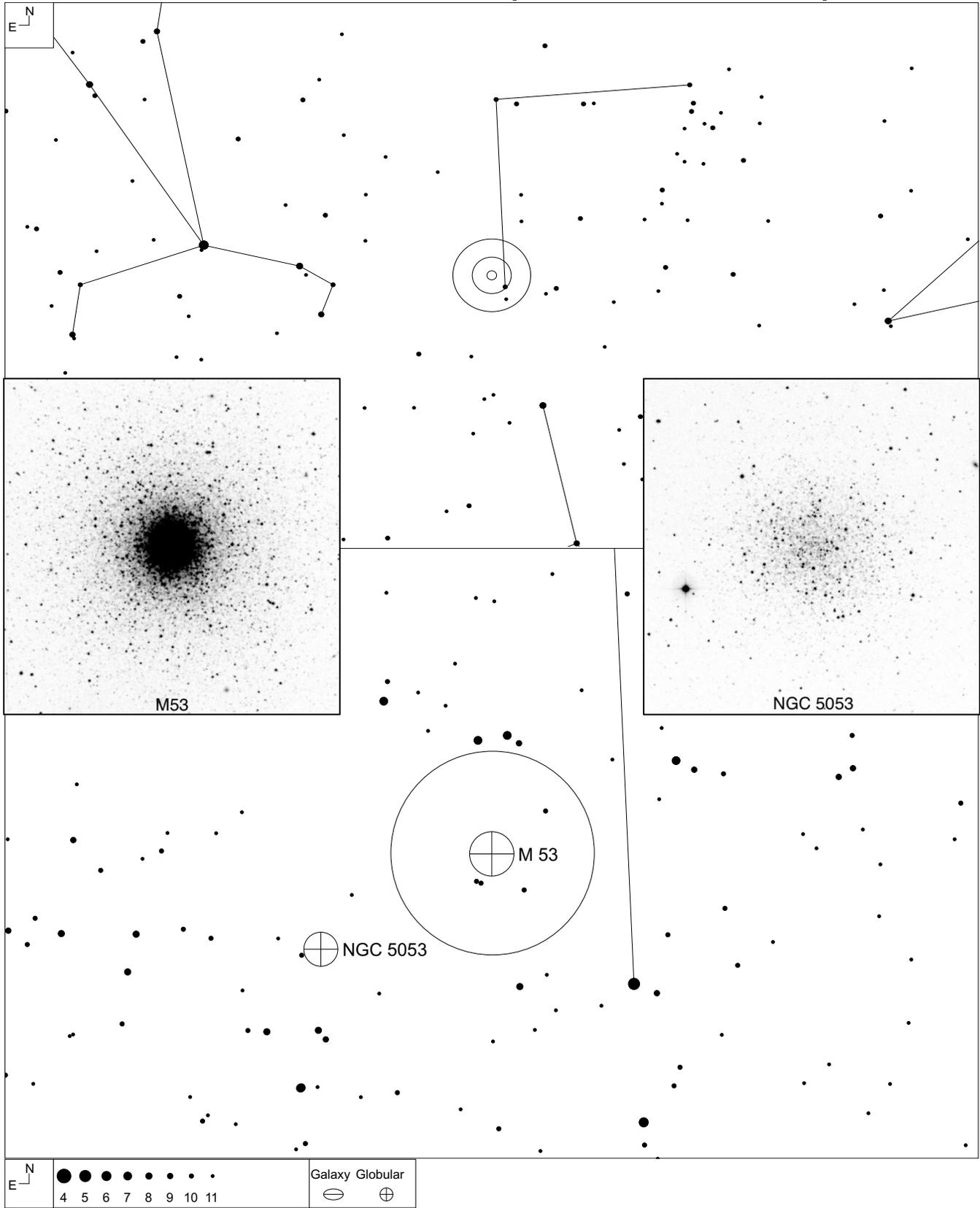
NGC 4147 (Coma Berenices)



E N
● ● ● ● ● Galaxy Globular
7 8 9 10 11 12 ⊖ ⊕

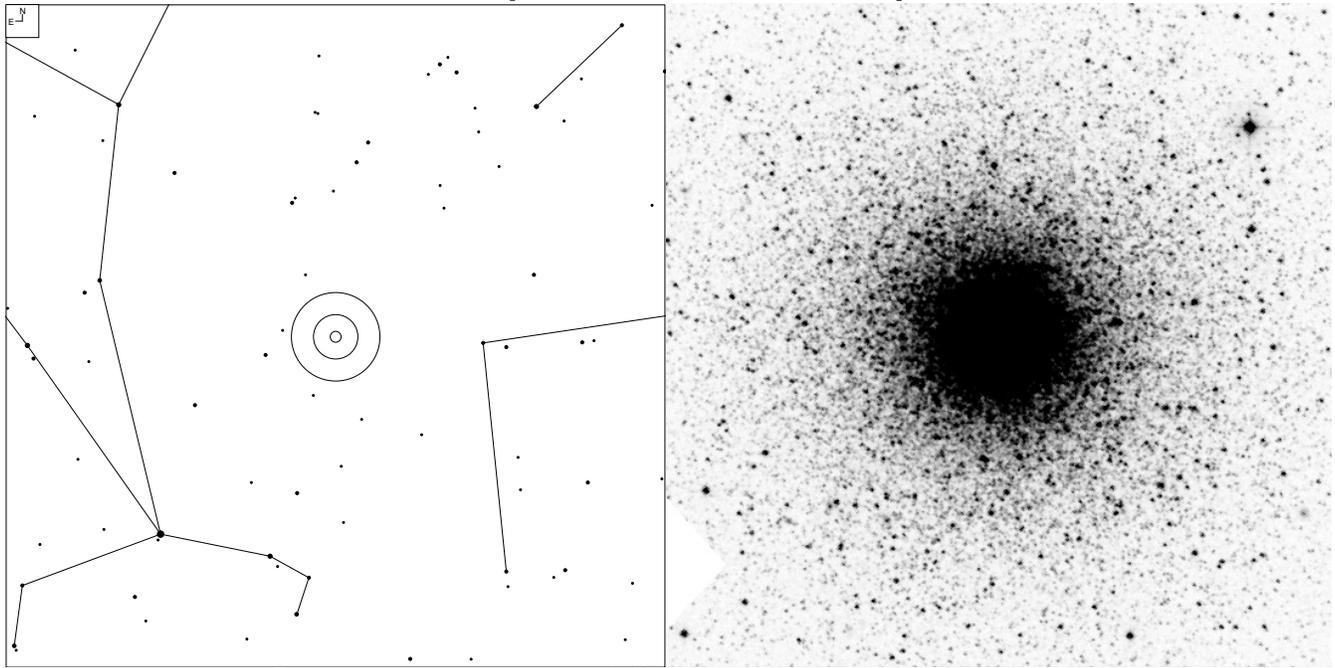
RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
12 10 06.2	+18 32 31	10.4	16.9	14.5	13.6	4.4'

M53 and NGC 5053 (Coma Berenices)

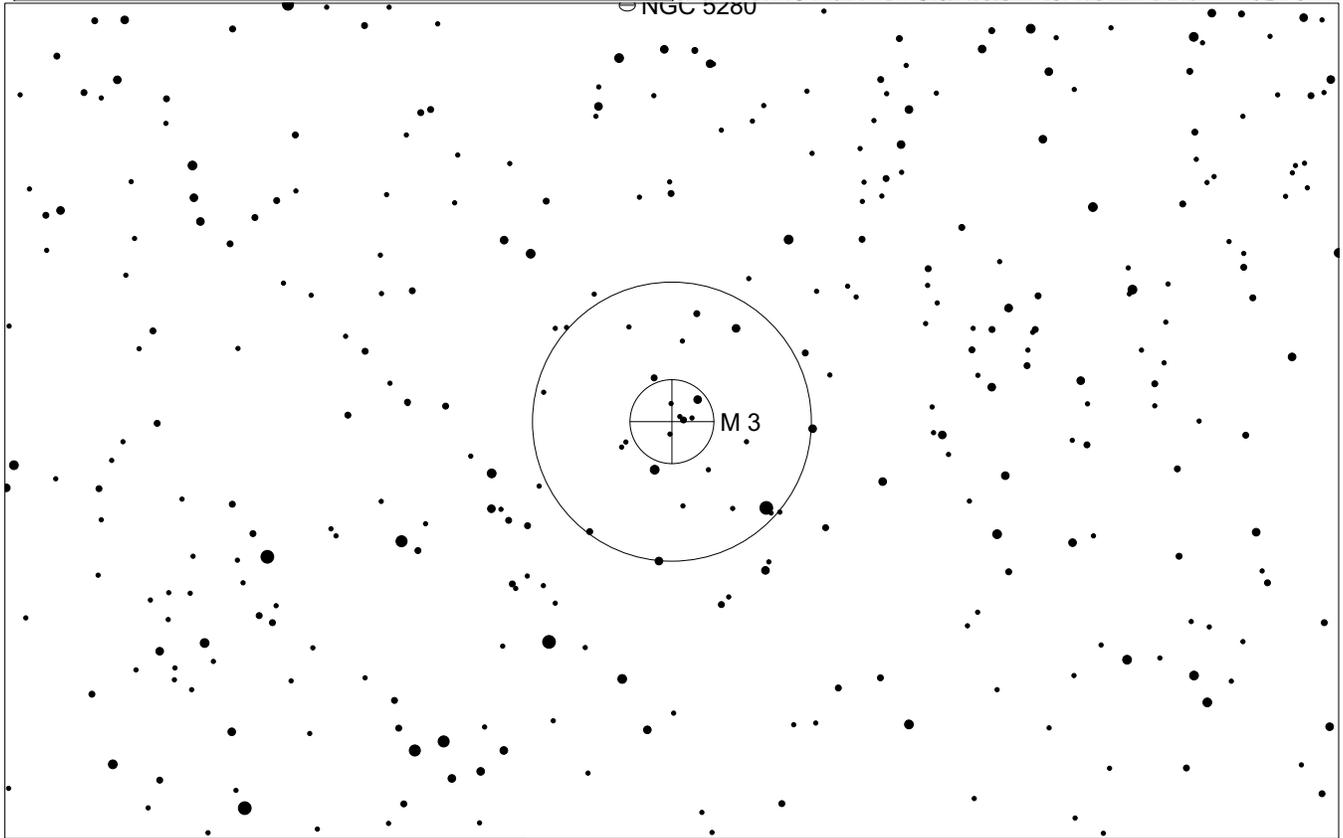


Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
M53	13 12 55.3	+18 10 09	7.7	16.9	13.8	13.3	13'
NGC 5053	13 16 27.0	+17 41 53	9	16.7	13.8	14	10'

M3 (Canes Venatici)



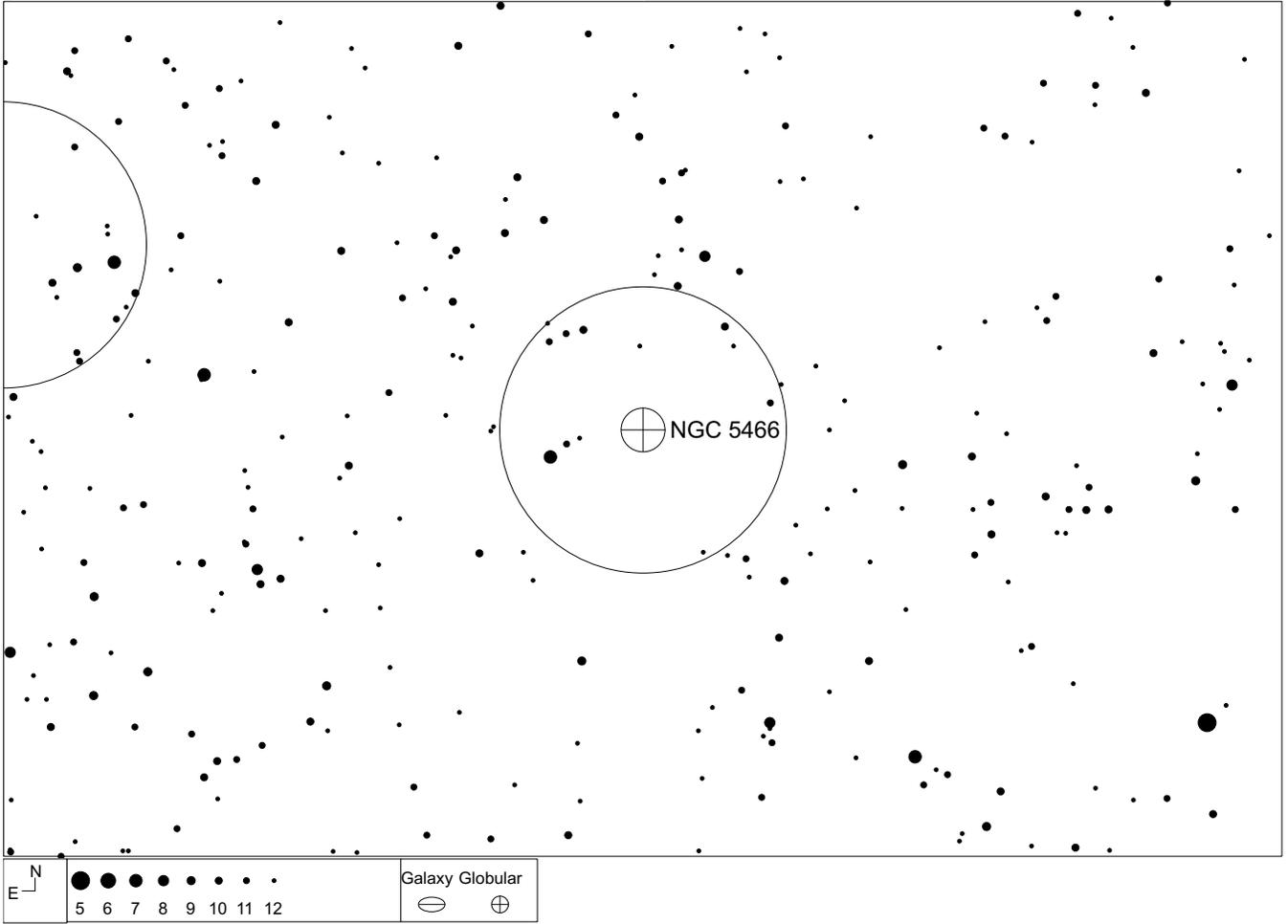
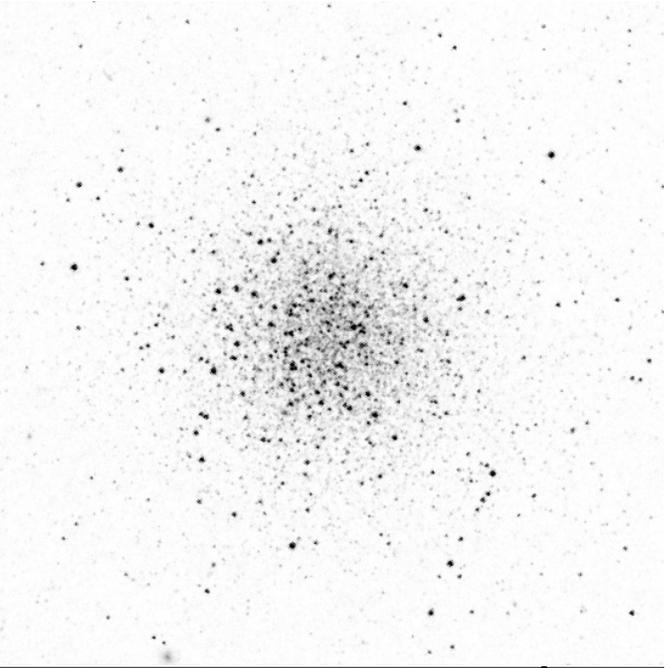
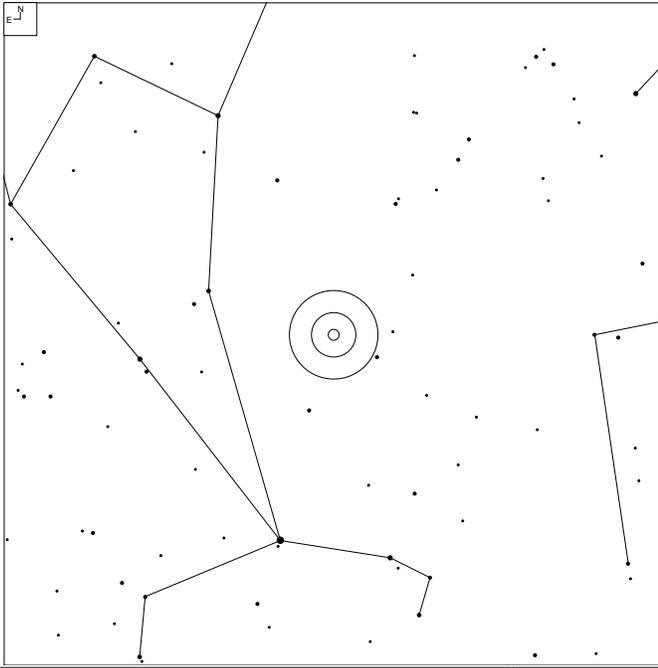
NGC 5280



E ↙ N ↑	● ● ● ● ● ●	Galaxy	Globular
	6 7 8 9 10 11 12	☉	⊕

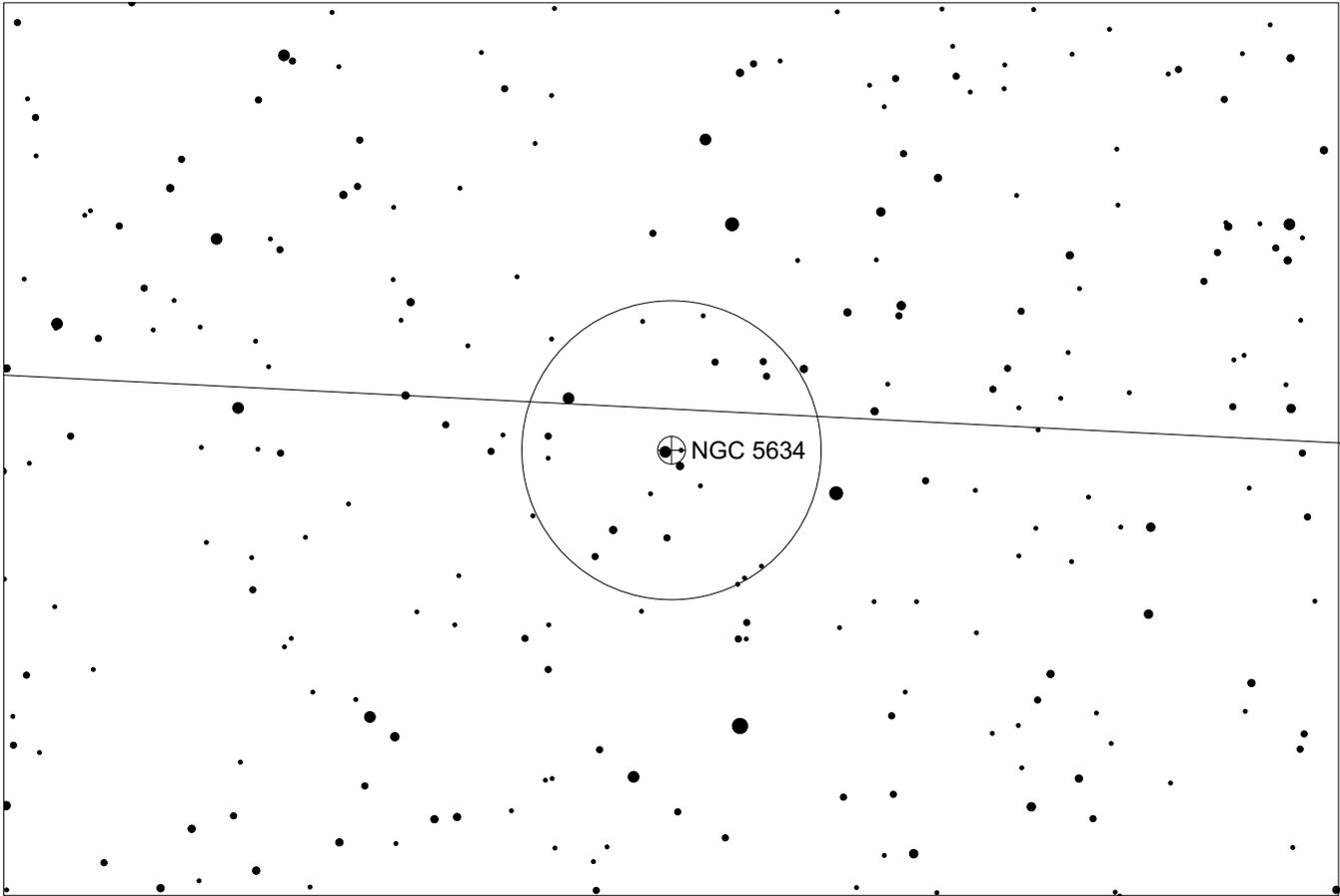
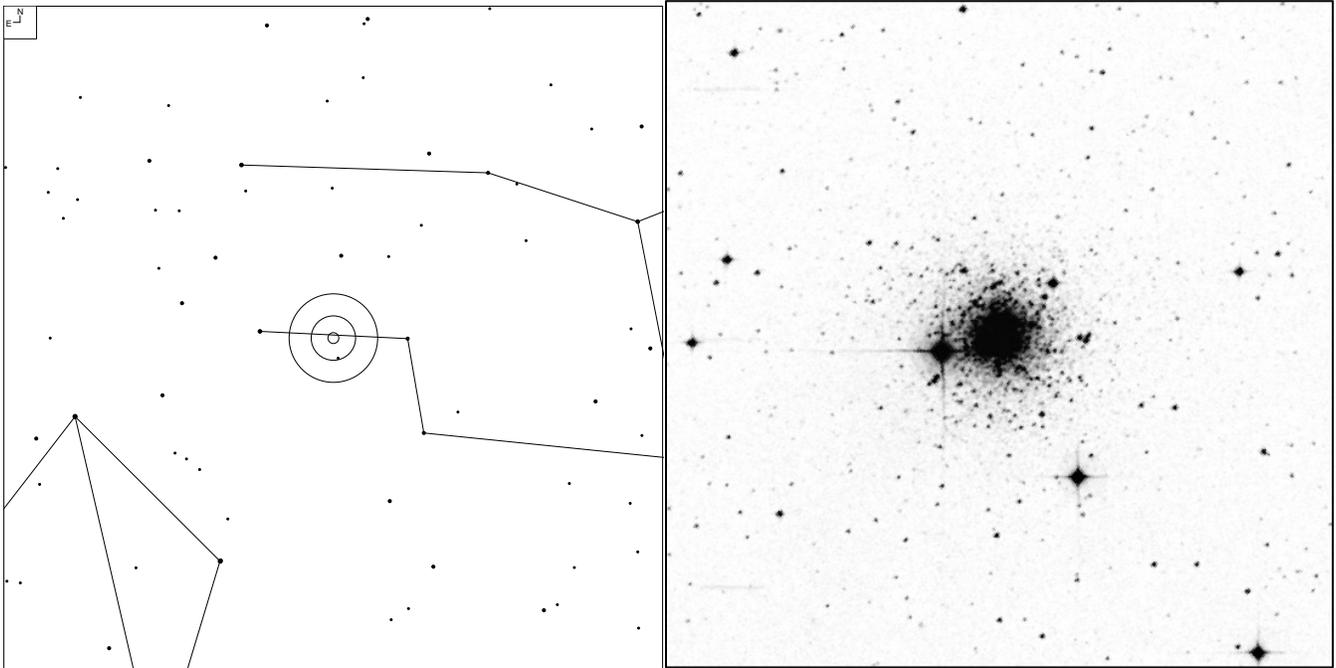
RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
13 42 11.2	+28 22 32	6.3	15.6	12.7	12.6	18'

NGC 5466 (Boötes)



RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
14 05 27.3	+28 32 04	9.2	16.6	13.8	14	9'

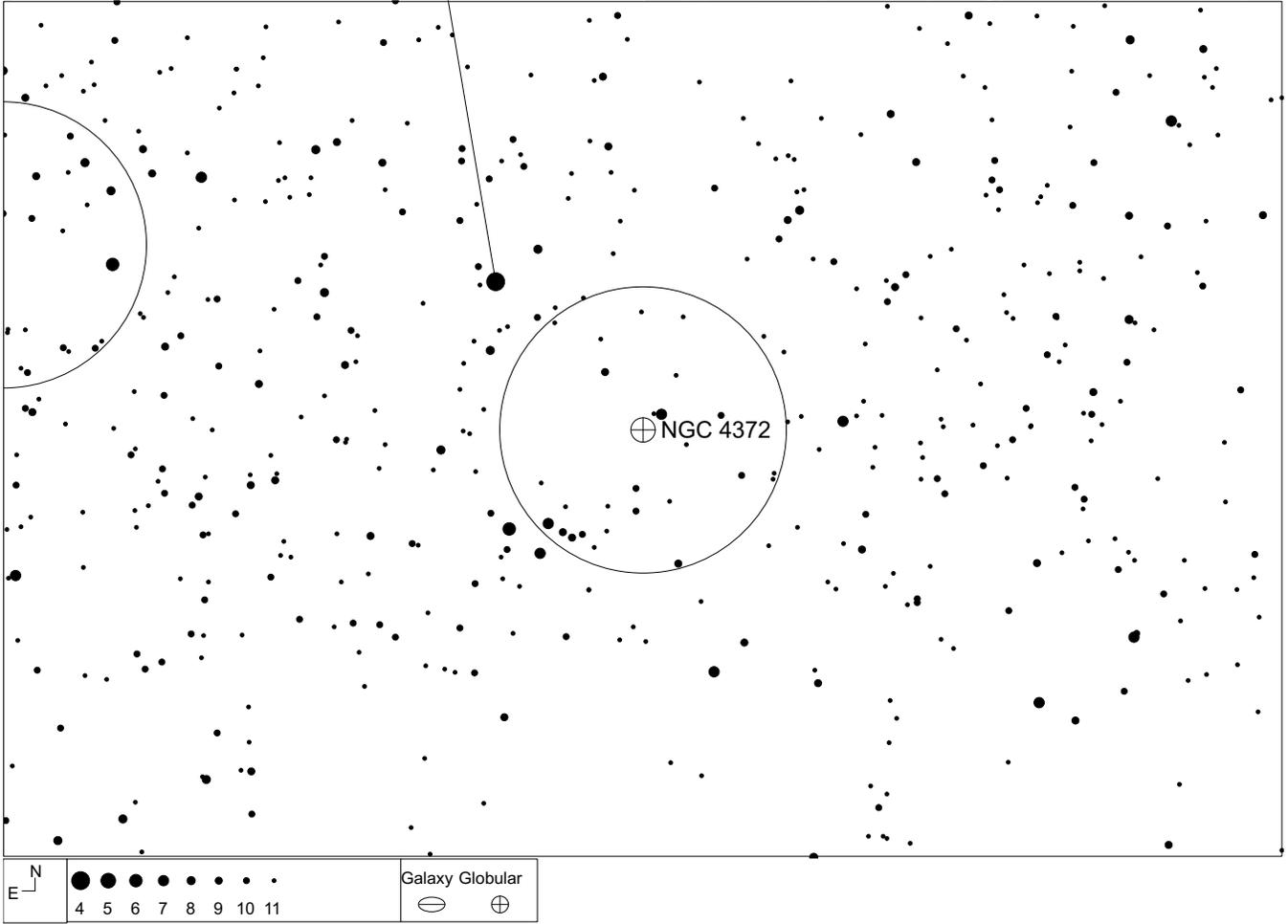
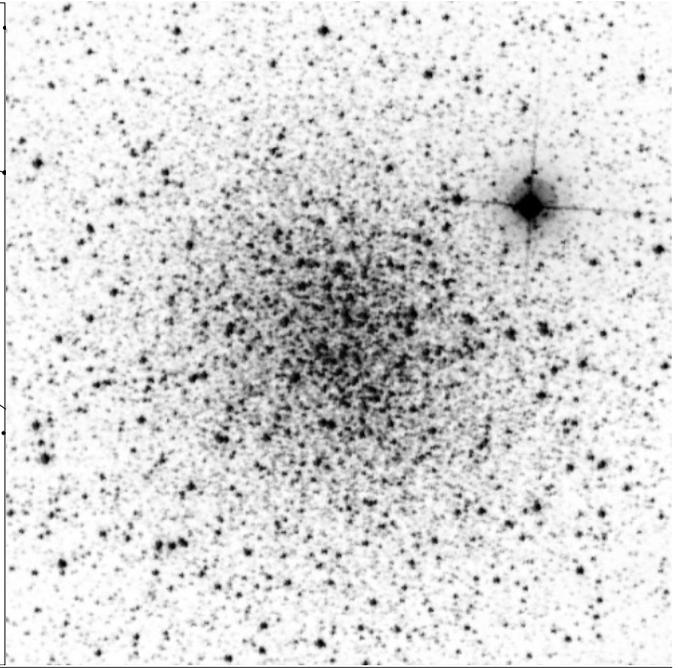
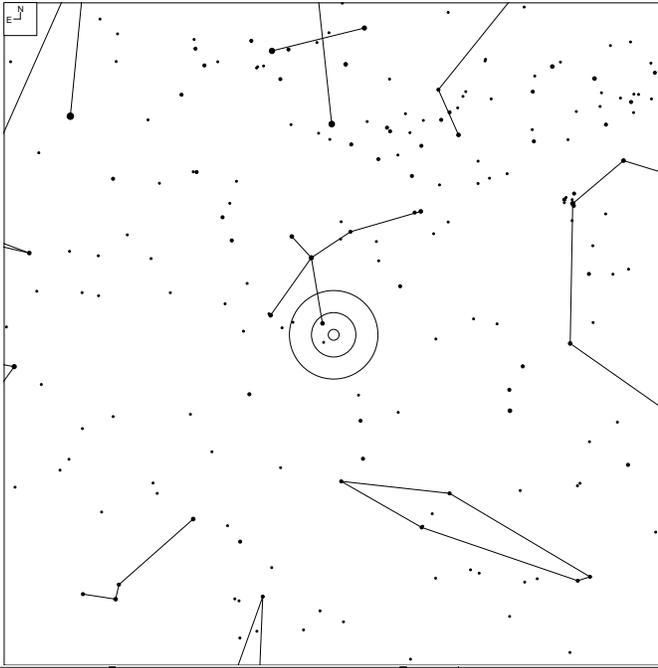
NGC 5634 (Virgo)



N E	● ● ● ● ● ● ● ●	Galaxy	⊖	⊕
	5 6 7 8 9 10 11 12	Globular	⊖	⊕

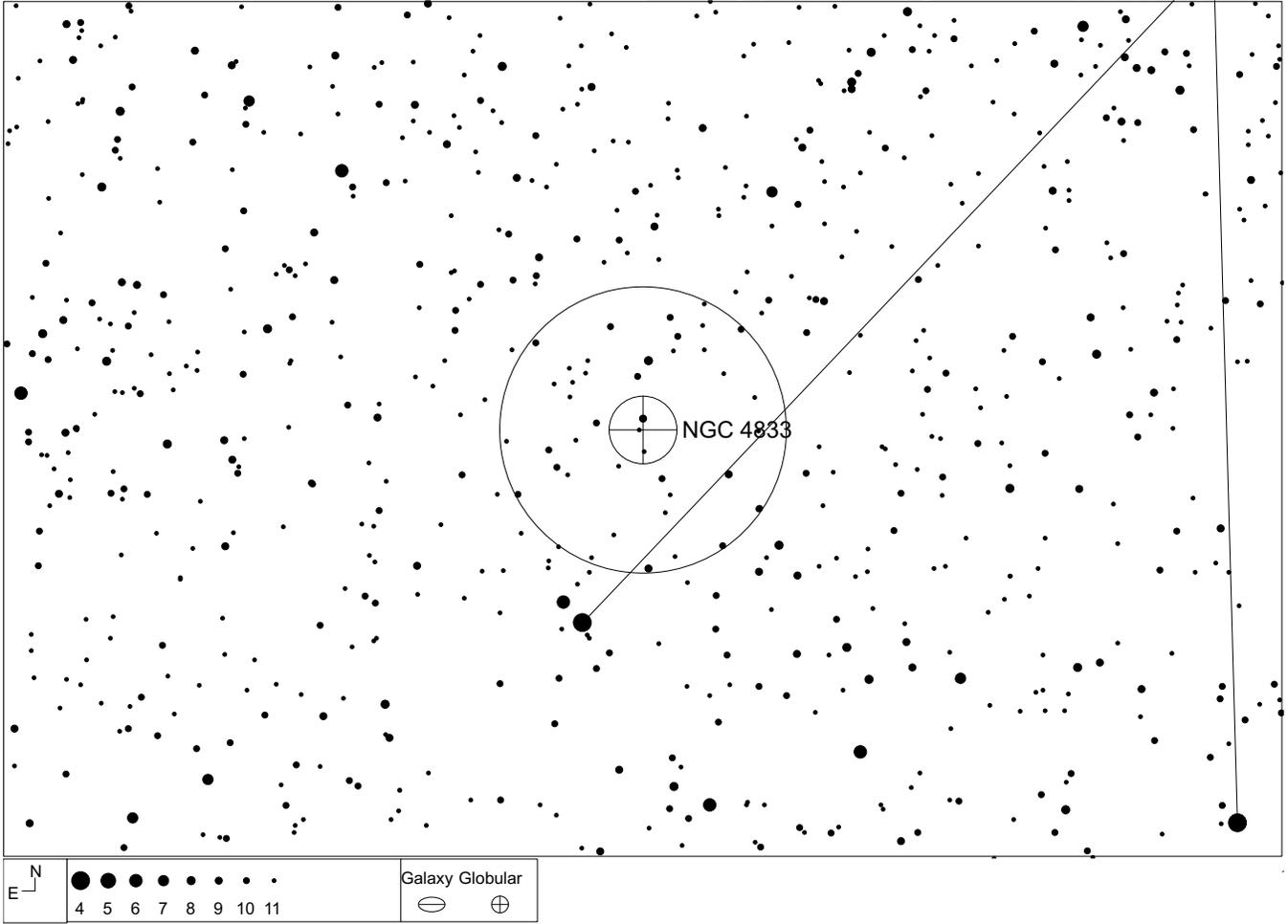
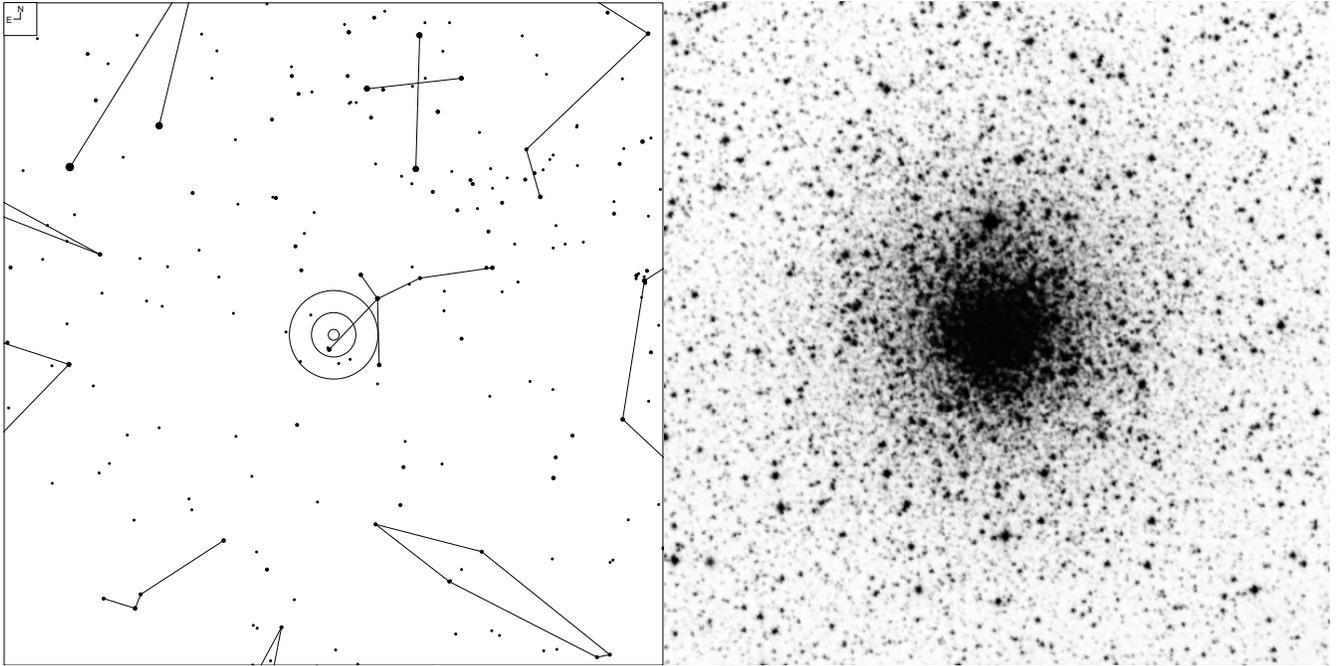
RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
14 29 37.3	-05 58 35	9.5	17.8	-	13.2	5.5'

NGC 4372 (Musca)



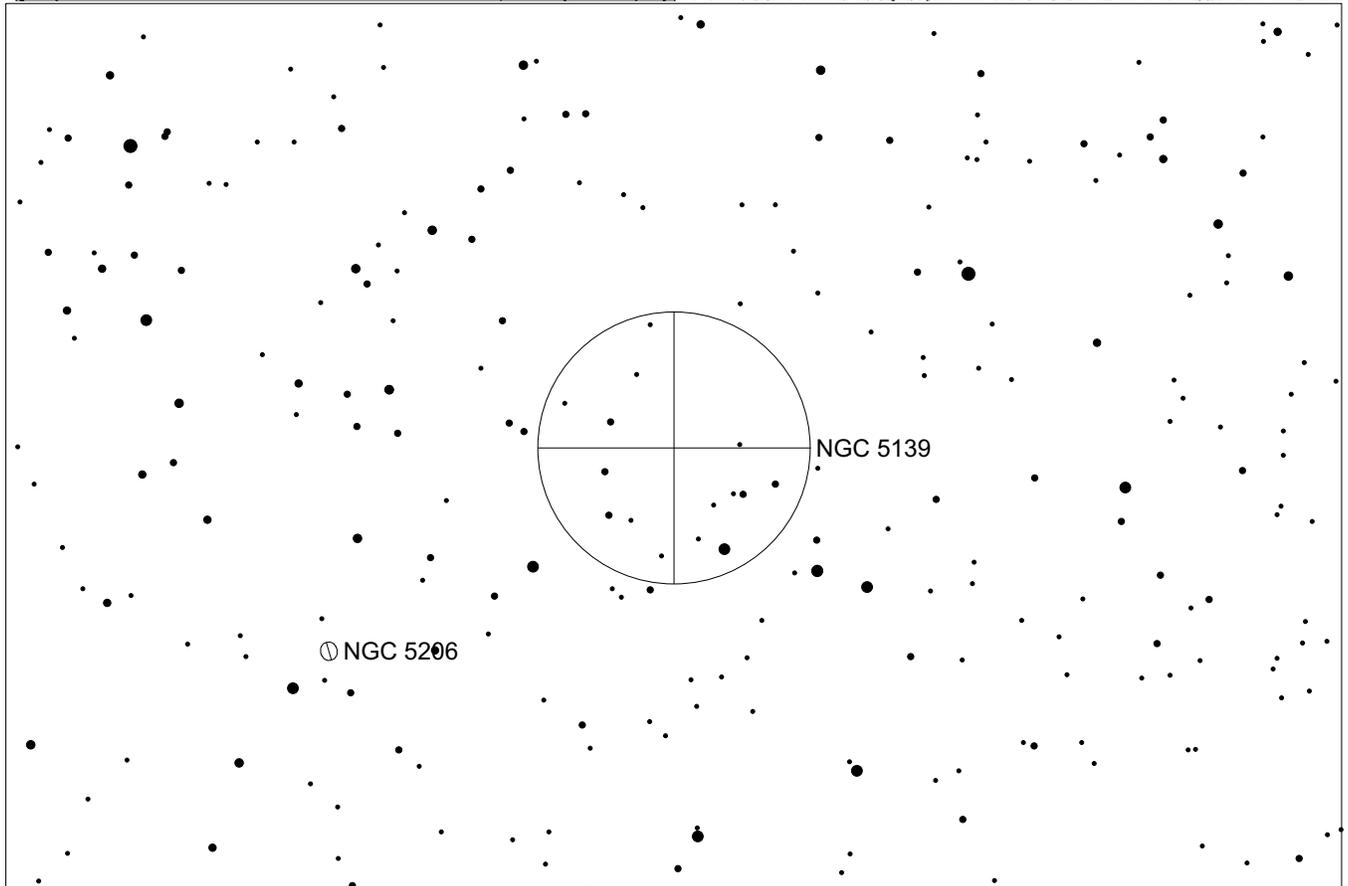
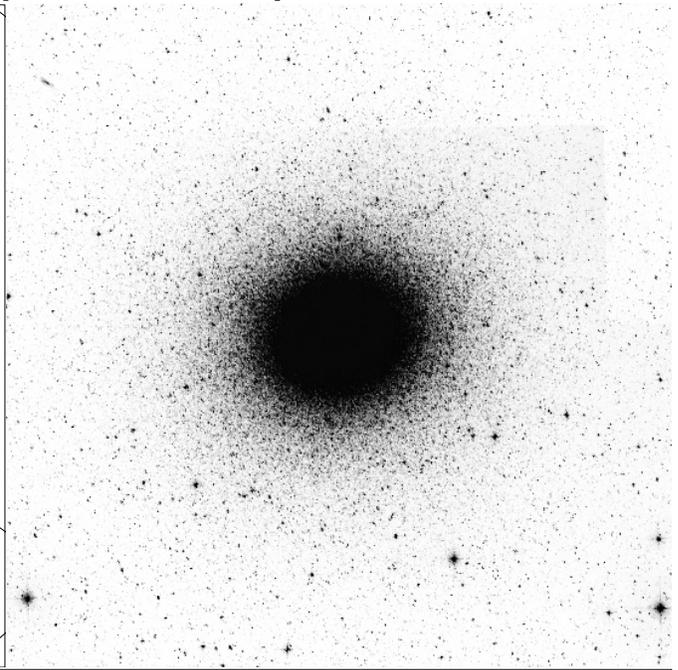
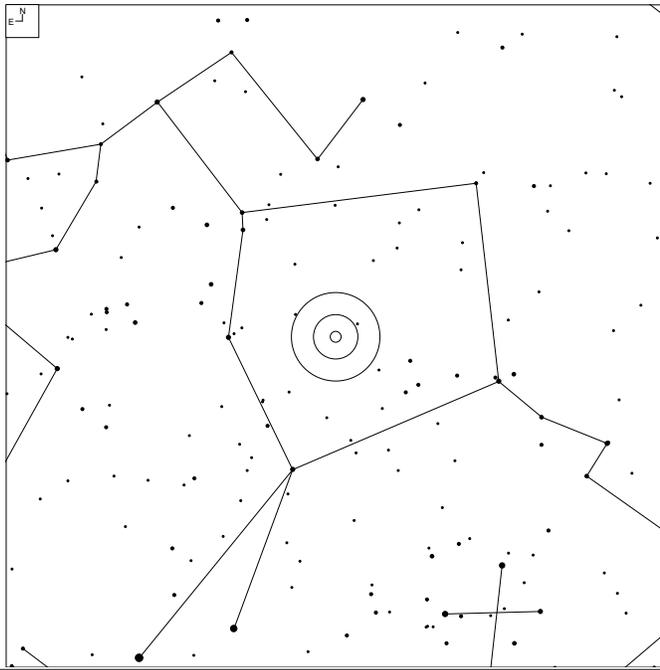
RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
12 25 45	-72 39 32	7.24	15.3	12.2	10.7	5

NGC 4833 (Musca)



RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
12 59 34	-70 52 35	6.91	15.5	12.4	14.1	14

NGC 5139 (Centaurus)

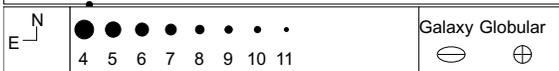
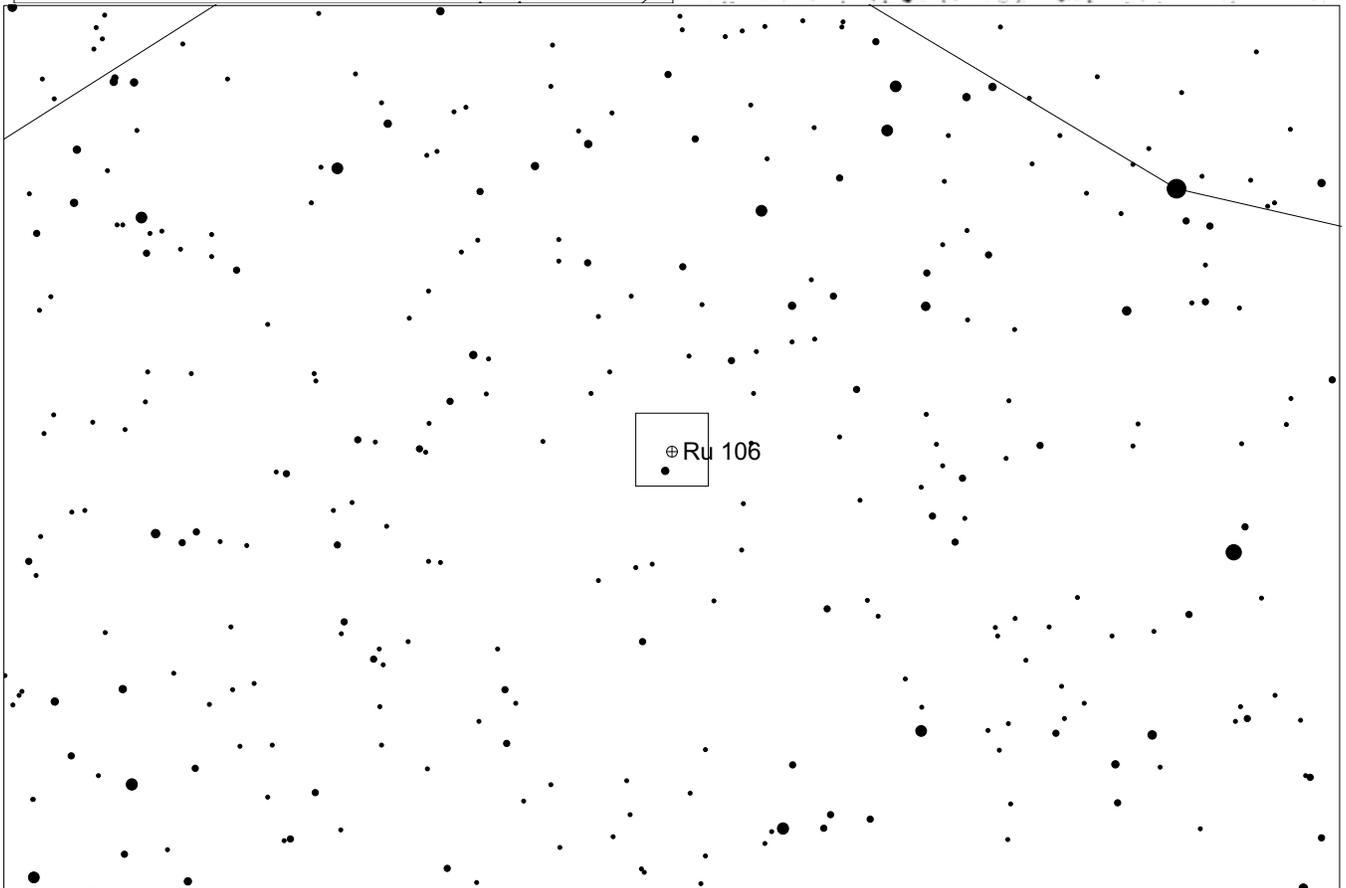
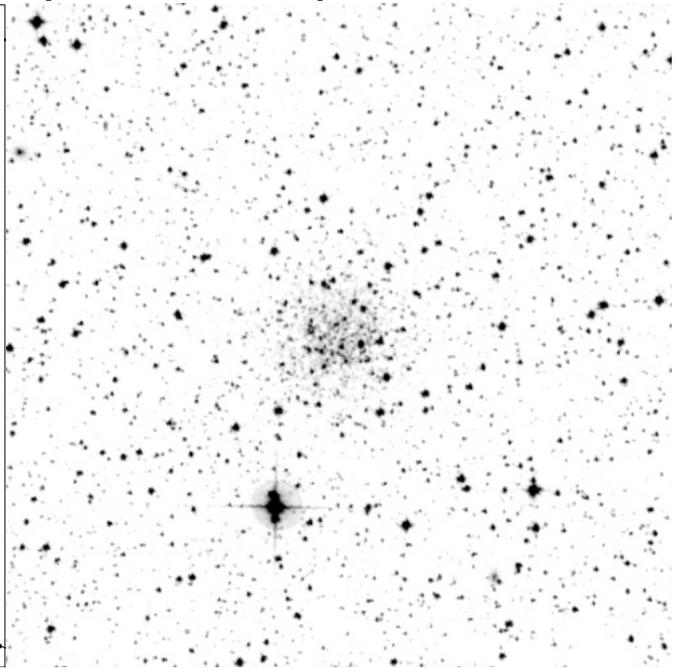
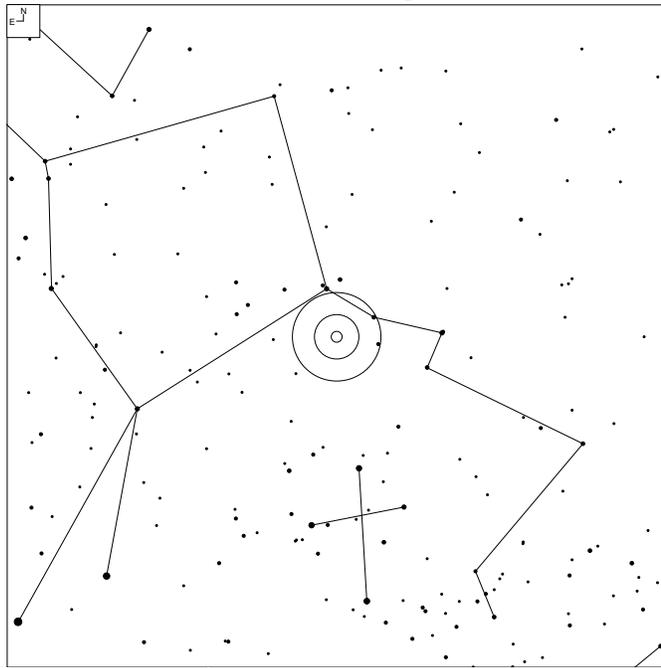


E-N	● ● ● ● ●	Galaxy
	6 7 8 9 10 11	Globular
		⊖ ⊕

RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
13 26 47	-47 28 47	3.68	14.5	11.5	12.6	55

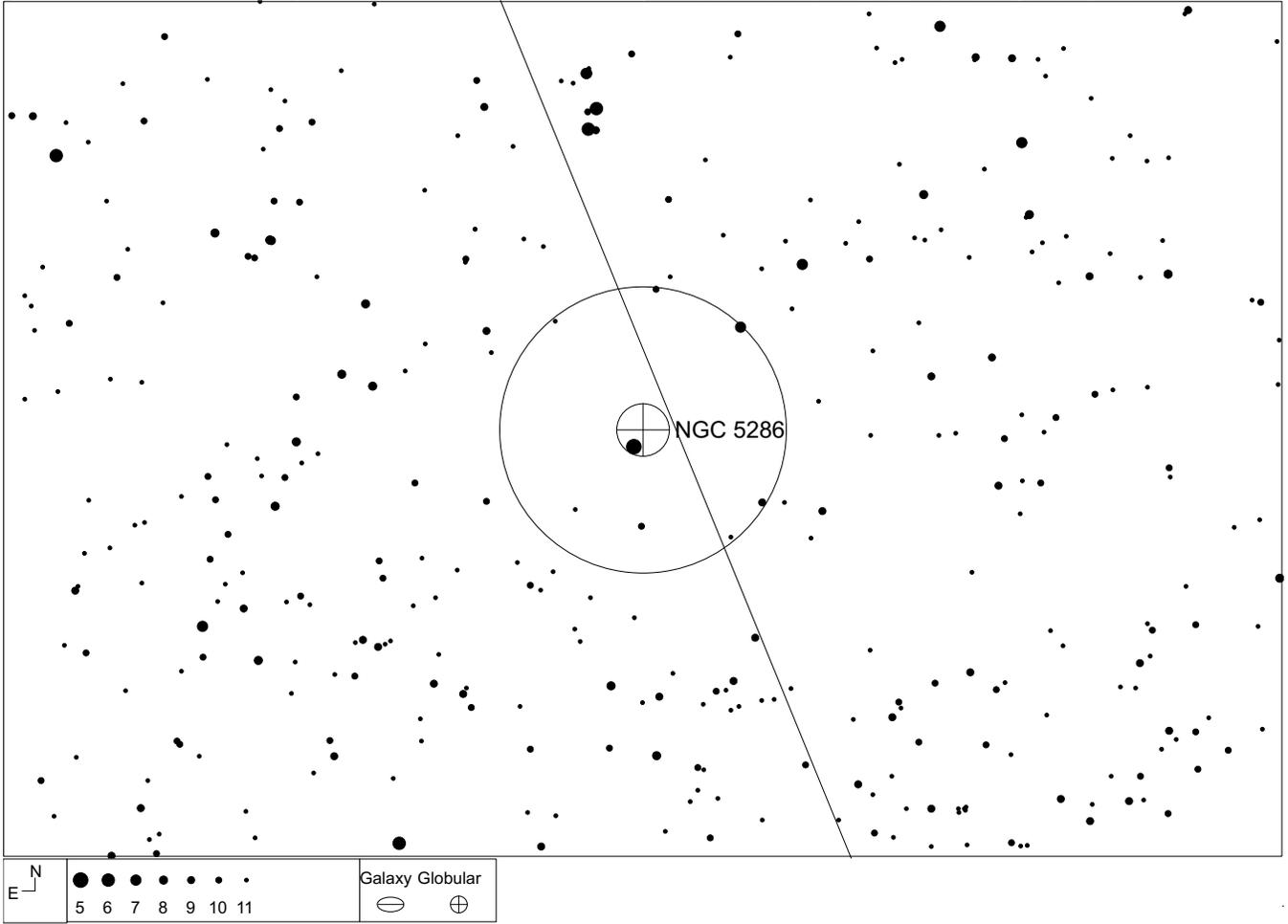
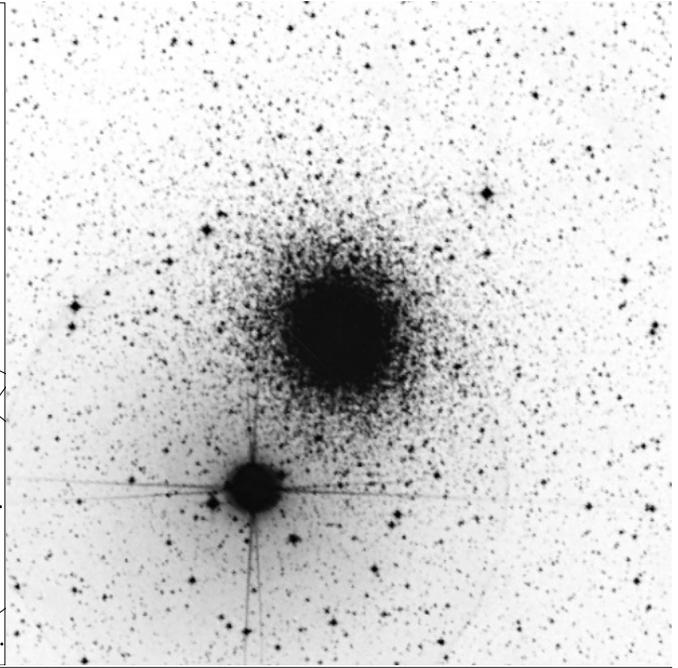
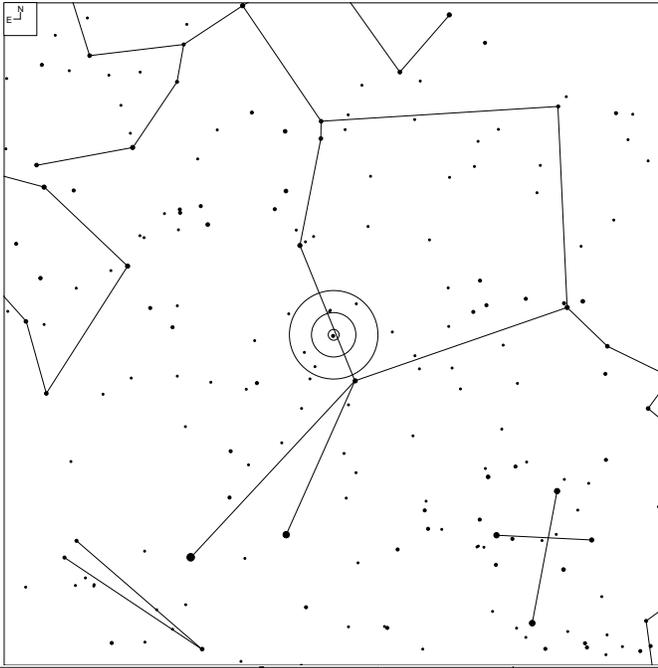
Omega Centauri is very large. The image above is 1 degree across, while most globular cluster images are 15' across (1/4 degrees).

Ruprecht 106 (Centaurus)



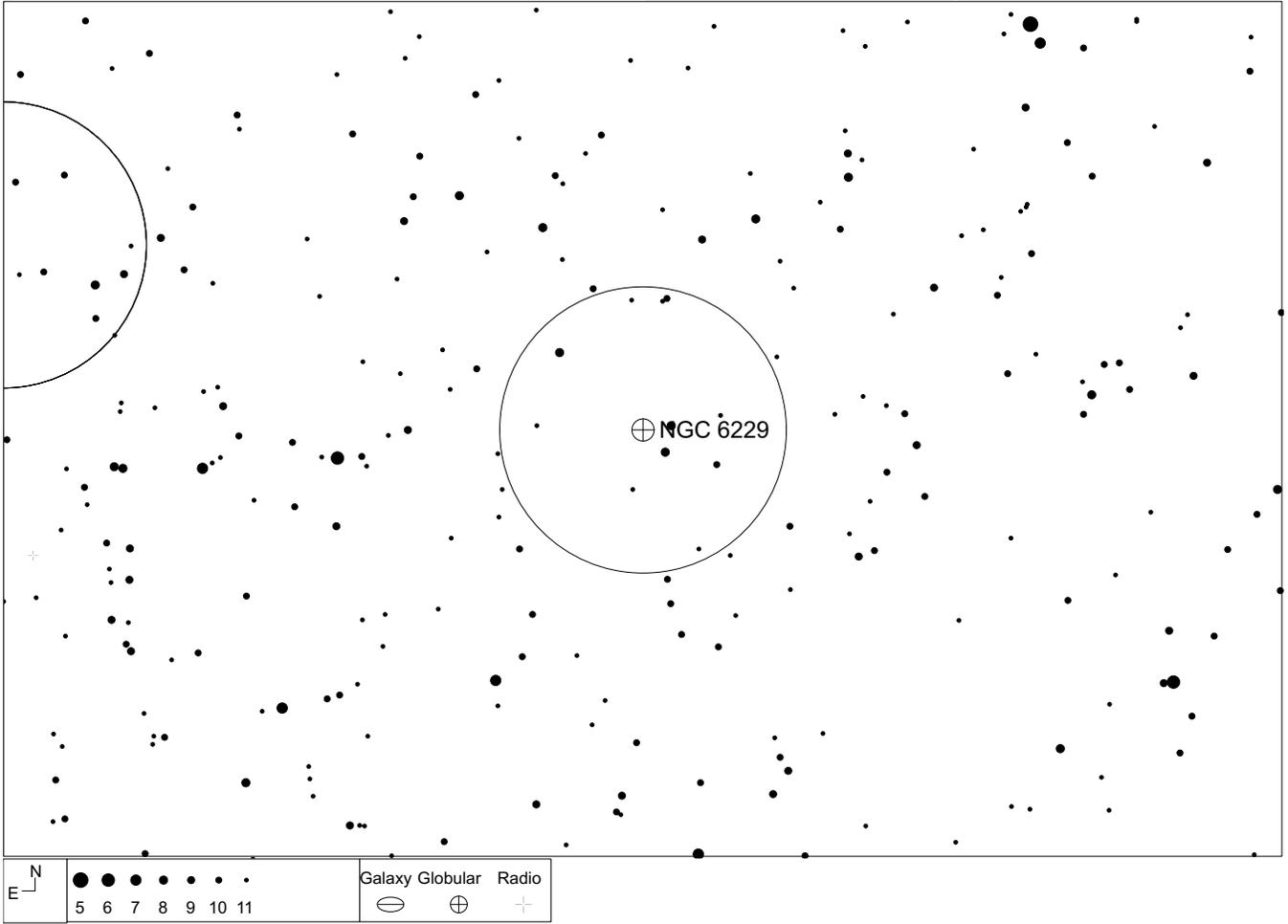
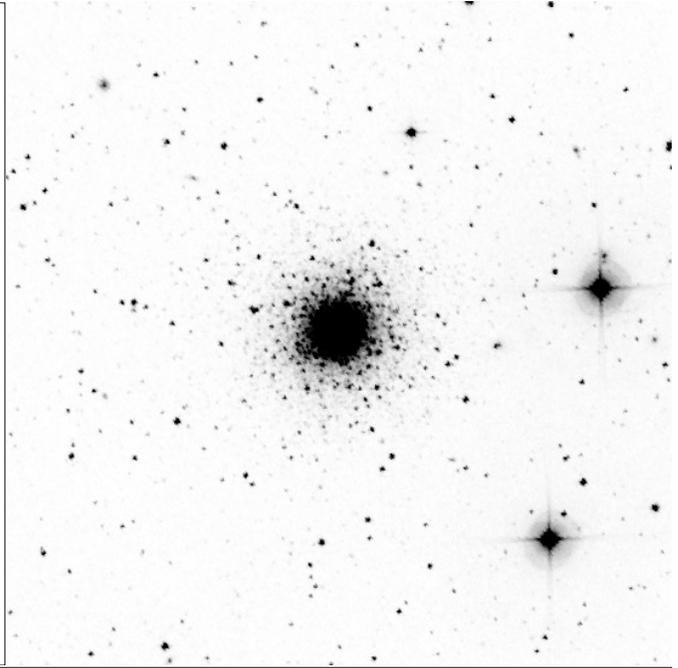
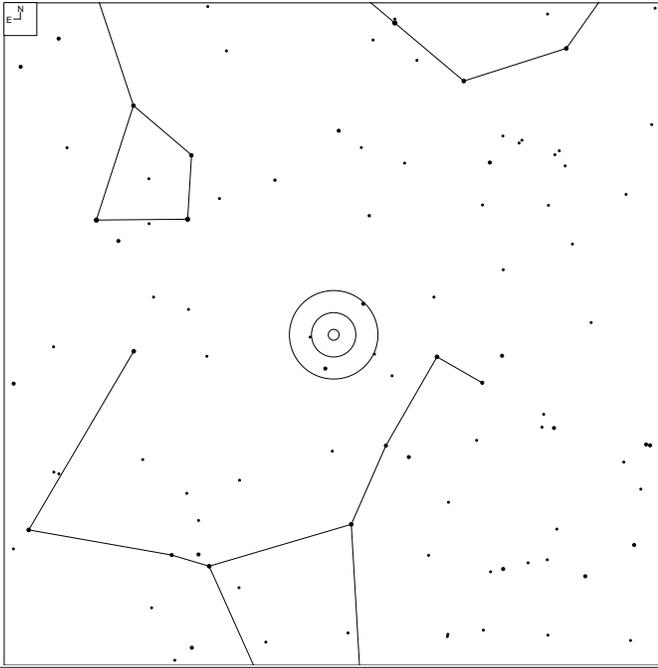
RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
12 38 40	-51 09 01	10.9	17.9	14.8	12.4	2

NGC 5286 (Centaurus)



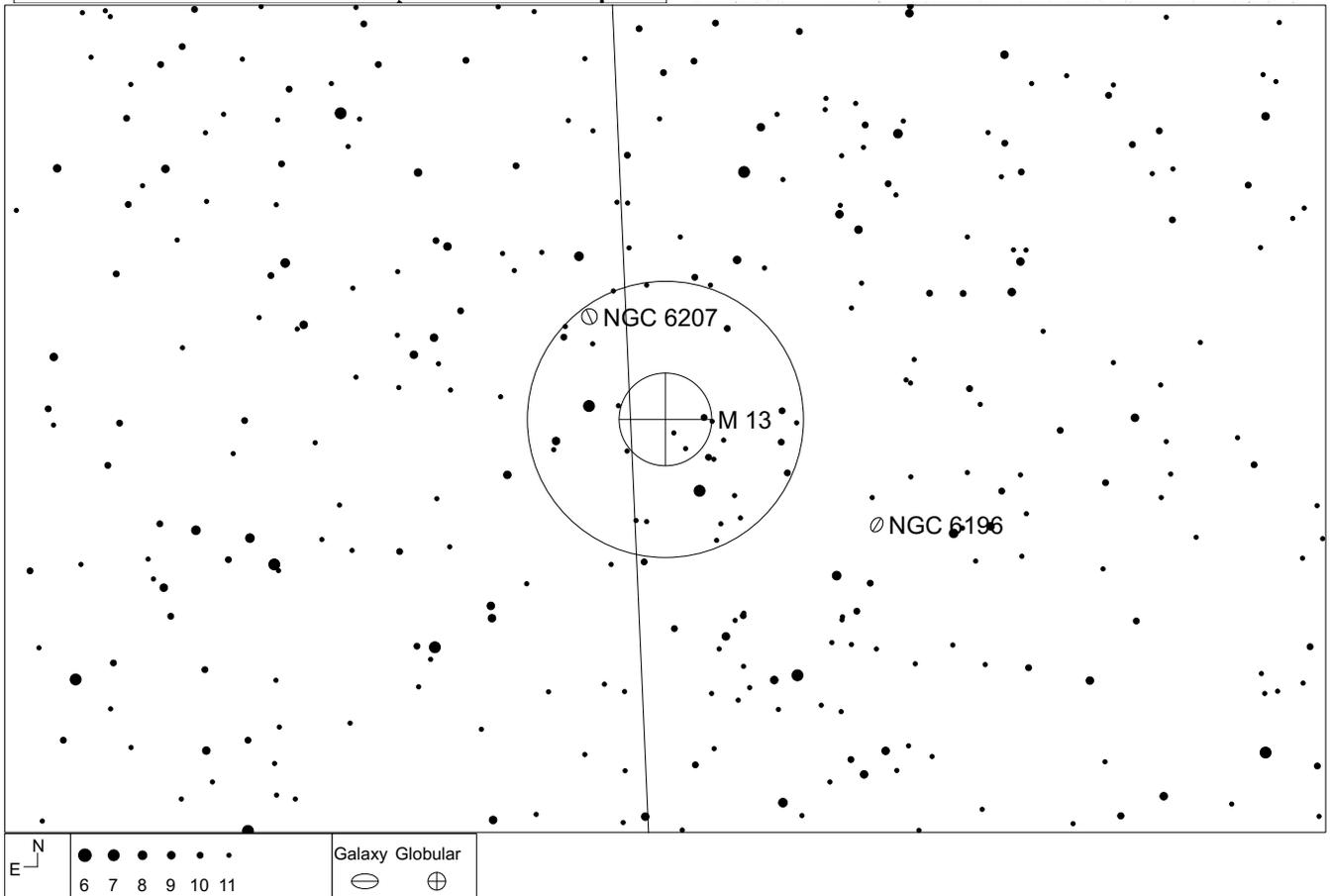
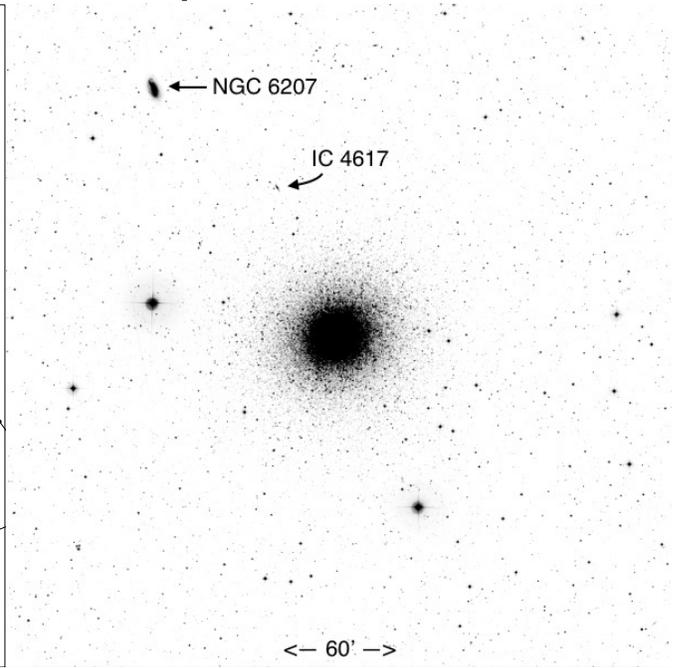
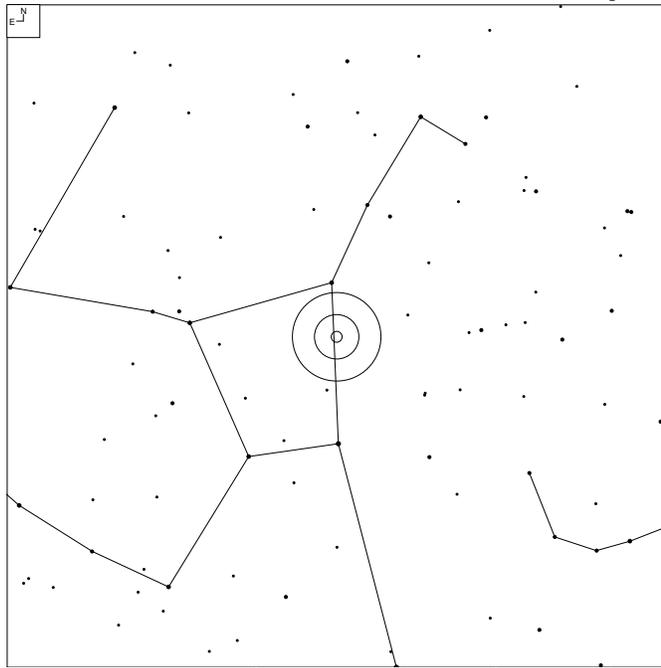
RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
13 46 27	-51 22 27	7.34	16.7	13.5	12.6	11

NGC 6229 (Hercules)



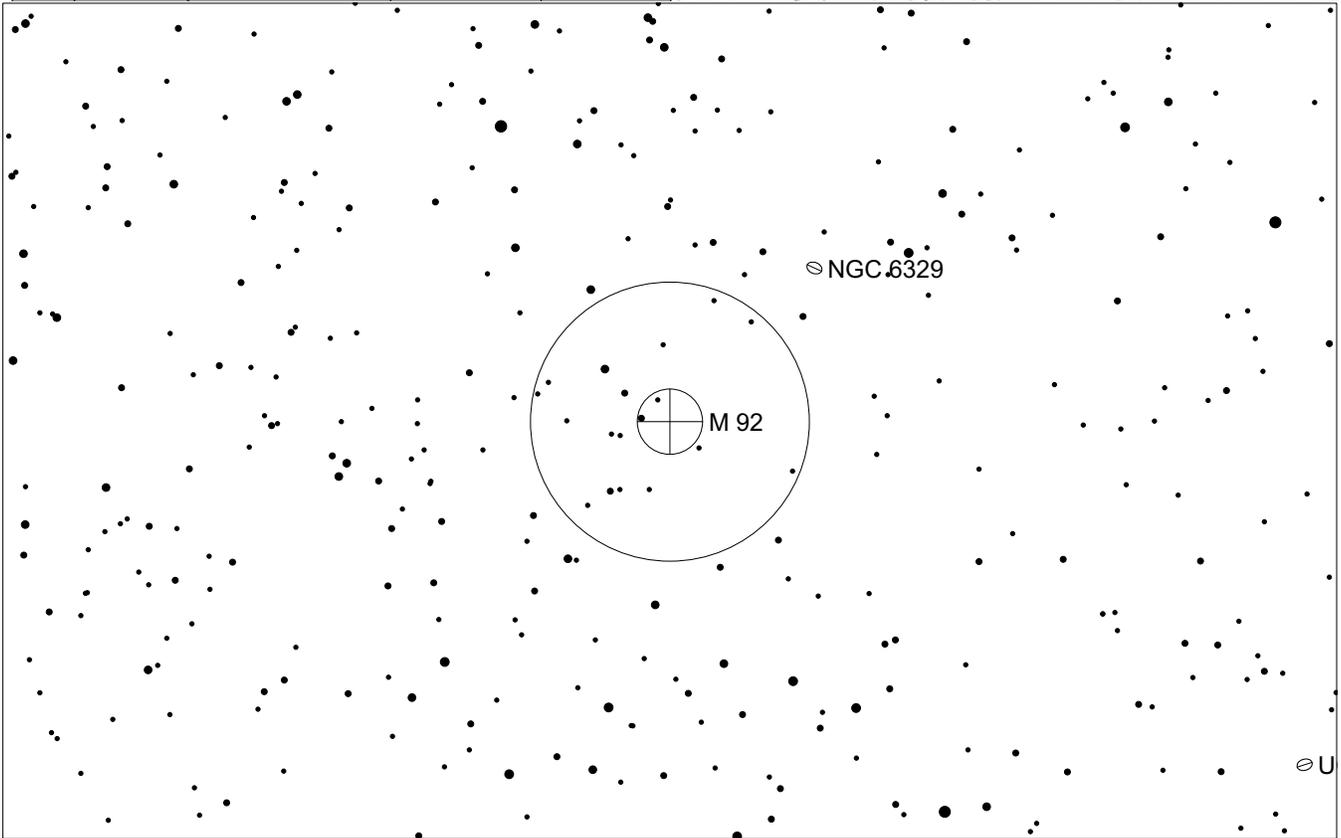
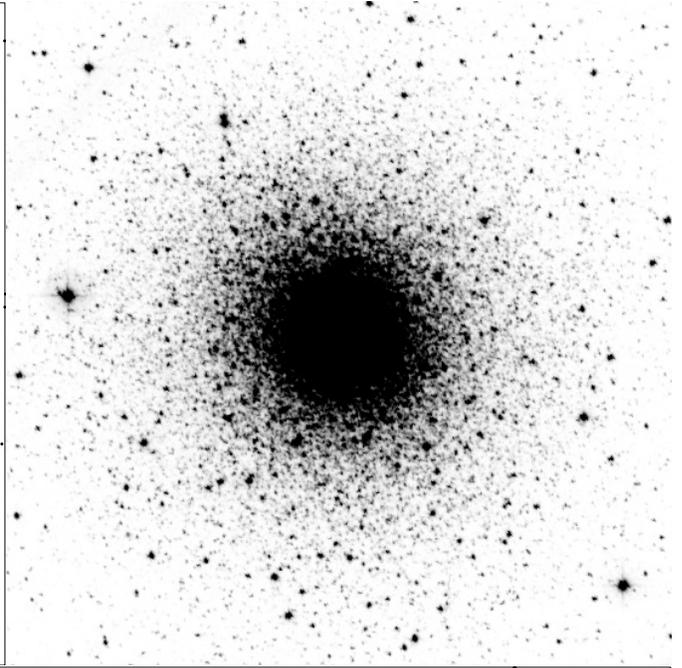
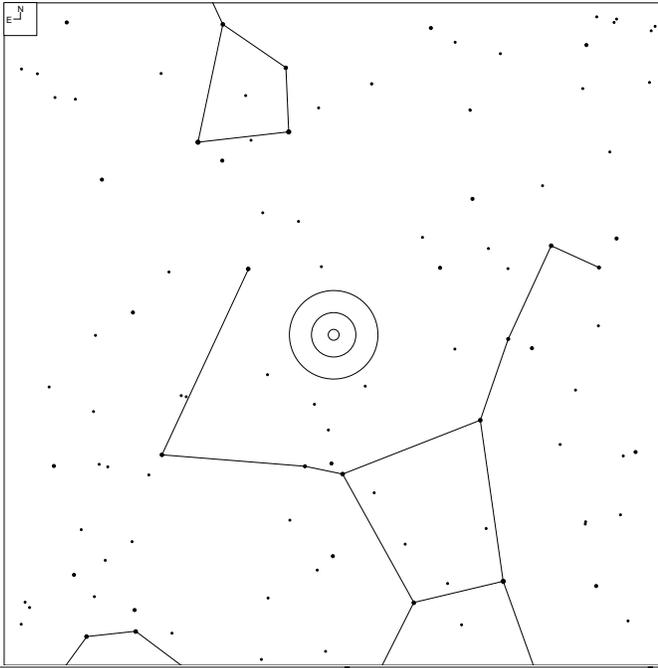
RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size'
16 46 58.9	+47 31 40	9.4	18	15.5	12.7	4.5'

M13 (Hercules)



RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
16 41 41.5	+36 27 37	5.8	15	11.9	12.3	20'

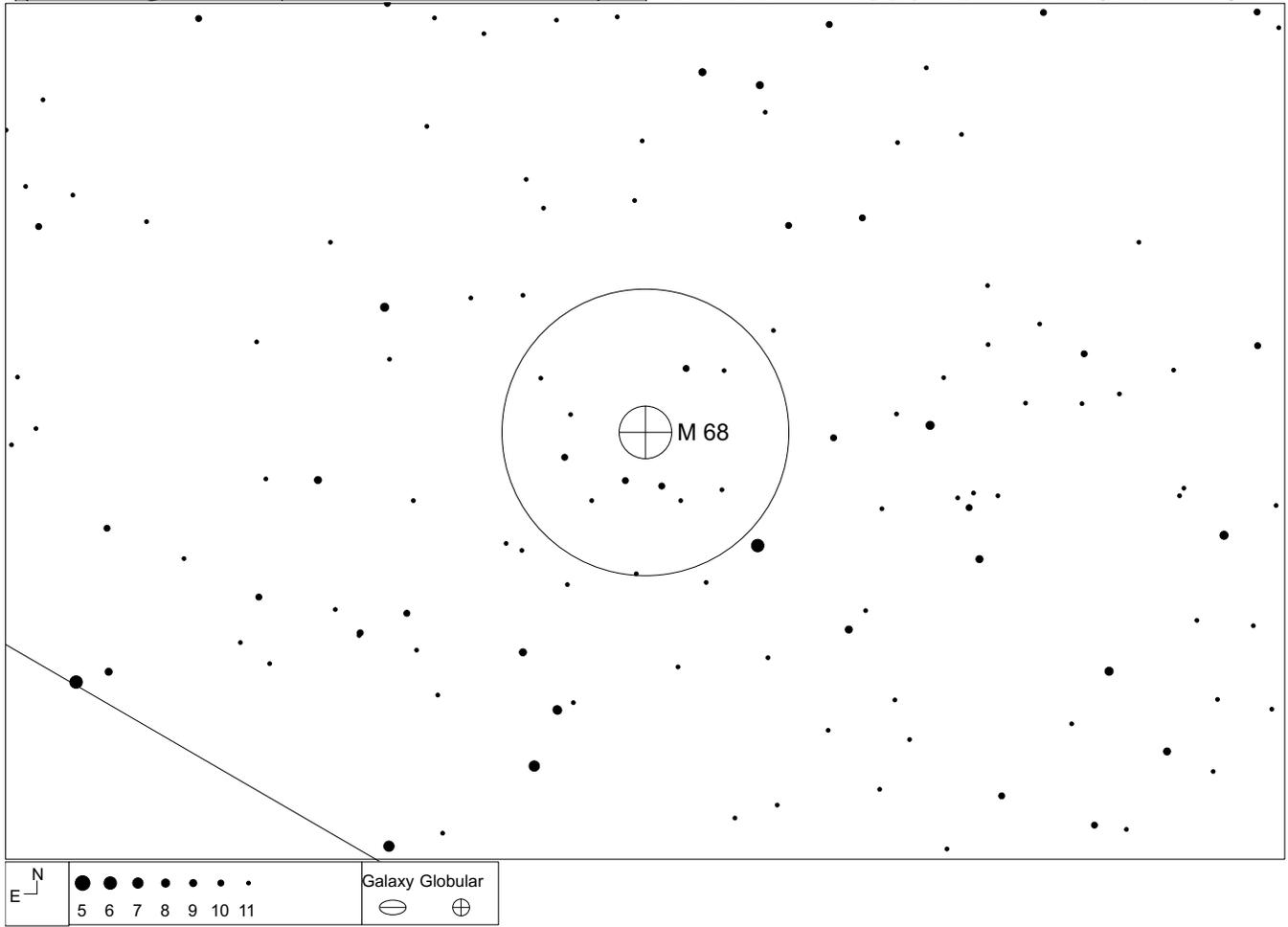
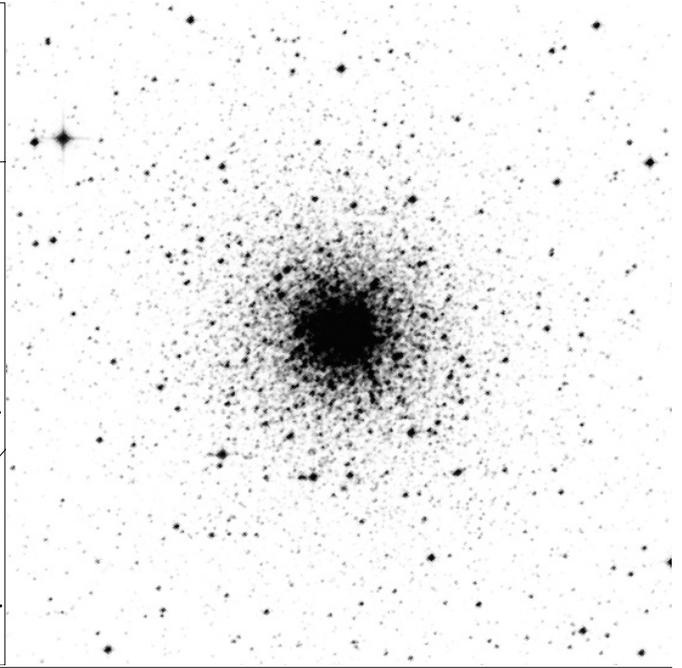
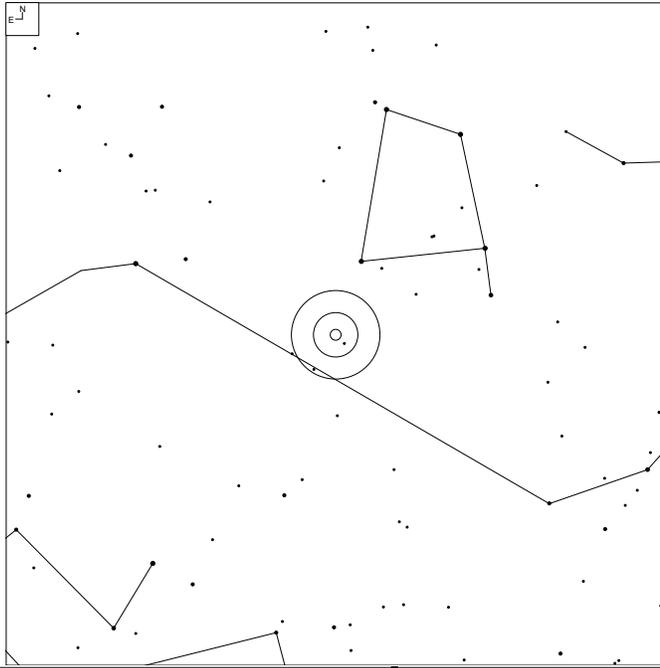
M92 (Hercules)



E-N	● ● ● ● ●	Galaxy	Globular
	6 7 8 9 10 11	⊖	⊕

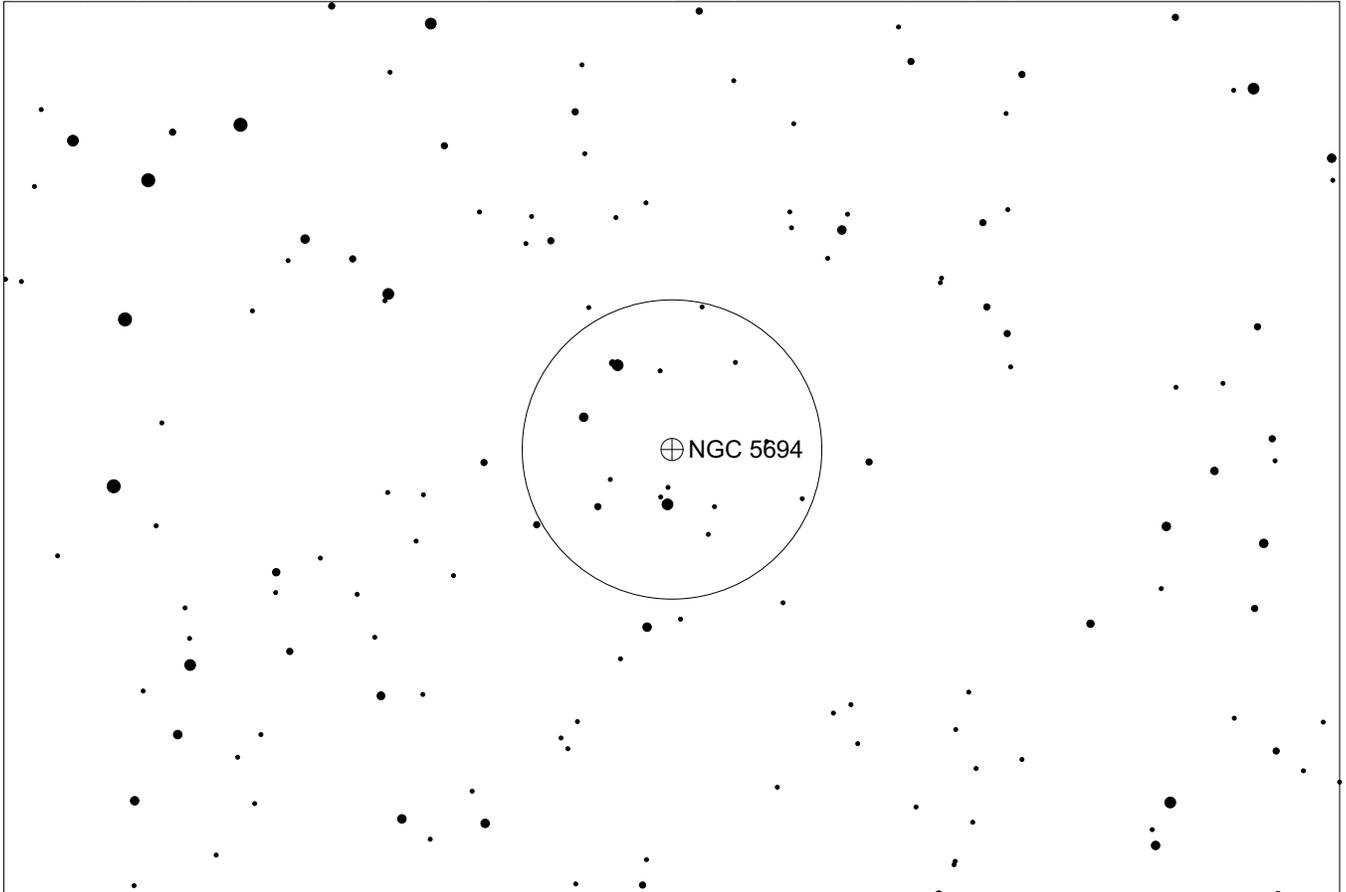
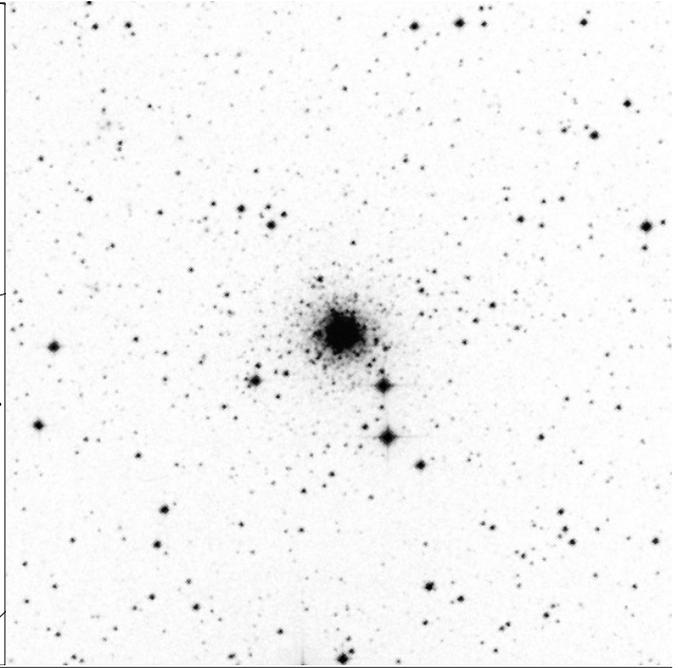
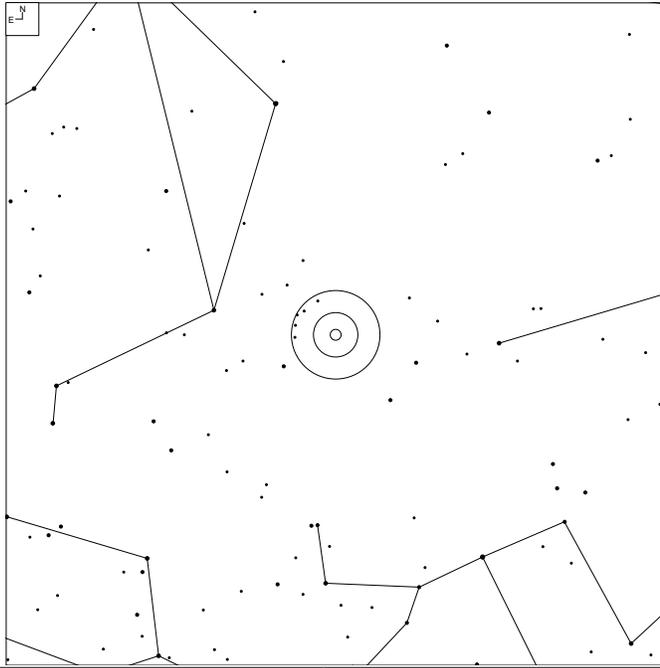
RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
17 17 07.3	+43 08 11	6.5	15.2	12.1	12.2	14'

M68 (Hydra)



RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
12 39 28.0	-26 44 34	7.3	15.6	12.6	12.5	11'

NGC 5694 (Hydra)



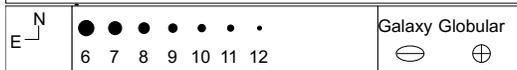
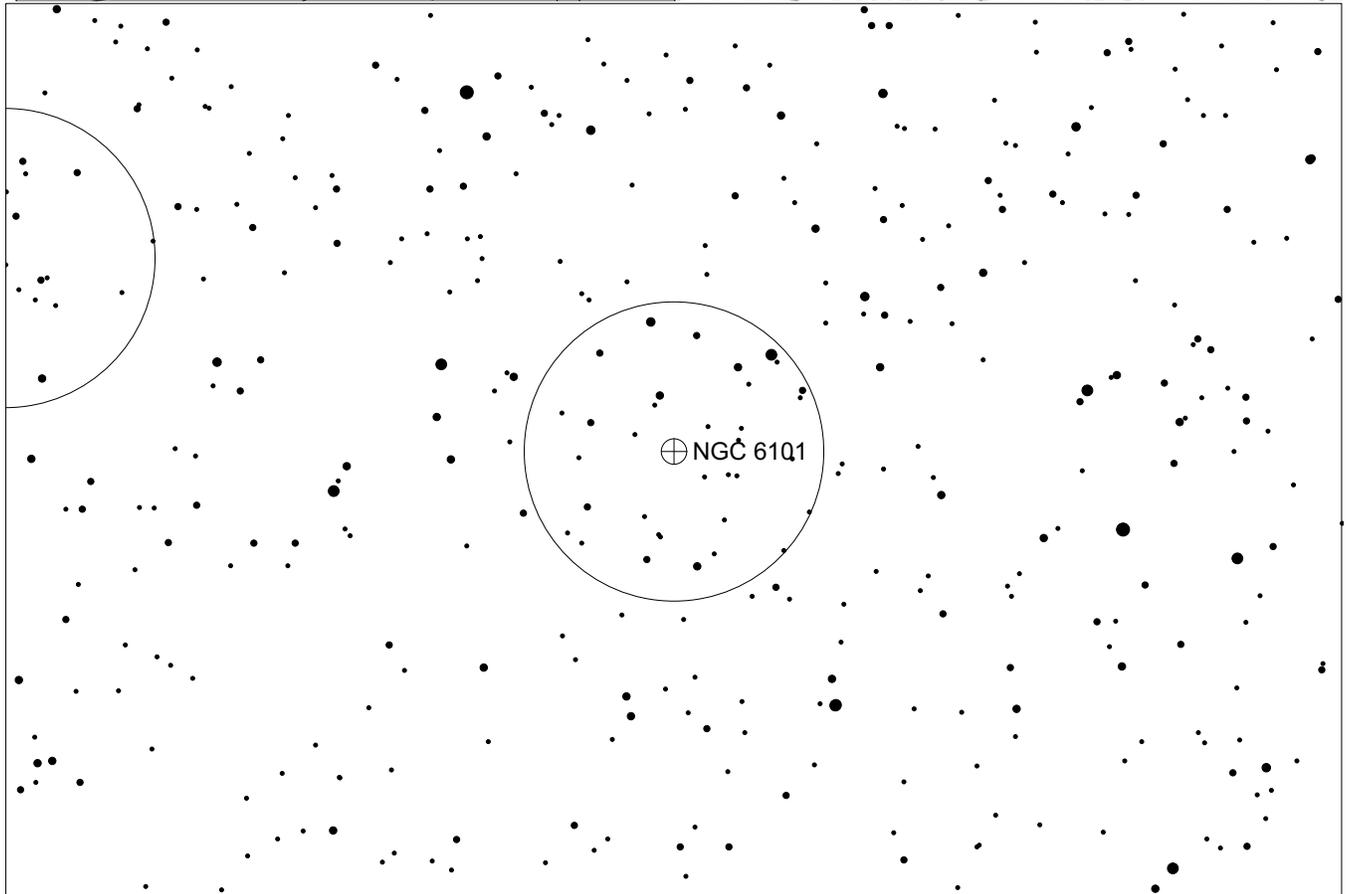
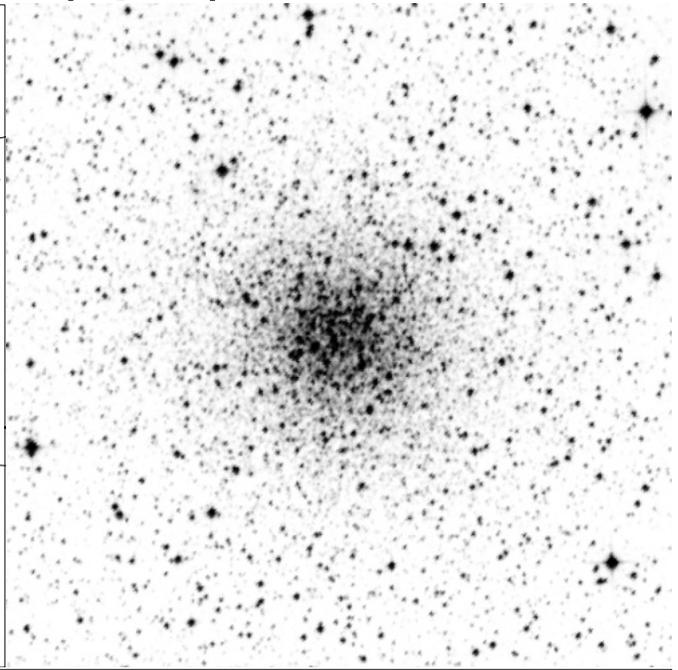
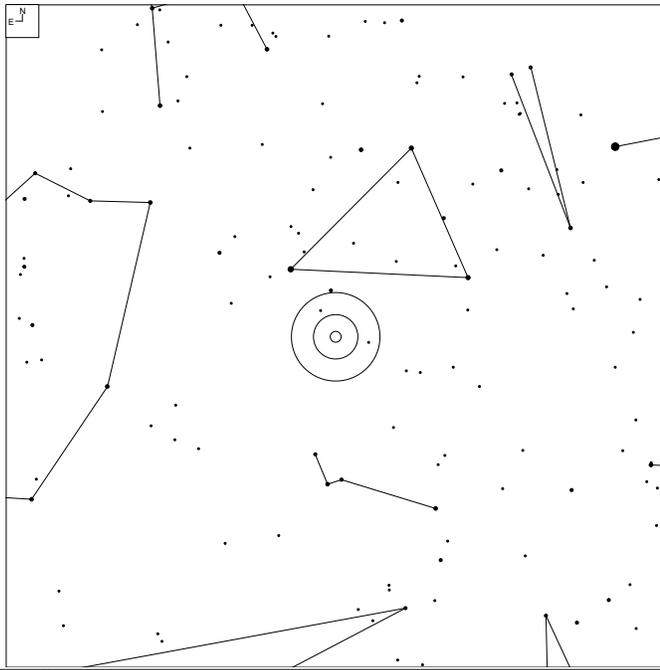
E-N

● ● ● ● ● ●
5 6 7 8 9 10 11

Galaxy Globular
☉ ⊕

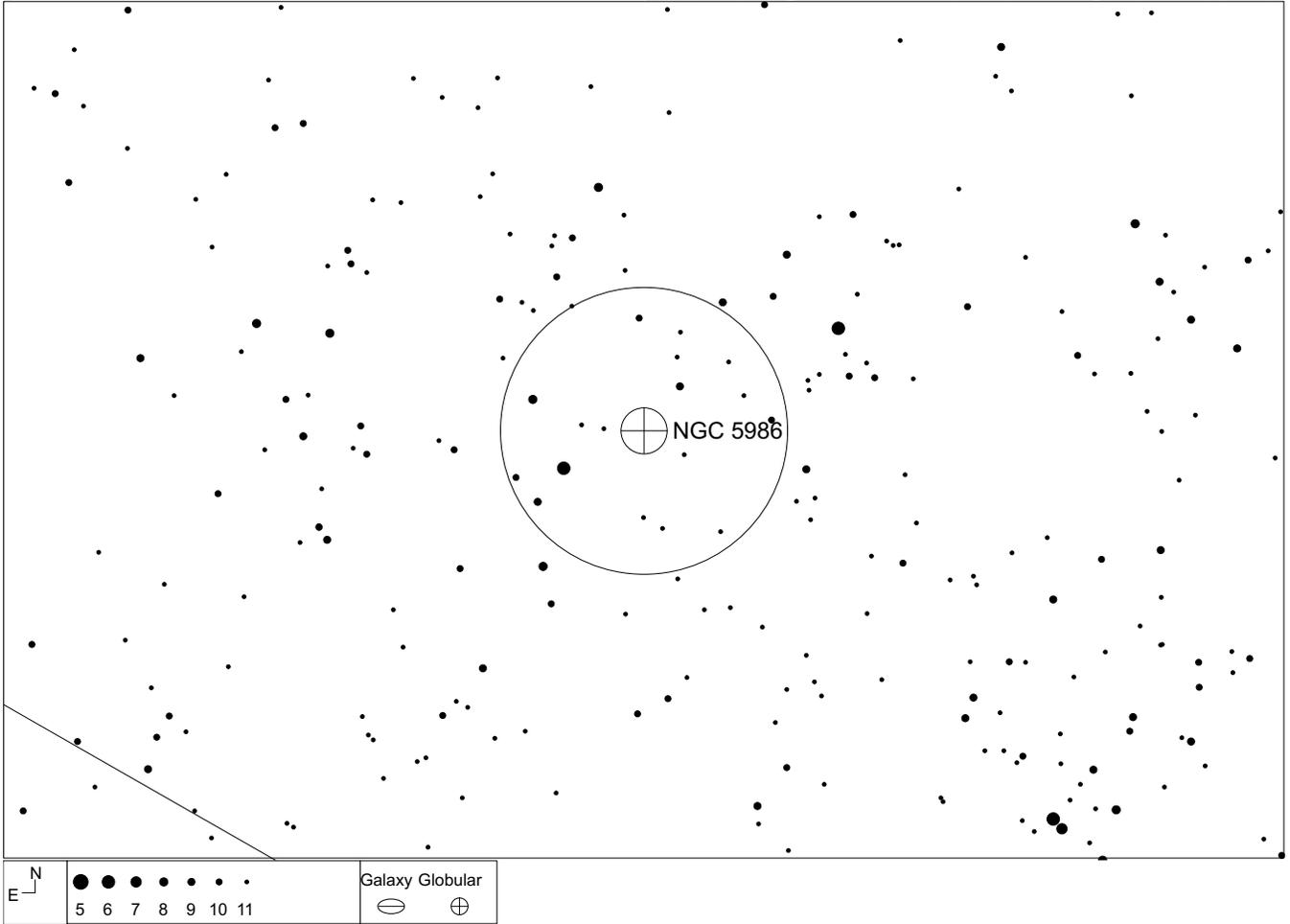
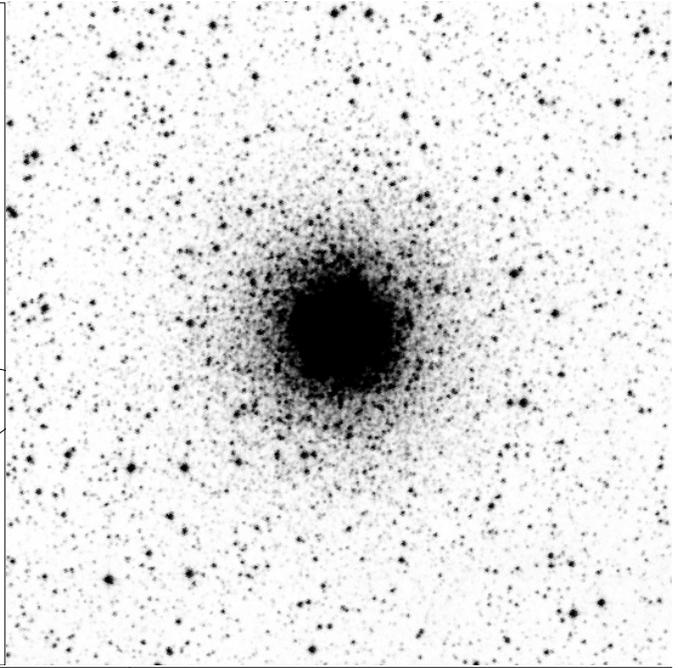
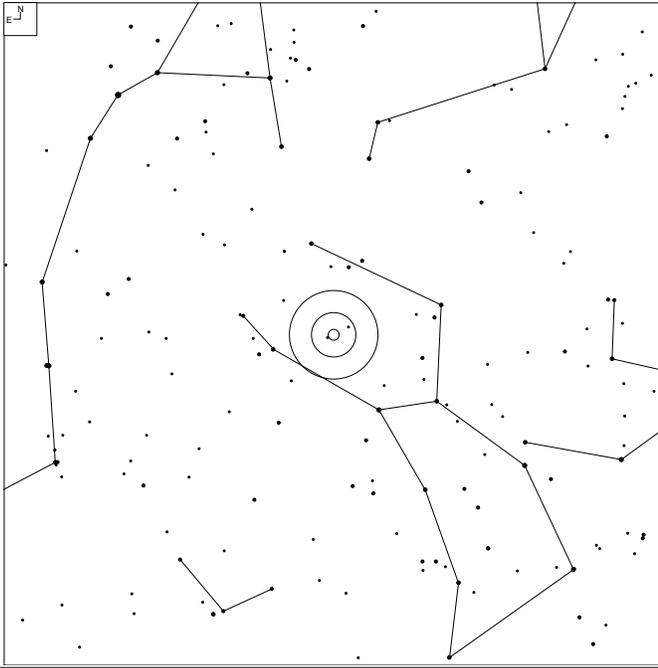
RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
14 39 36.5	-26 32 18	10.2	18.5	15.5	13.4	4.3'

NGC 6101 (Apus)



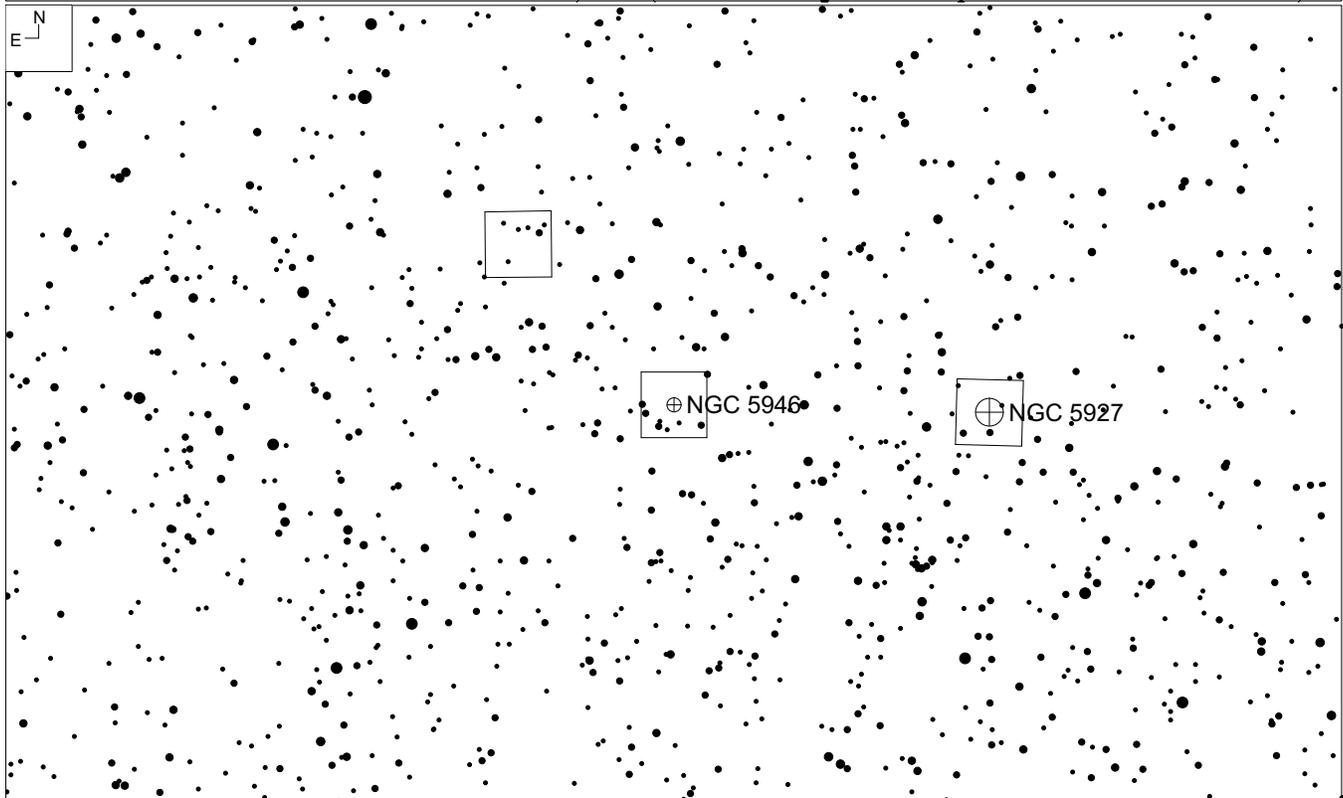
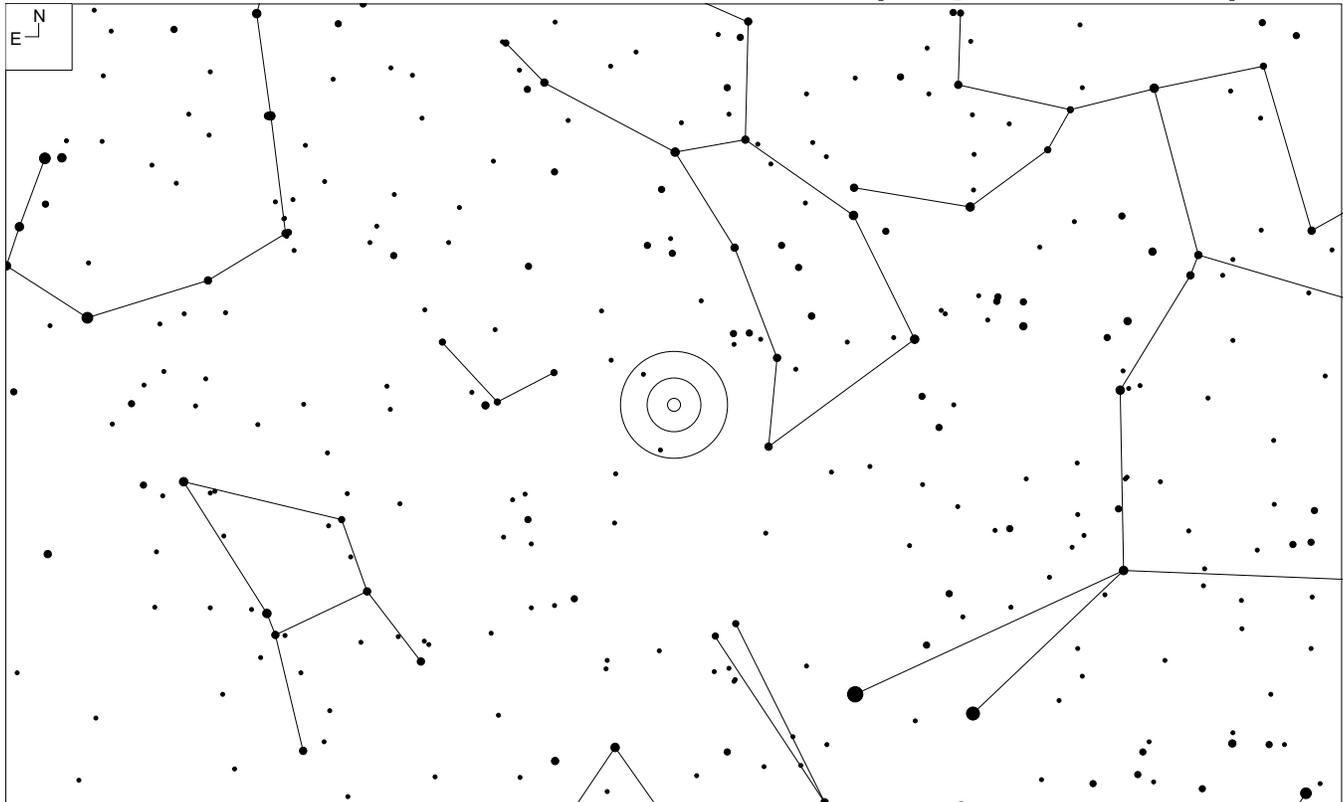
RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
16 25 48	-72 12 08	9.16	16.6	13.5	12.7	5

NGC 5986 (Lupus)



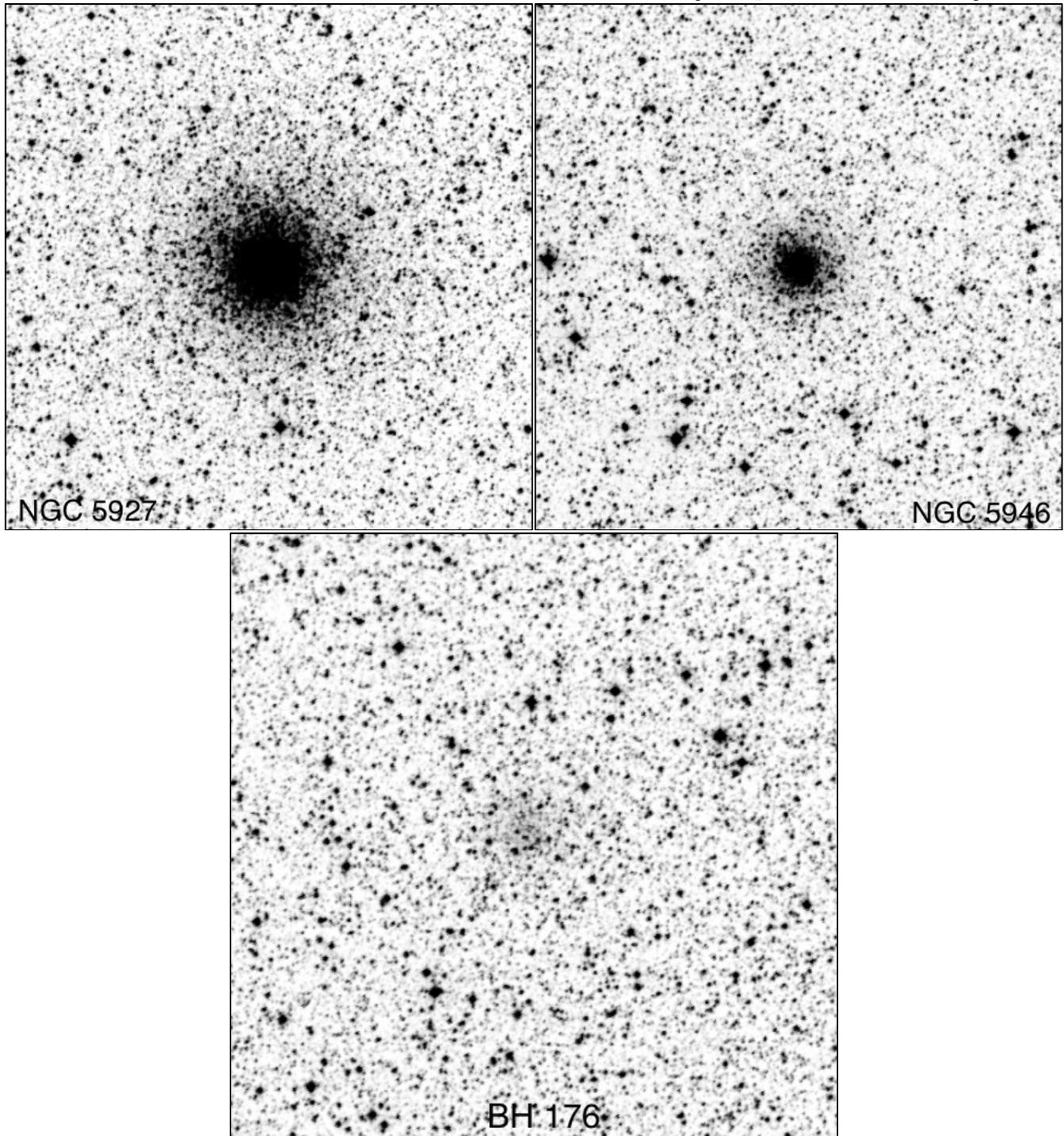
RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
15 46 03.5	-37 47 10	7.6	16.5	13.2	12.5	9.6'

NGC 5927, NGC 5946, BH 176 (Lupus/Norma)



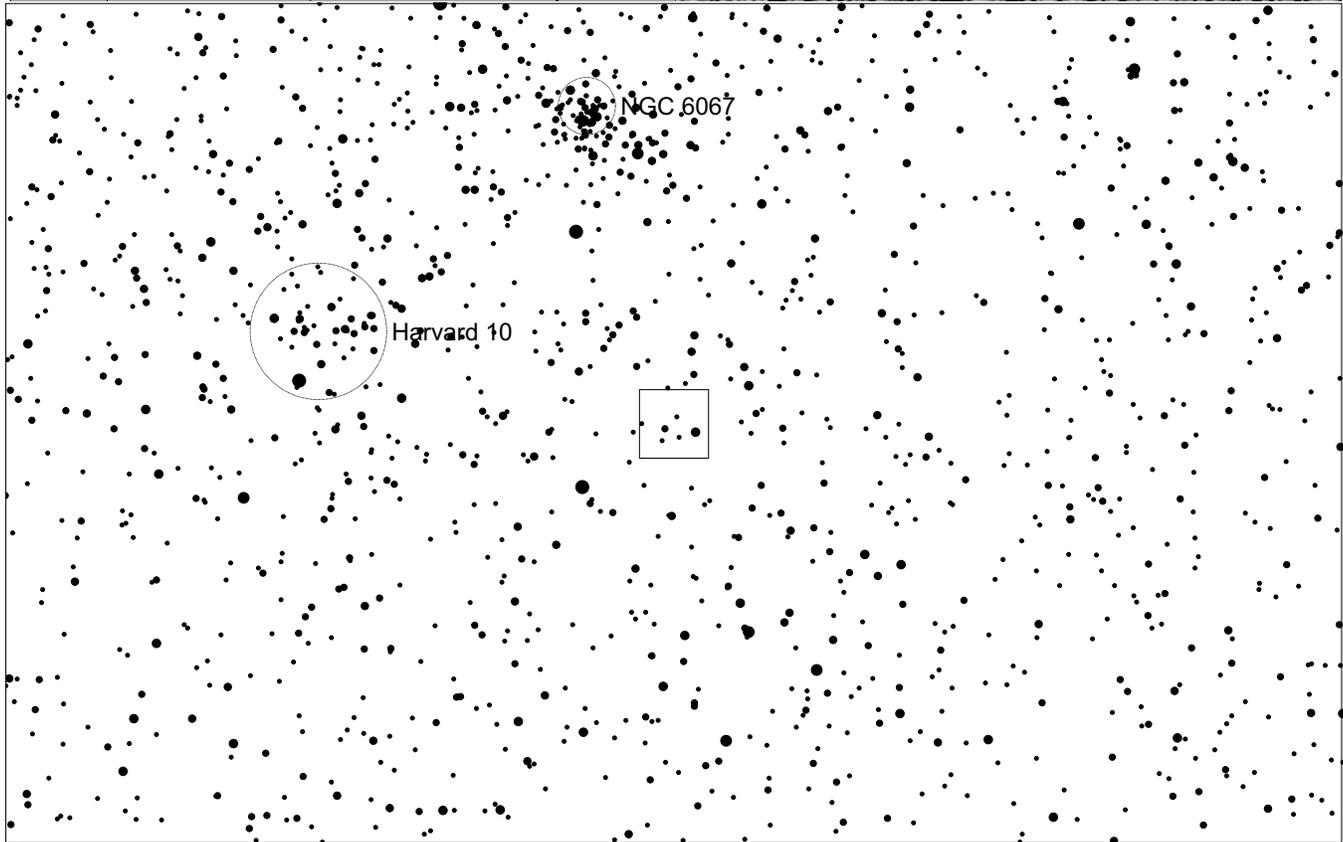
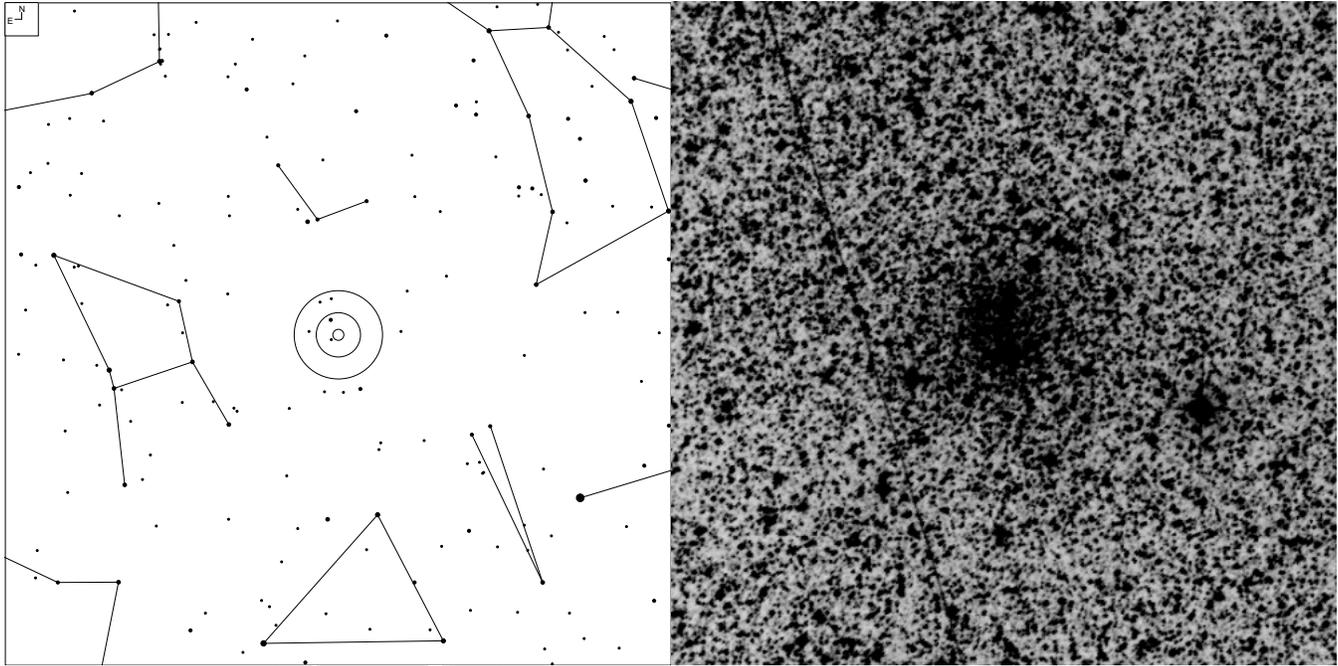
Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
NGC 5927	15 28 01	-50 40 23	8.01	16.6	14.5	11.9	6
NGC 5946	15 35 29	-50 39 35	9.61	17.8	-	10.8	3
BH 176	15 39 07	-50 03 10	14	19.0	16.3	16.4	3

NGC 5927, NGC 5946, BH 176 (Lupus/Norma)



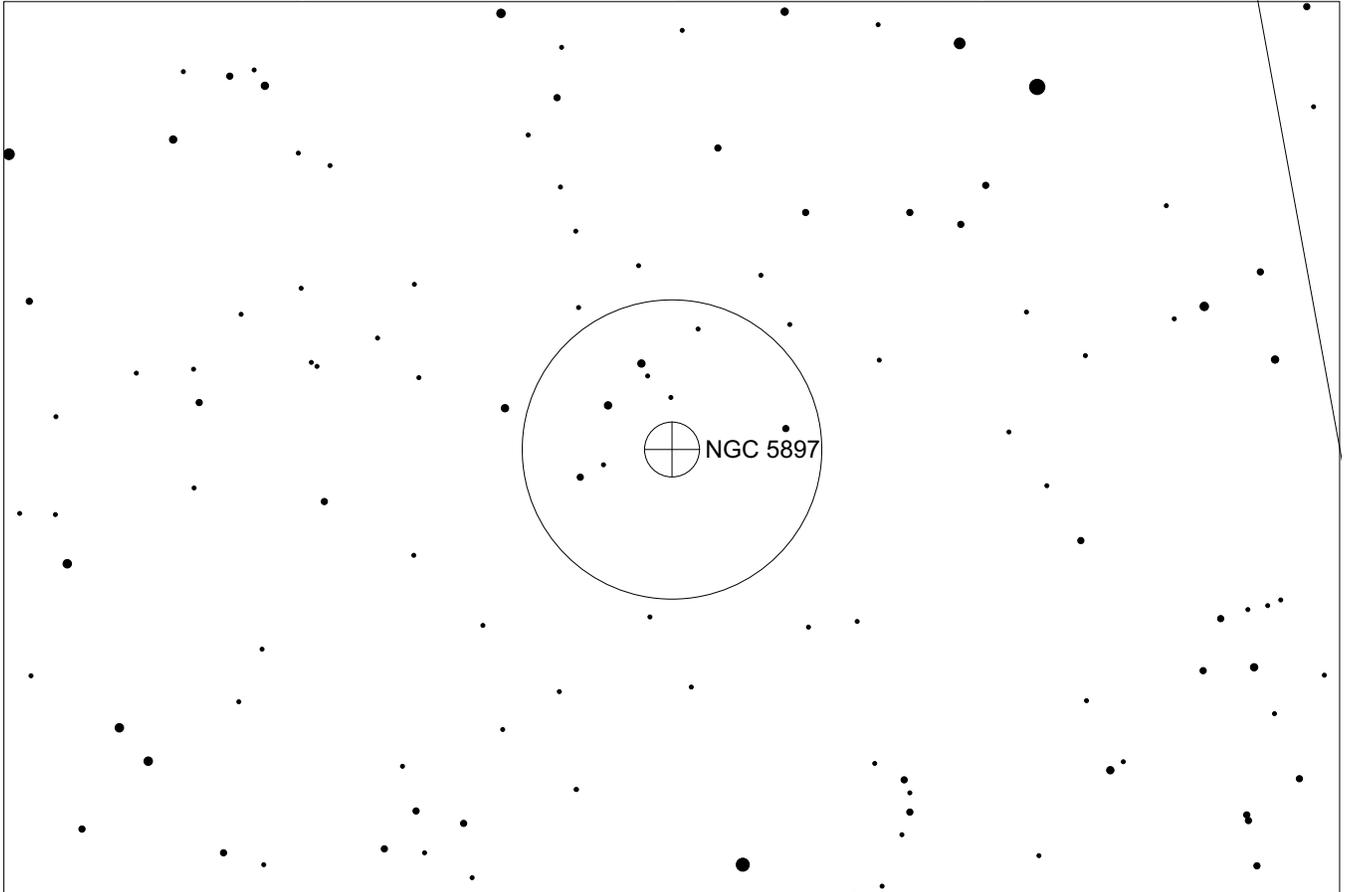
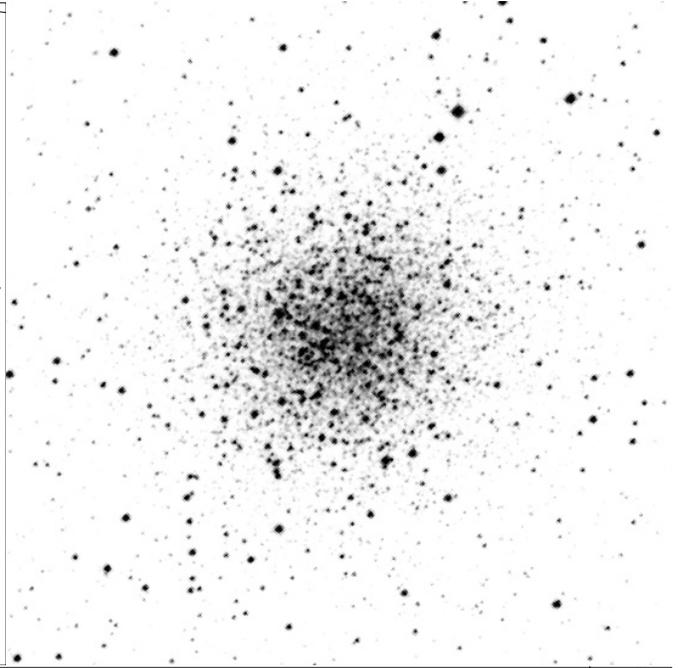
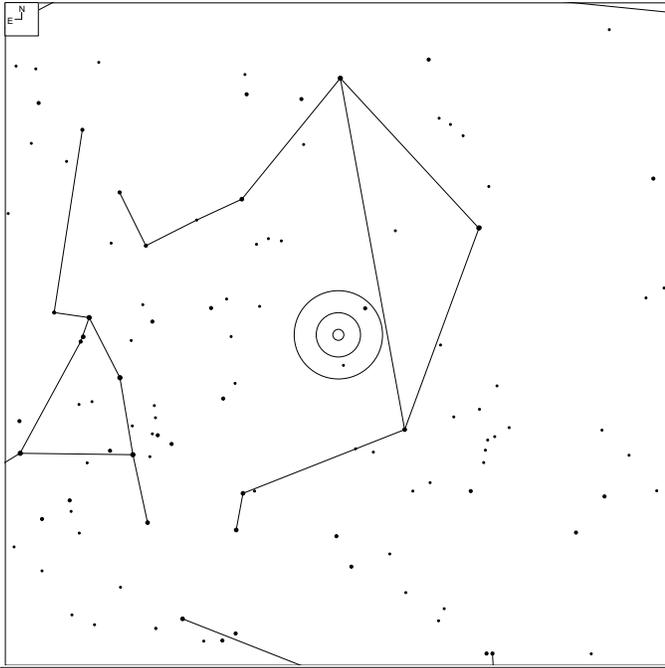
S. van den Bergh discovered BH 176, see S. van den Bergh, G.L. Hagen, "Uniform Survey of Clusters in the Southern Milky Way," *Astronomical Journal* Vol 80 (1975): 11-16

Lynga 7 (Norma)



RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
16 11 04	-55 19 04	10.18	17.3	16.3	-	2.5

NGC 5897 (Libra)



N
E

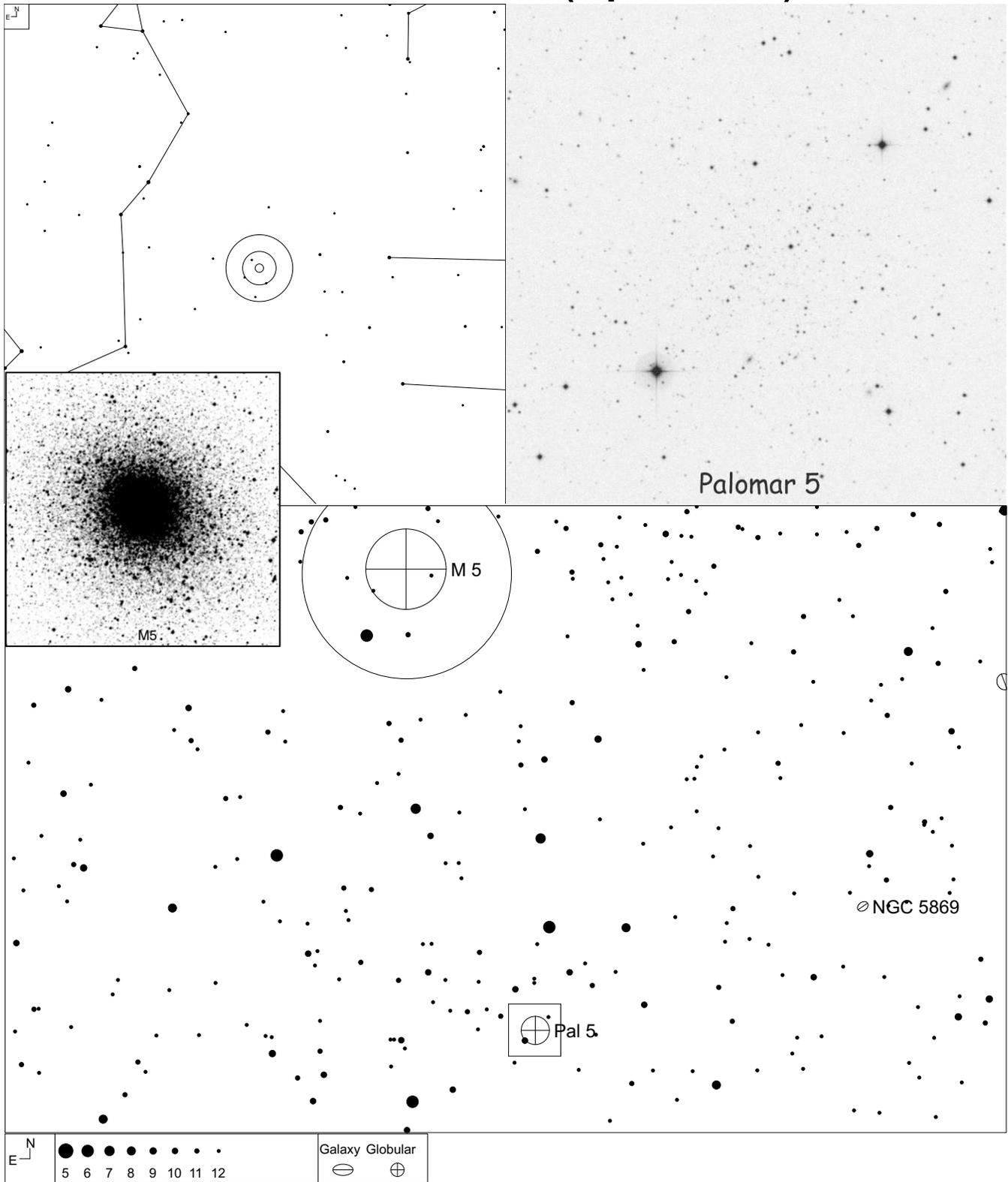
5 6 7 8 9 10 11 12

Galaxy Globular

+

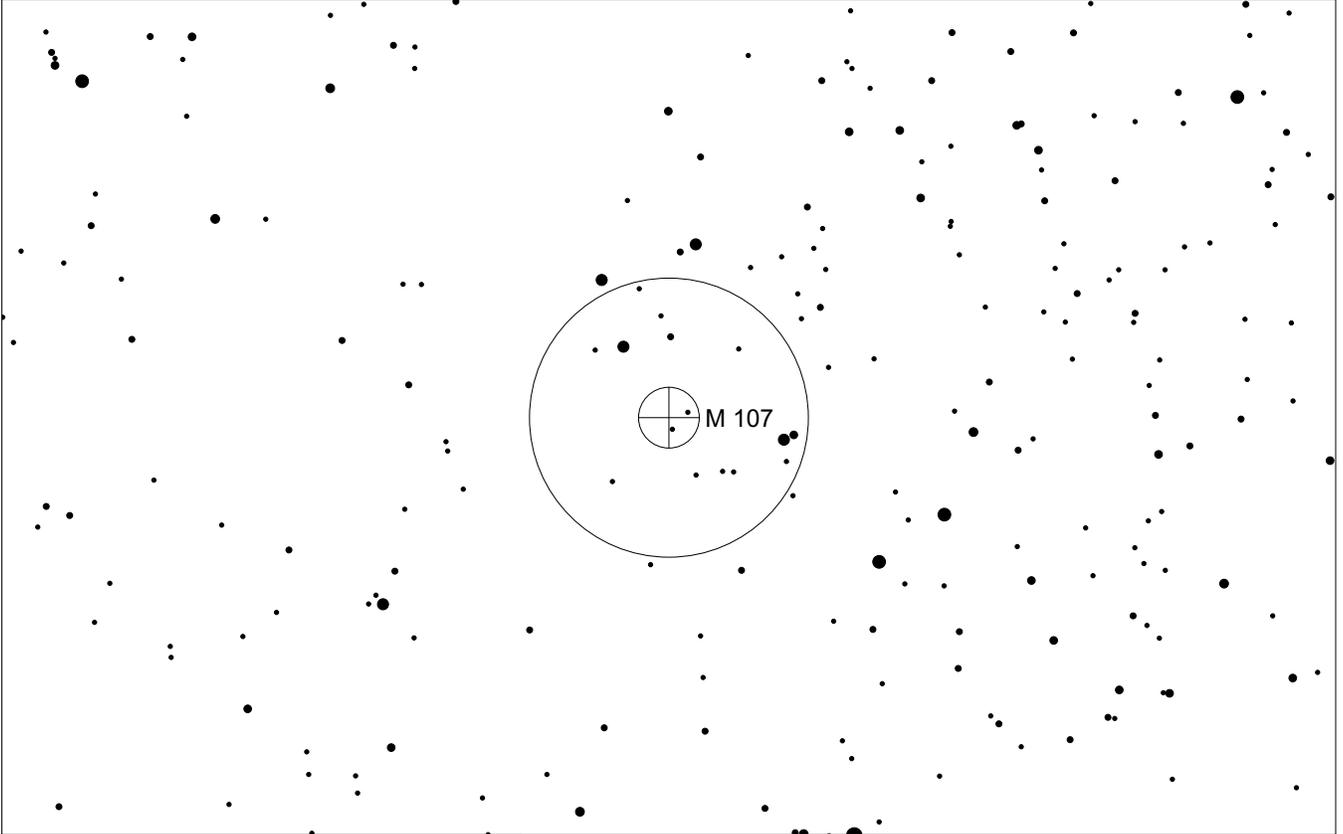
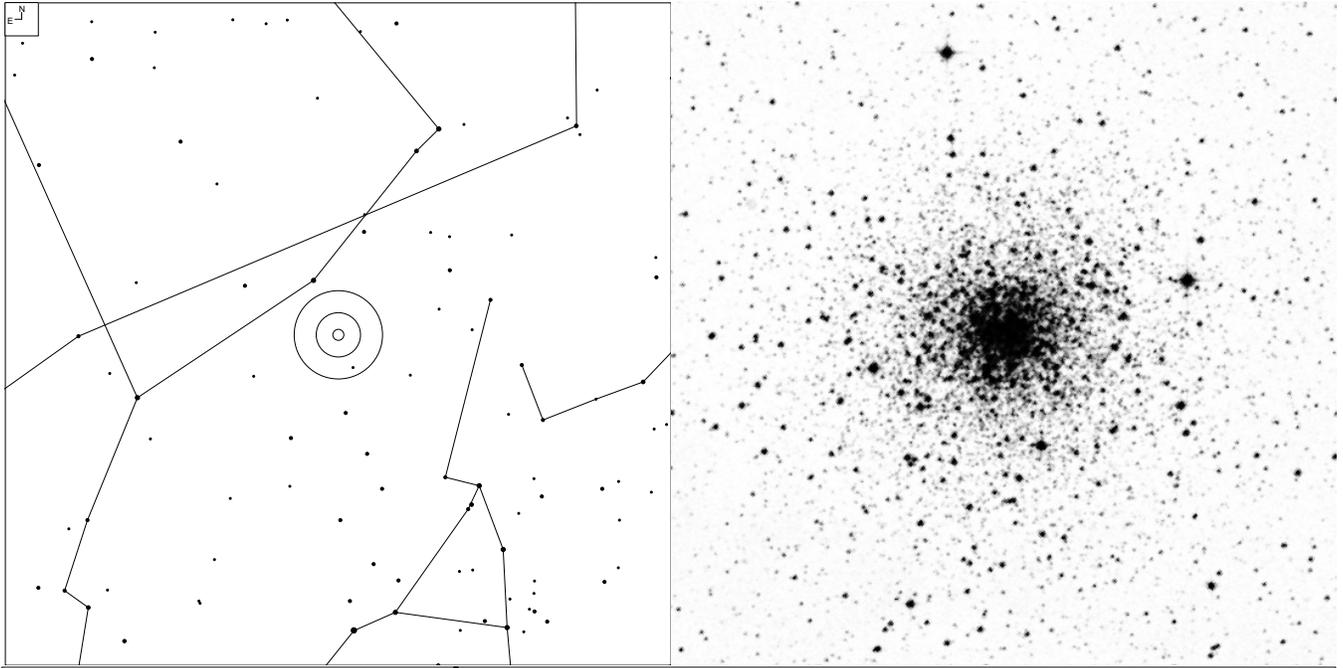
RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
15 17 24.5	-21 00 37	8.4	16.3	13.3	13.6	11'

M5 and Palomar 5 (Ophiuchus)



Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
M5	15 18 33.8	+02 04 58	5.7	15	12.2	12.5	23'
Palomar 5	15 16 05.3	-00 07 14	11.8	17.4	15.5	16.3	8'

M107 (Ophiuchus)



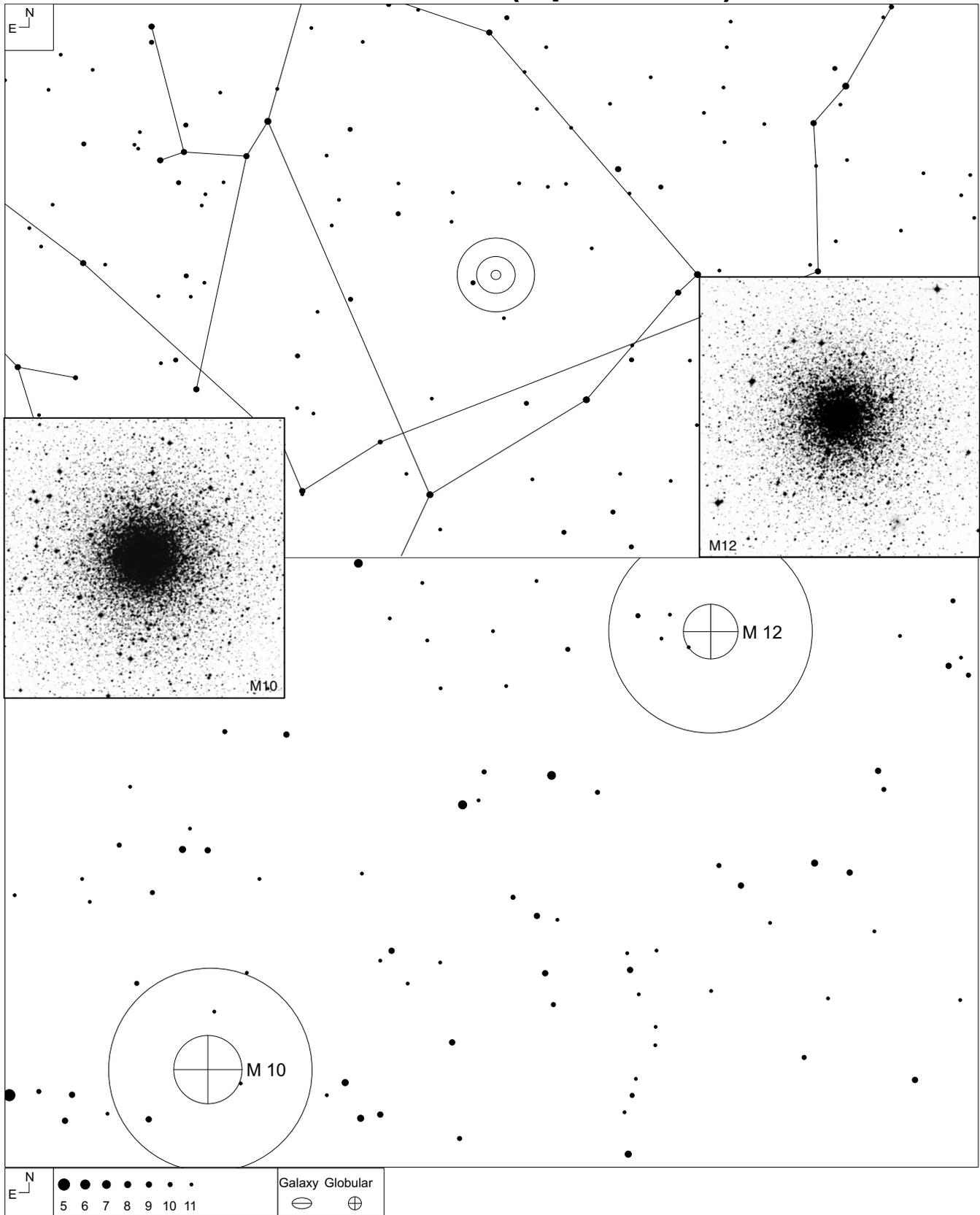
N
E

● ● ● ● ● ● ●
 6 7 8 9 10 11 12

Galaxy ⊖ Globular ⊕

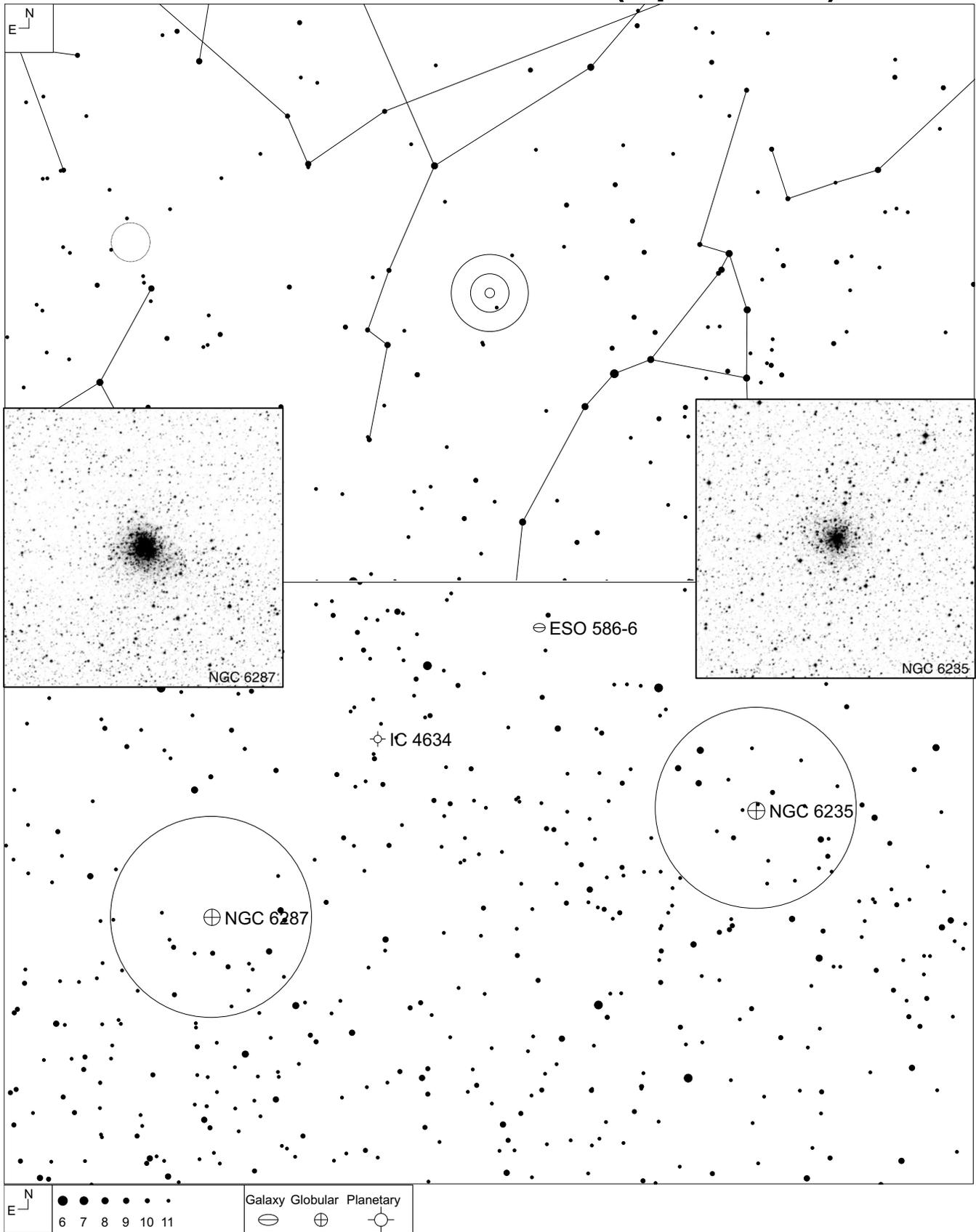
RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
16 32 31.9	-13 03 13	7.8	15.6	13	13.4	13'

M10 and M12 (Ophiuchus)



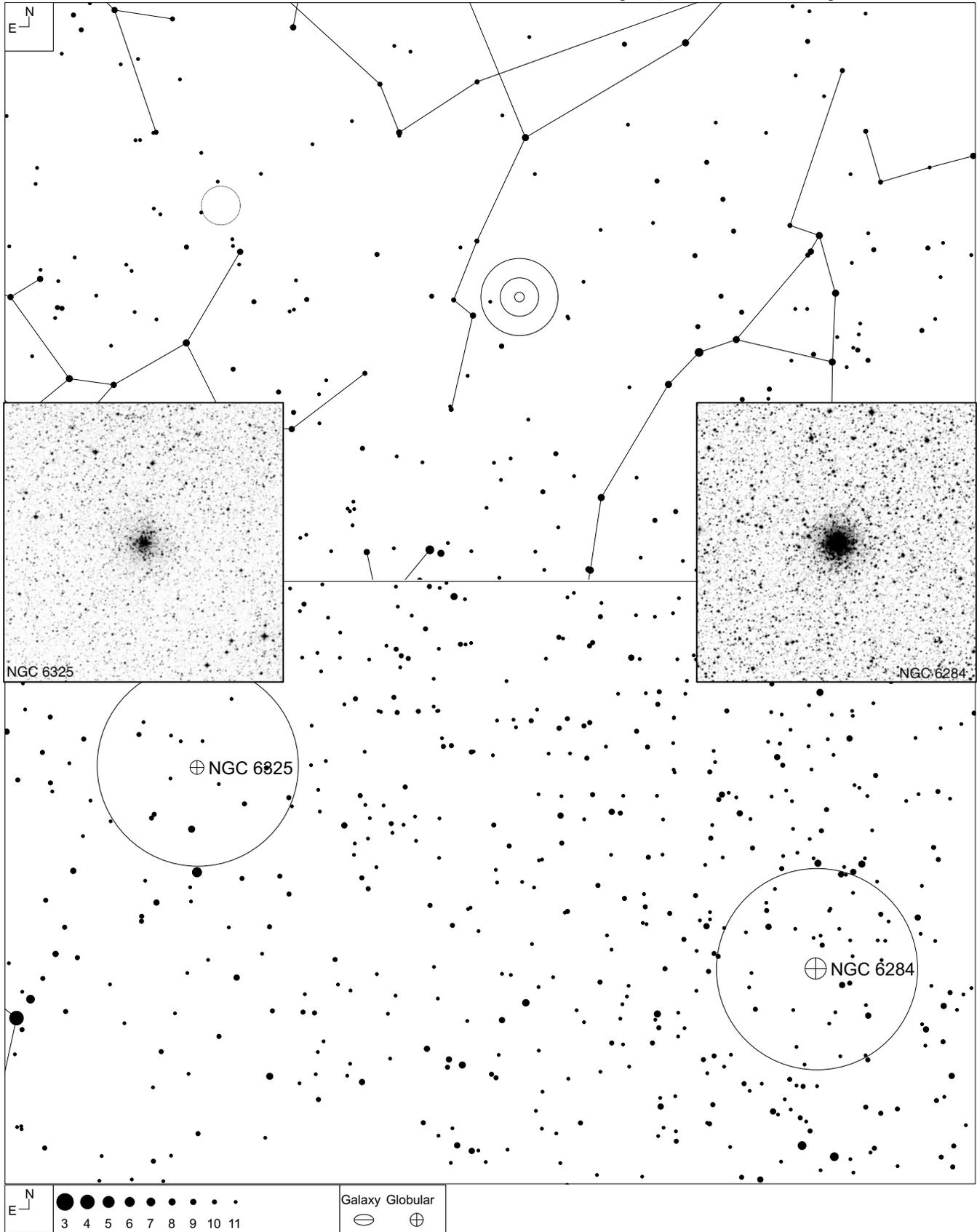
Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
M10	16 57 08.9	-04 05 58	6.1	14.7	12	12.1	16'
M12	16 47 14.5	-01 56 52	6.6	15.1	12	13.1	20'

NGC 6235 and NGC 6287 (Ophiuchus)



Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
NGC 6235	17 17 59.2	-23 45 57	8.9	16.7	14	12.4	5'
NGC 6287	17 05 09.4	-22 42 29	9.3	17.1	14.5	12.7	4.8'
Globular Clusters			53	www.FaintFuzzies.com			

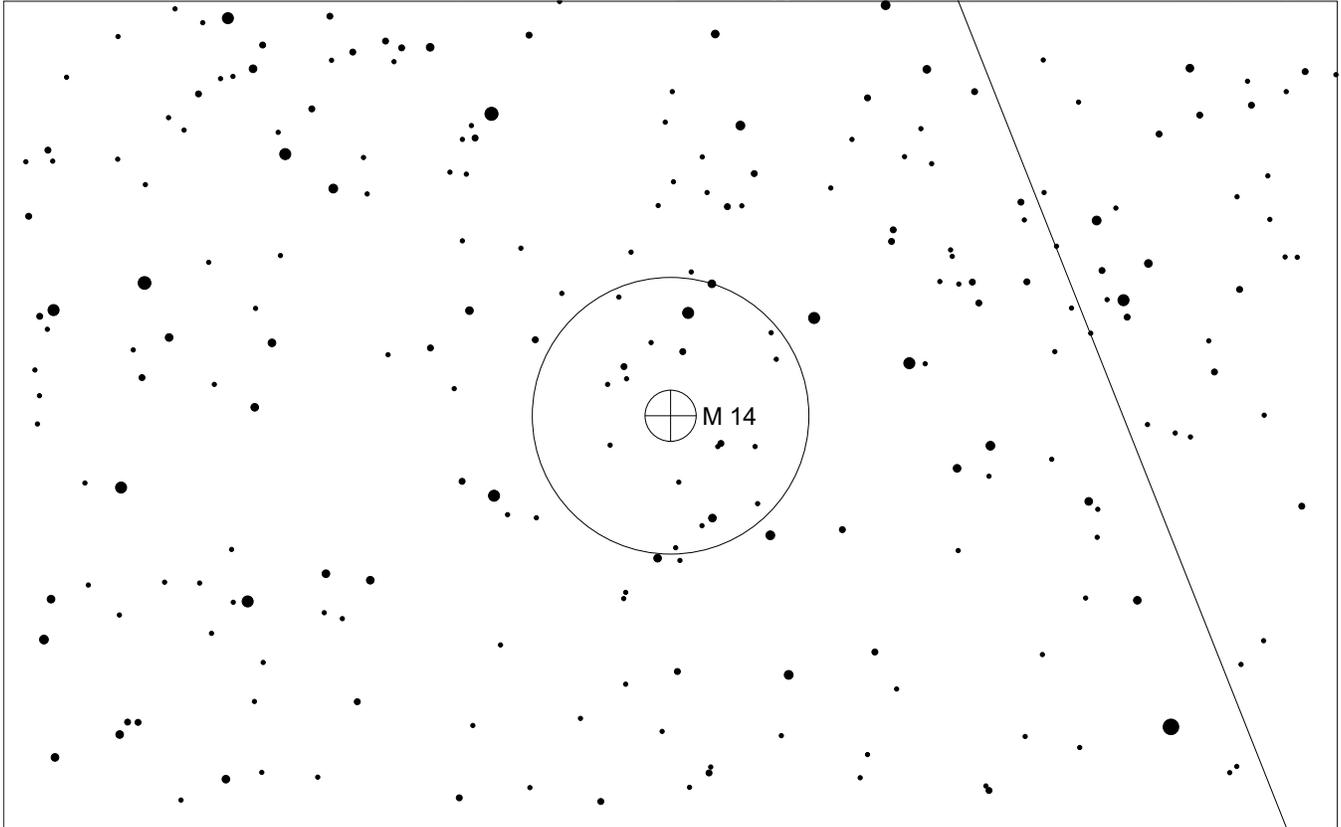
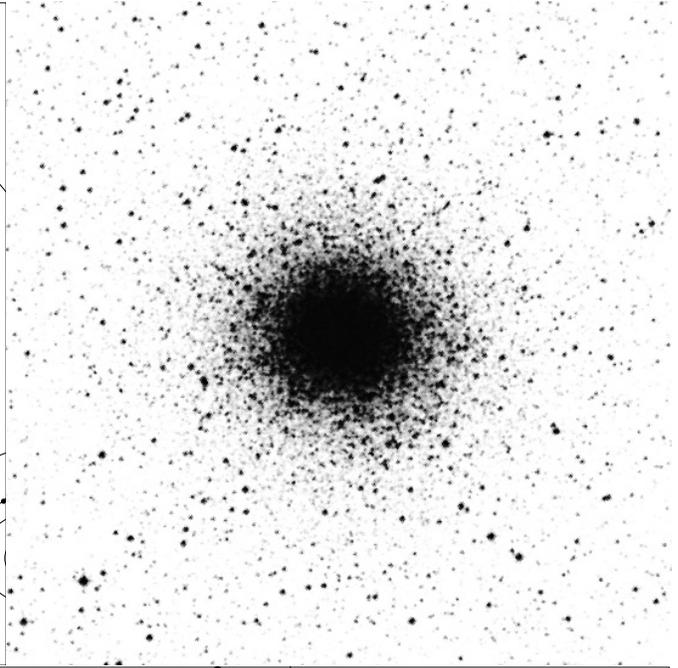
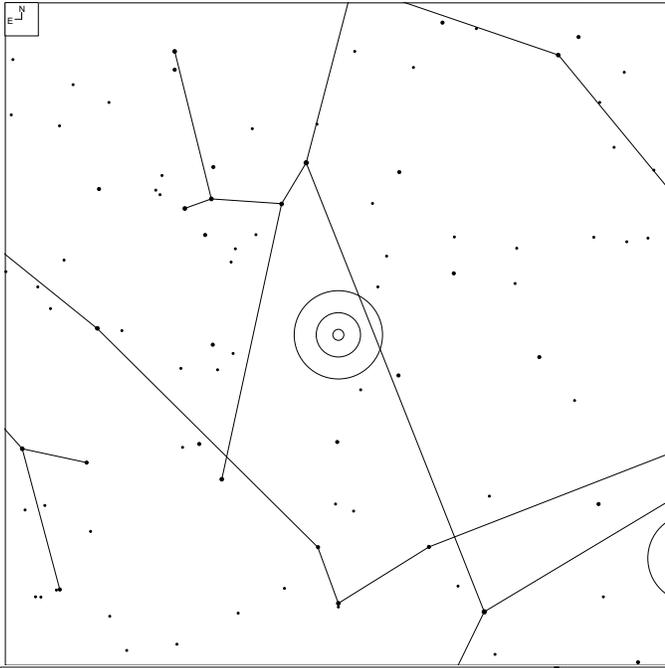
NGC 6284 and NGC 6325 (Ophiuchus)



Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
NGC 6284	17 04 28.8	-24 45 53	8.9	16.6	-	12.9	6.2'
NGC 6325	16 53 25.4	-22 10 38	10.2	17.3	14.7	13.3	4.1'
Globular Clusters			54				

www.FaintFuzzies.com

M14 (Ophiuchus)



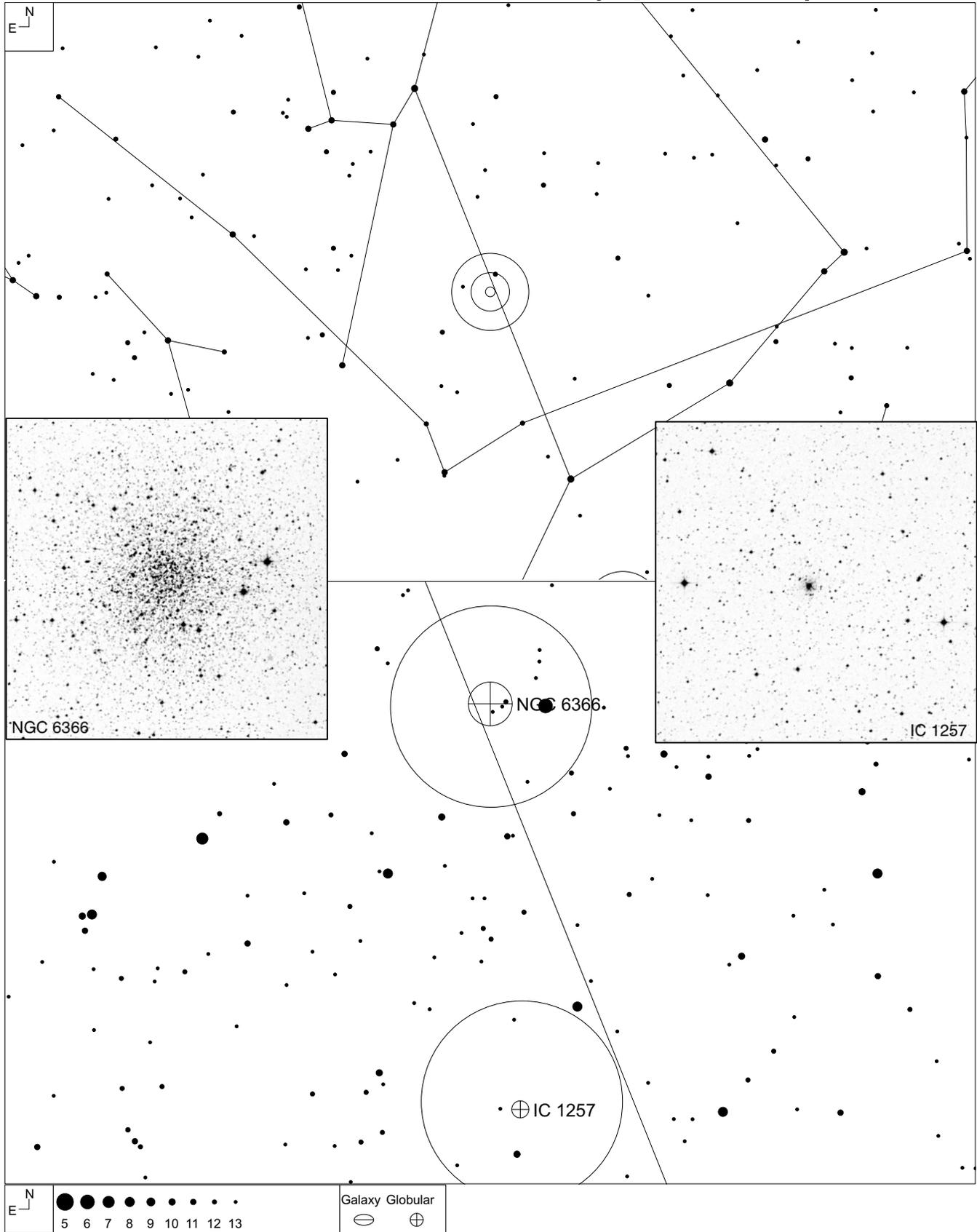
6 7 8 9 10 11 12

Galaxy Globular

Field: 7.3 x 4.5°

Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
M14	17 37 36.1	-03 14 45	7.6	17.2	14	12.8	11'

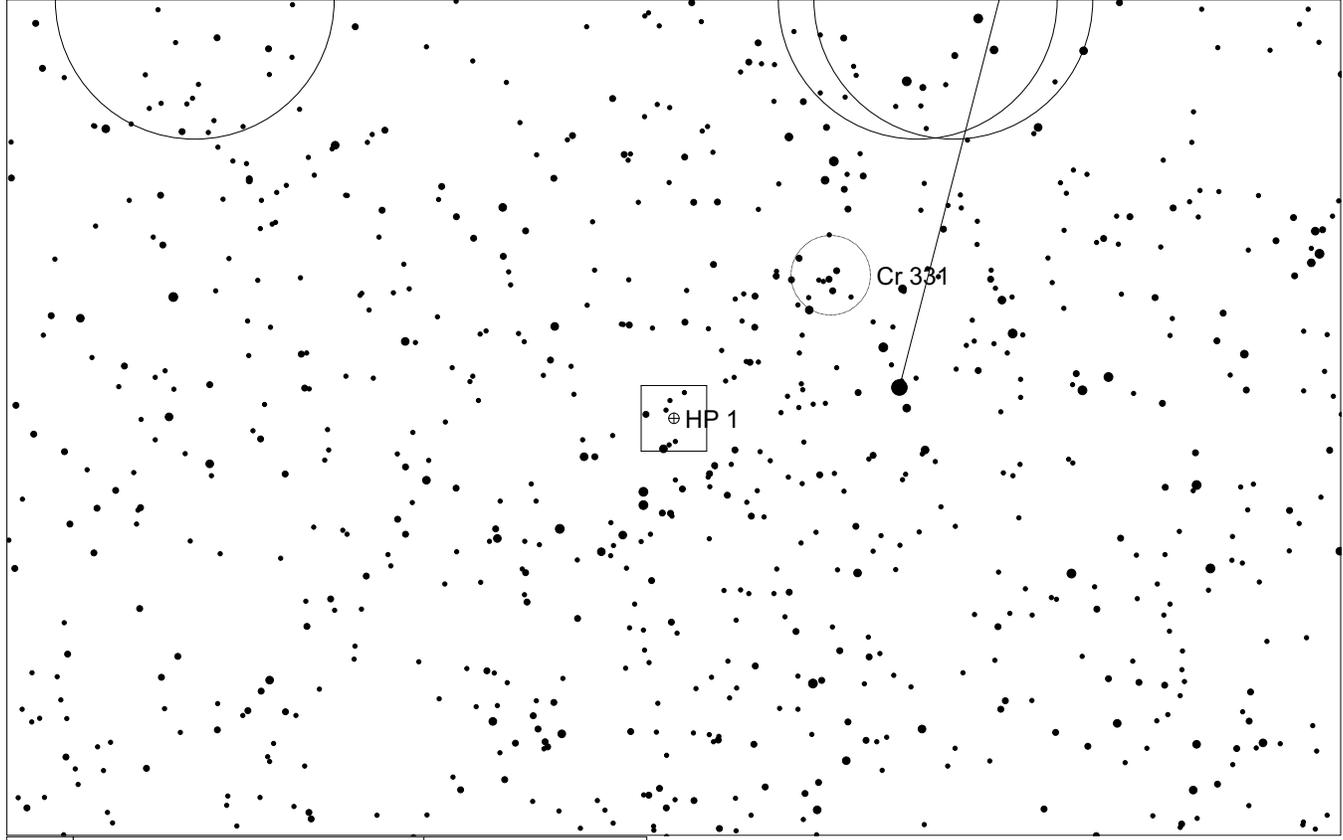
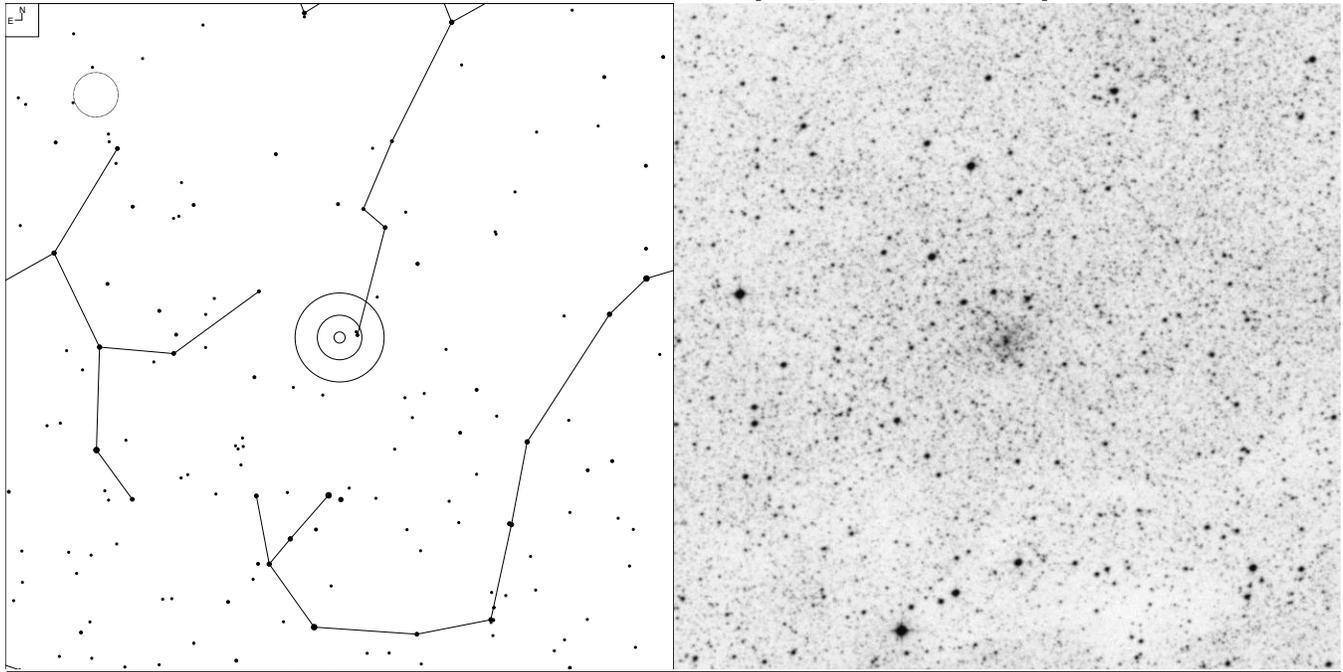
NGC 6366 and IC 1257 (Ophiuchus)



Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
NGC 6366	17 27 44.3	-05 04 36	9.5	15.7	13.6	15.1	13'
IC 1257	17 27 08.0	-07 05 36	13.1	19.8	17	14.3	1.7'

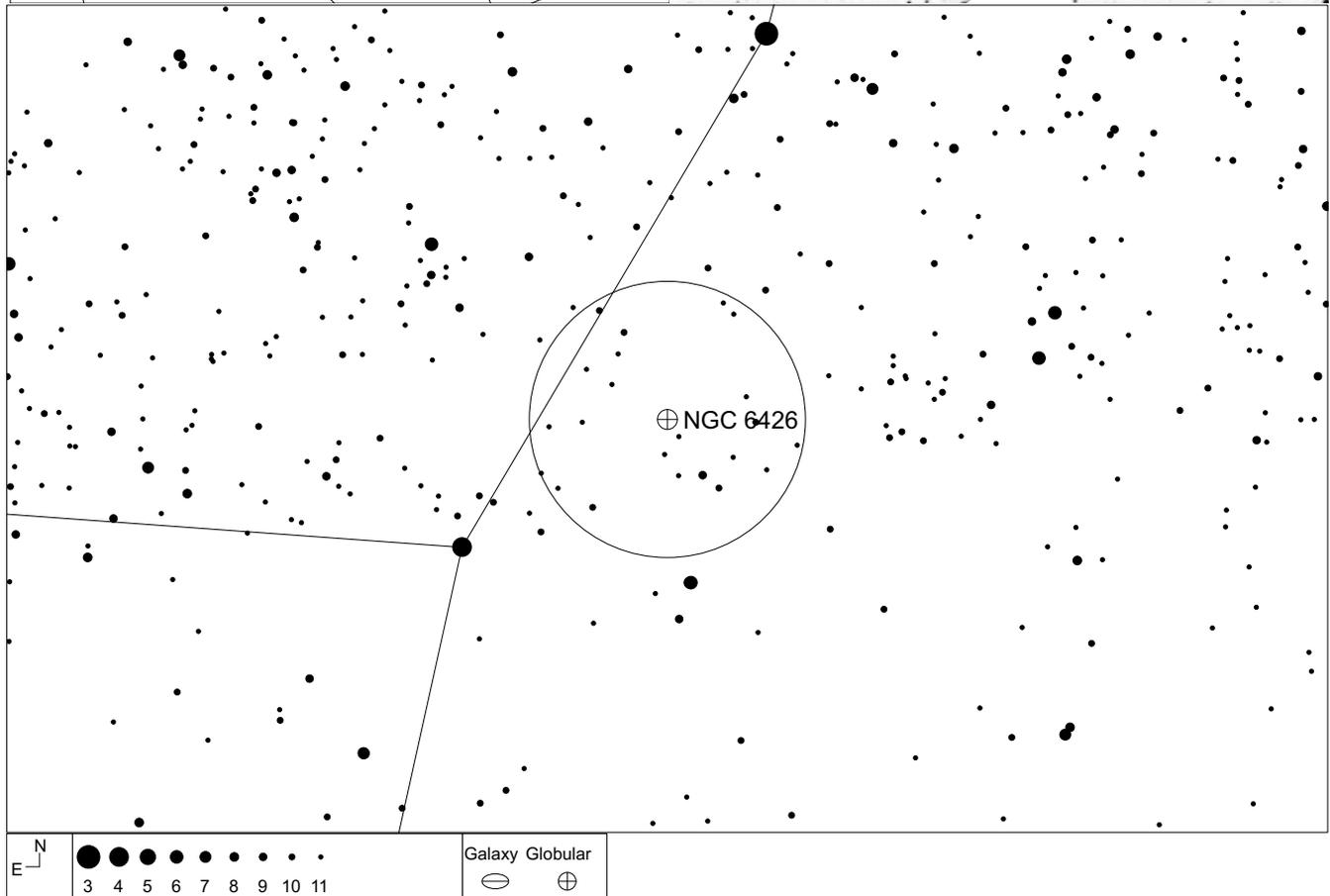
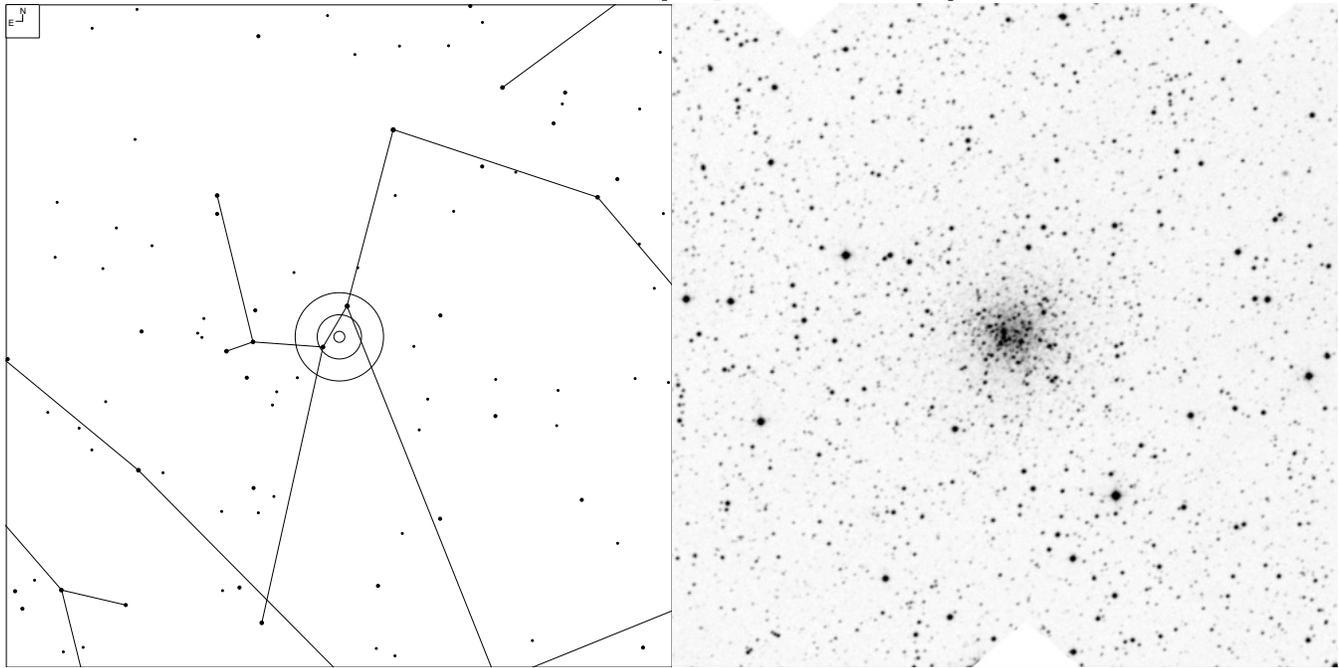
Globular Clusters 56 www.FaintFuzzies.com

Haute Province 1 (Ophiuchus)



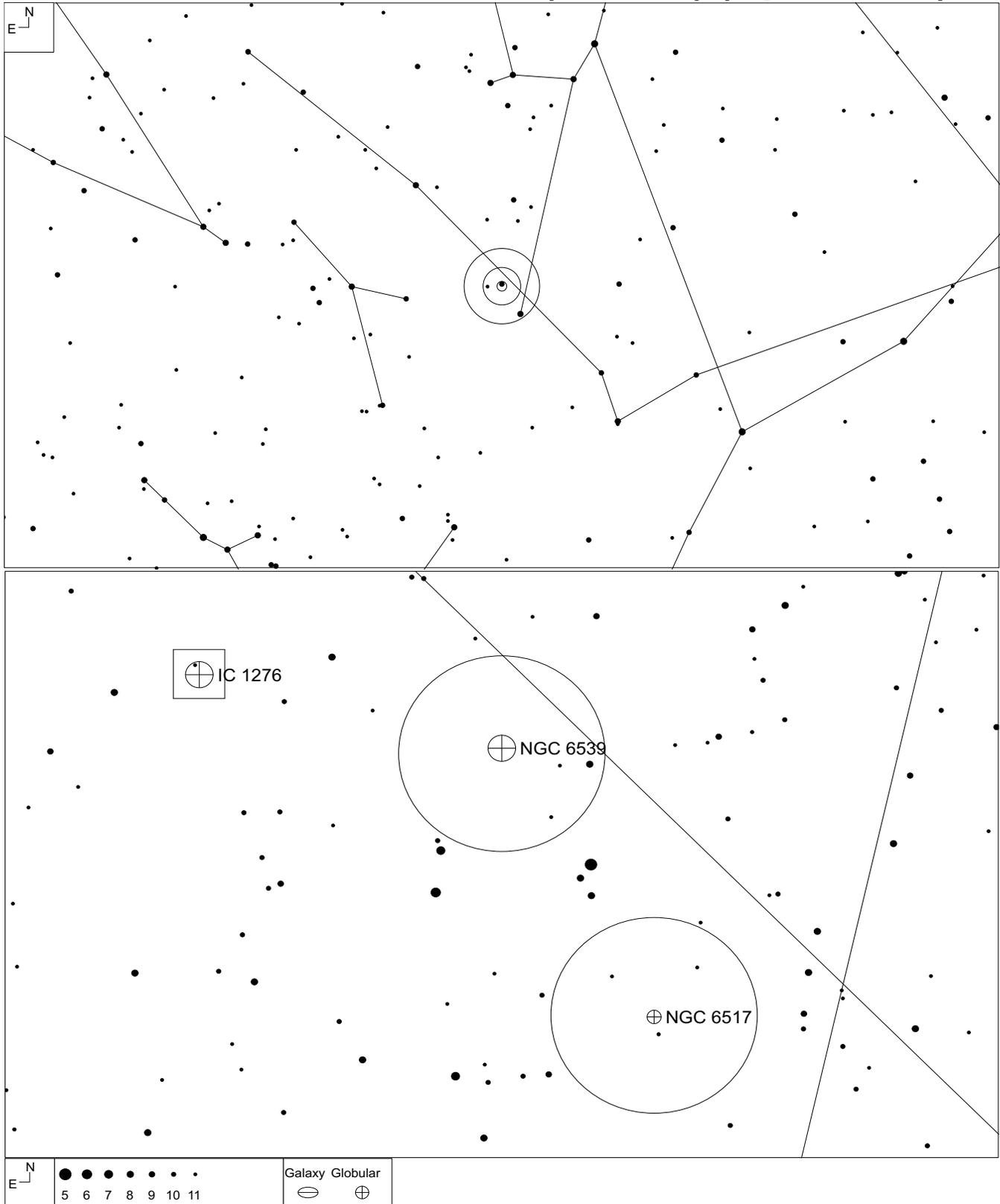
RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
17 31 05.2	-29 58 54	12.5	18.6	16	12.9	1.2'

NGC 6426 (Ophiuchus)



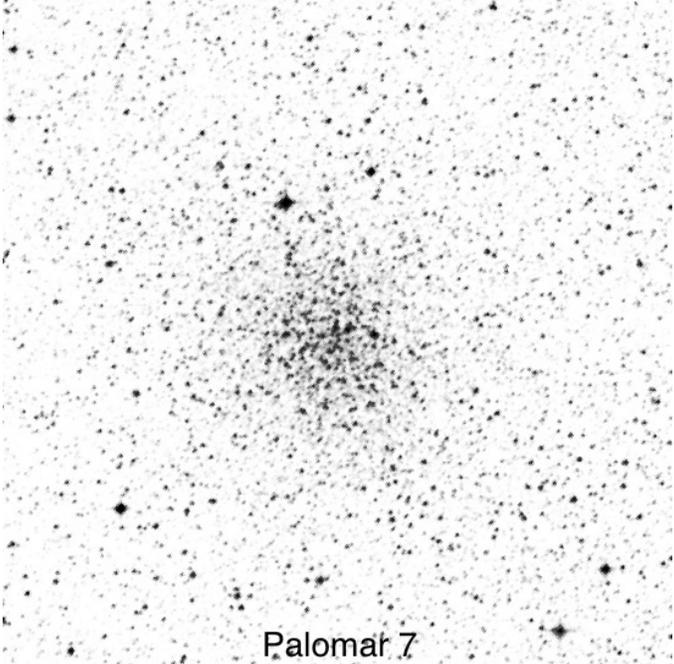
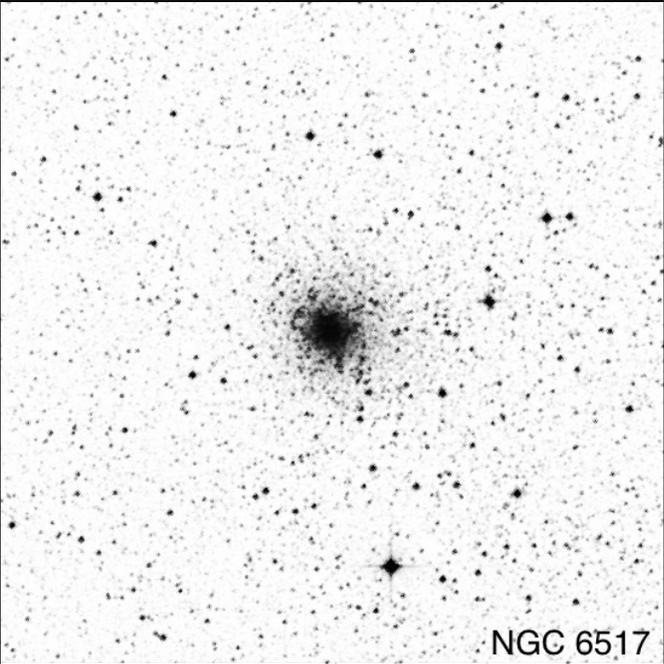
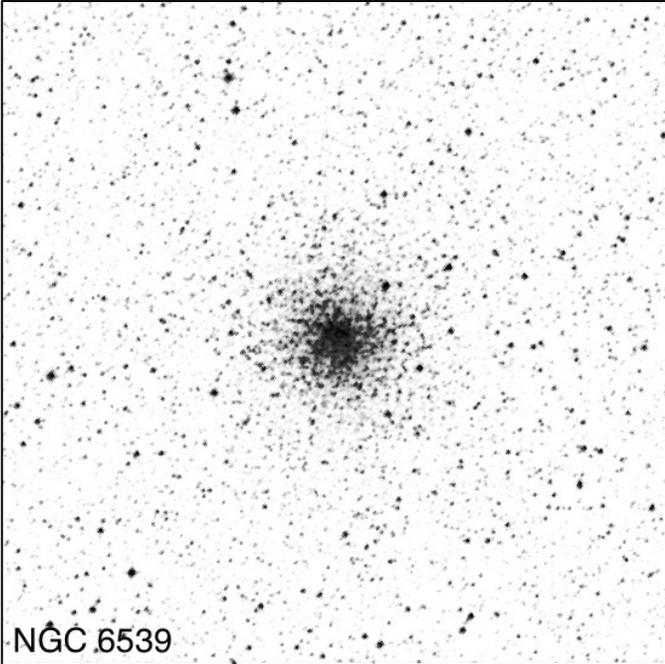
RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
17 44 54.7	+03 10 13	10.9	18.1	15.2	14	4.2'

NGC 6539, 6517 and Pal 7 (IC 1276) (Ophiuchus)

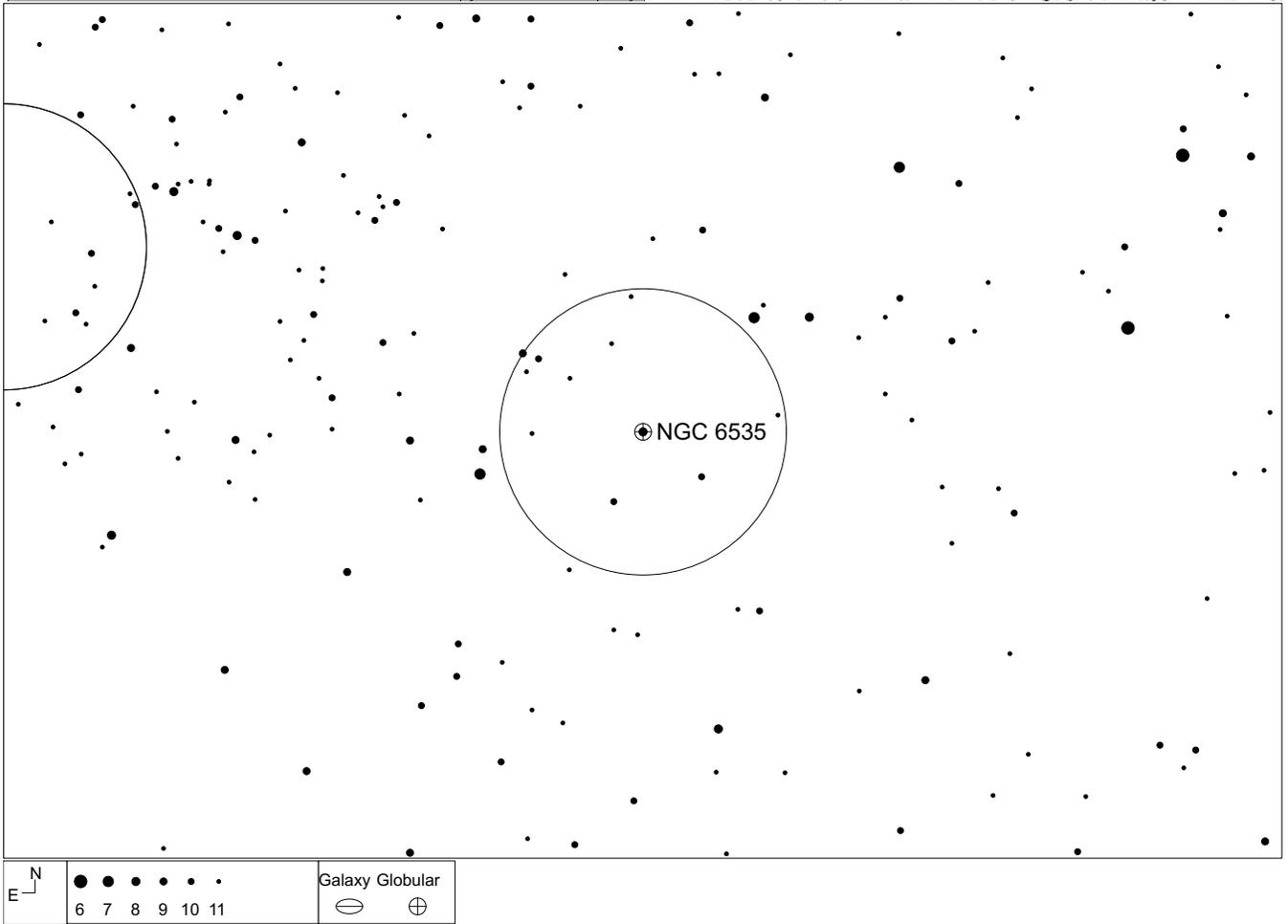
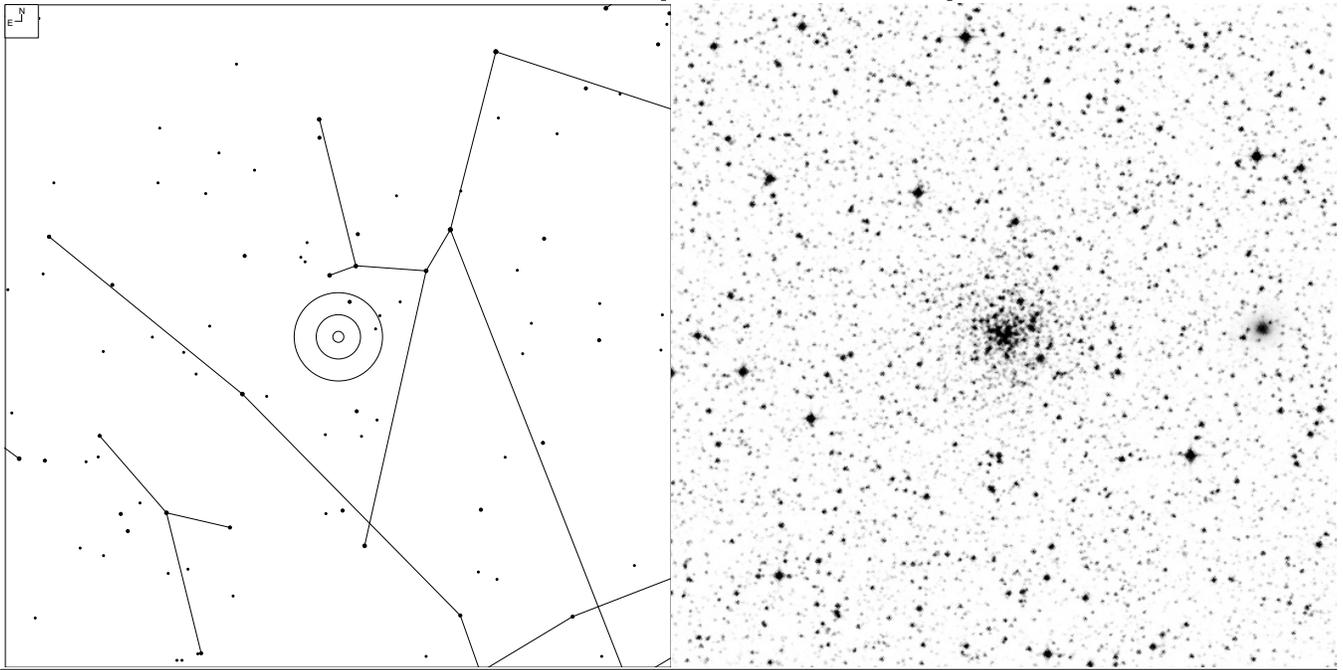


Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
NGC 6539	18 04 49.8	-07 35 09	10.1	18	16	13.1	4'
NGC 6517	18 01 50.6	-08 57 32	8.9	18.3	15.9	13.4	7.9'
Palomar 7	18 10 44.2	-07 12 27	10.3	17.7	15.7	14.8	8'

NGC 6539, 6517 and Pal 7 (IC 1276) (Ophiuchus)



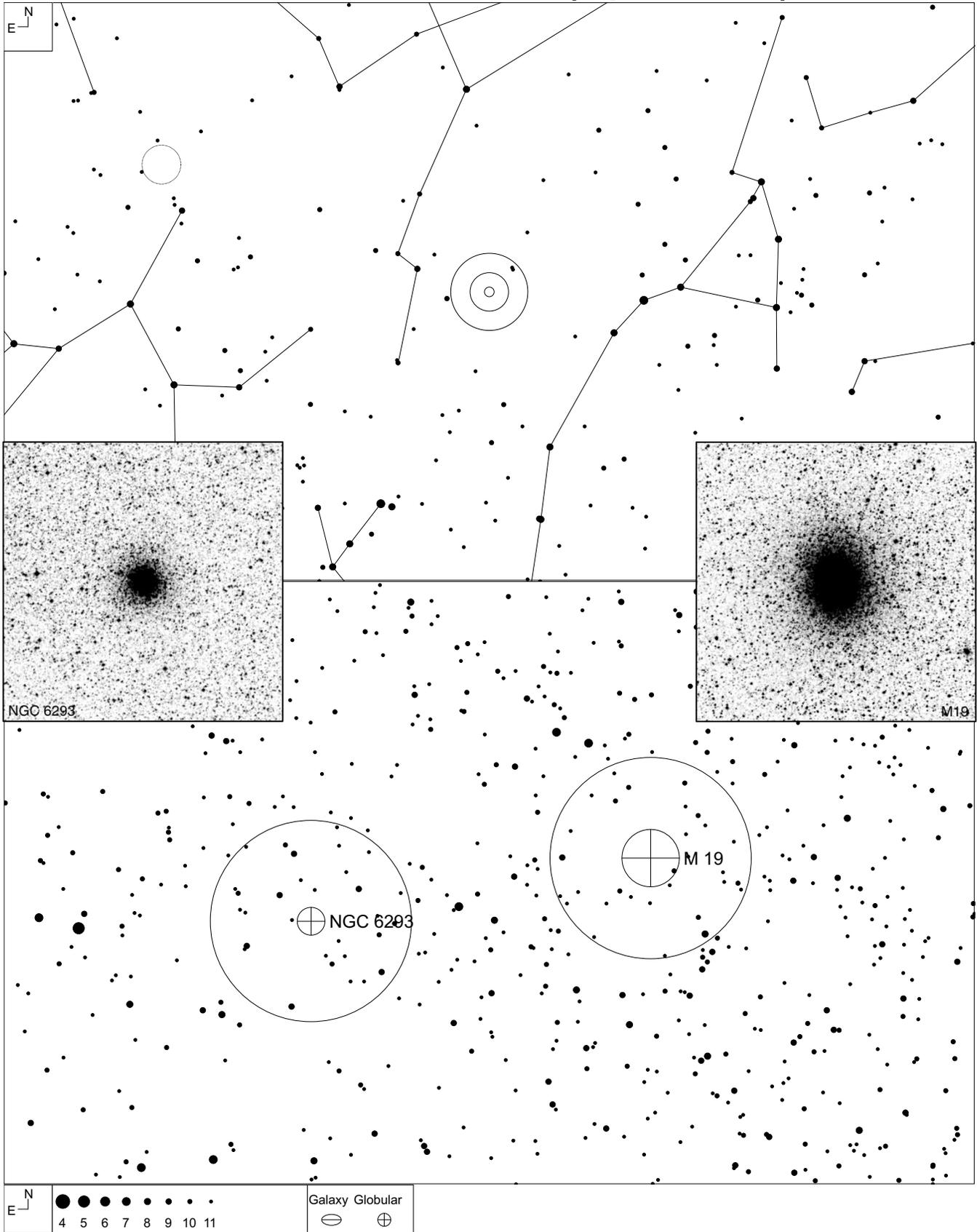
NGC 6535 (Ophiuchus)



N
E
● ● ● ● ●
Galaxy Globular
6 7 8 9 10 11
⊖ ⊕

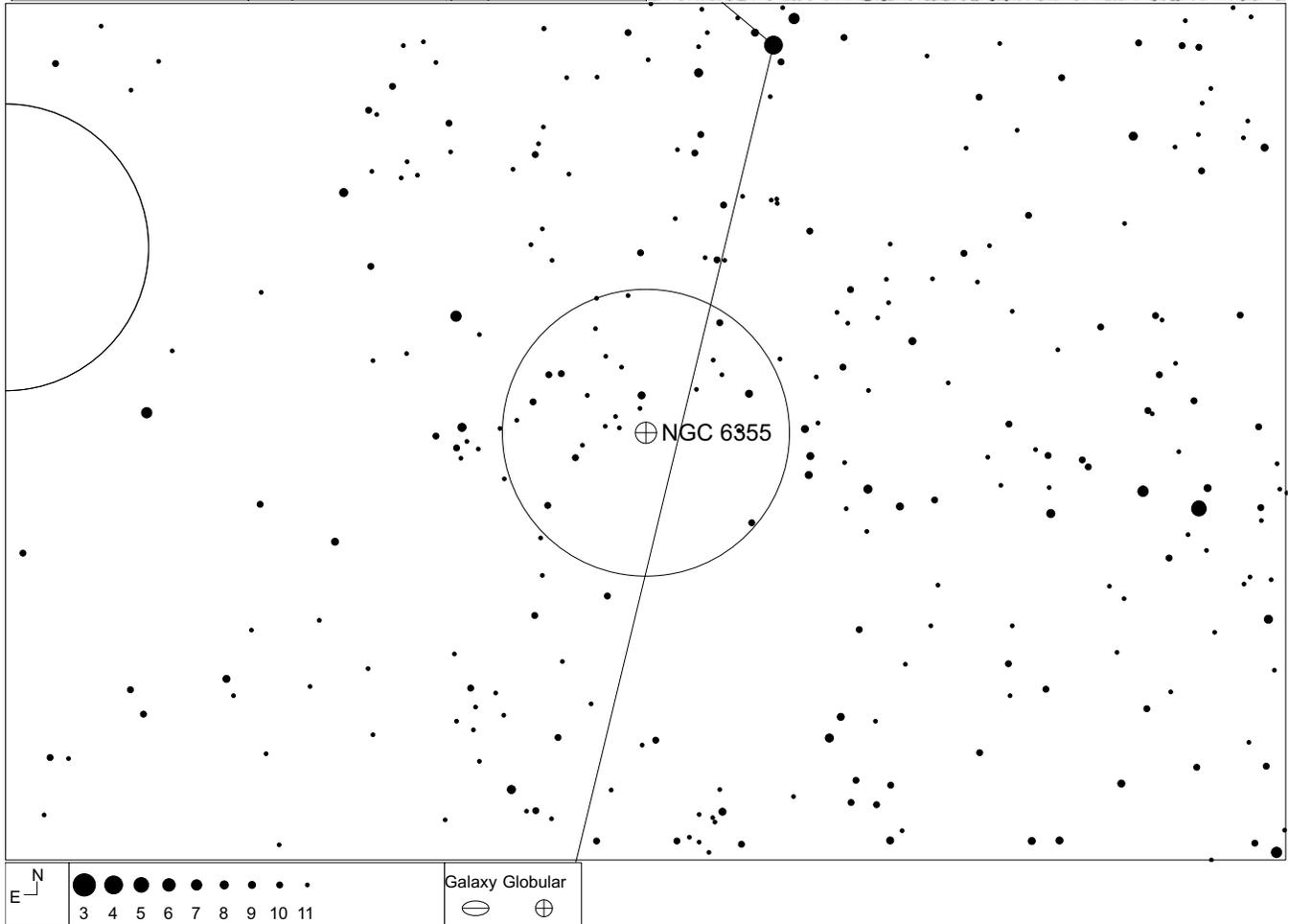
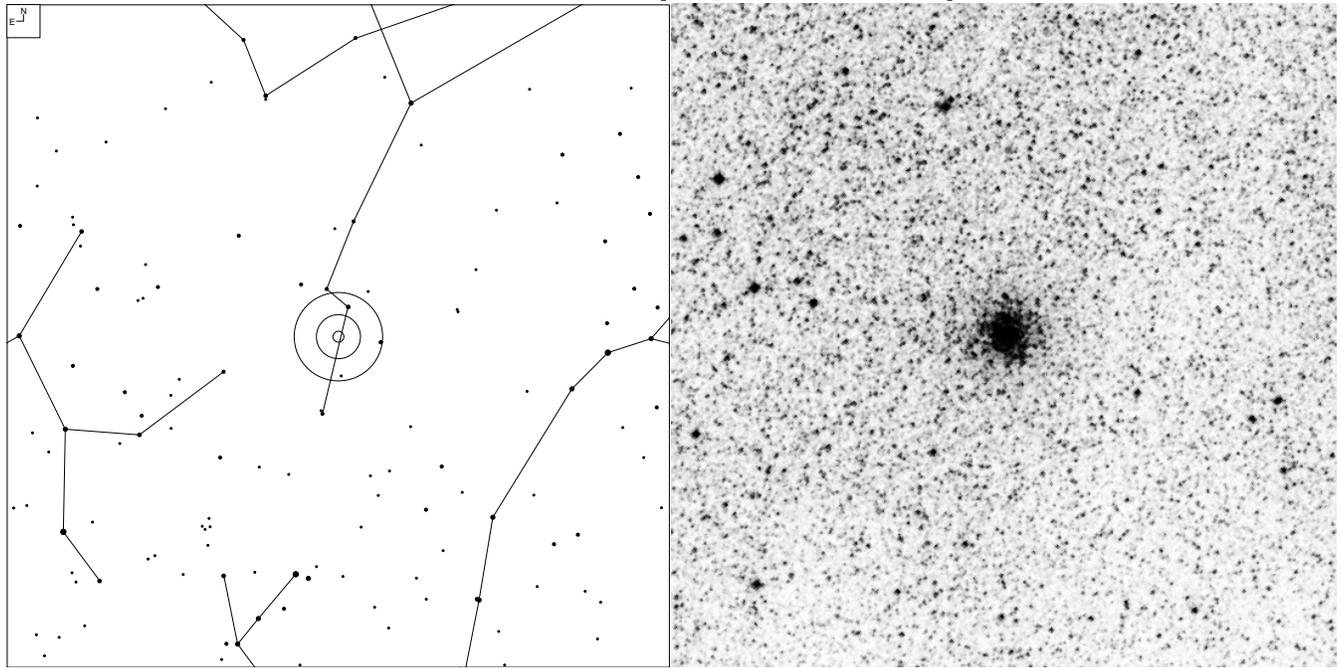
RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
18 03 50.7	-00 17 49	9.3	15.8	12.8	12	3.4'

M19 and NGC 6293 (Ophiuchus)



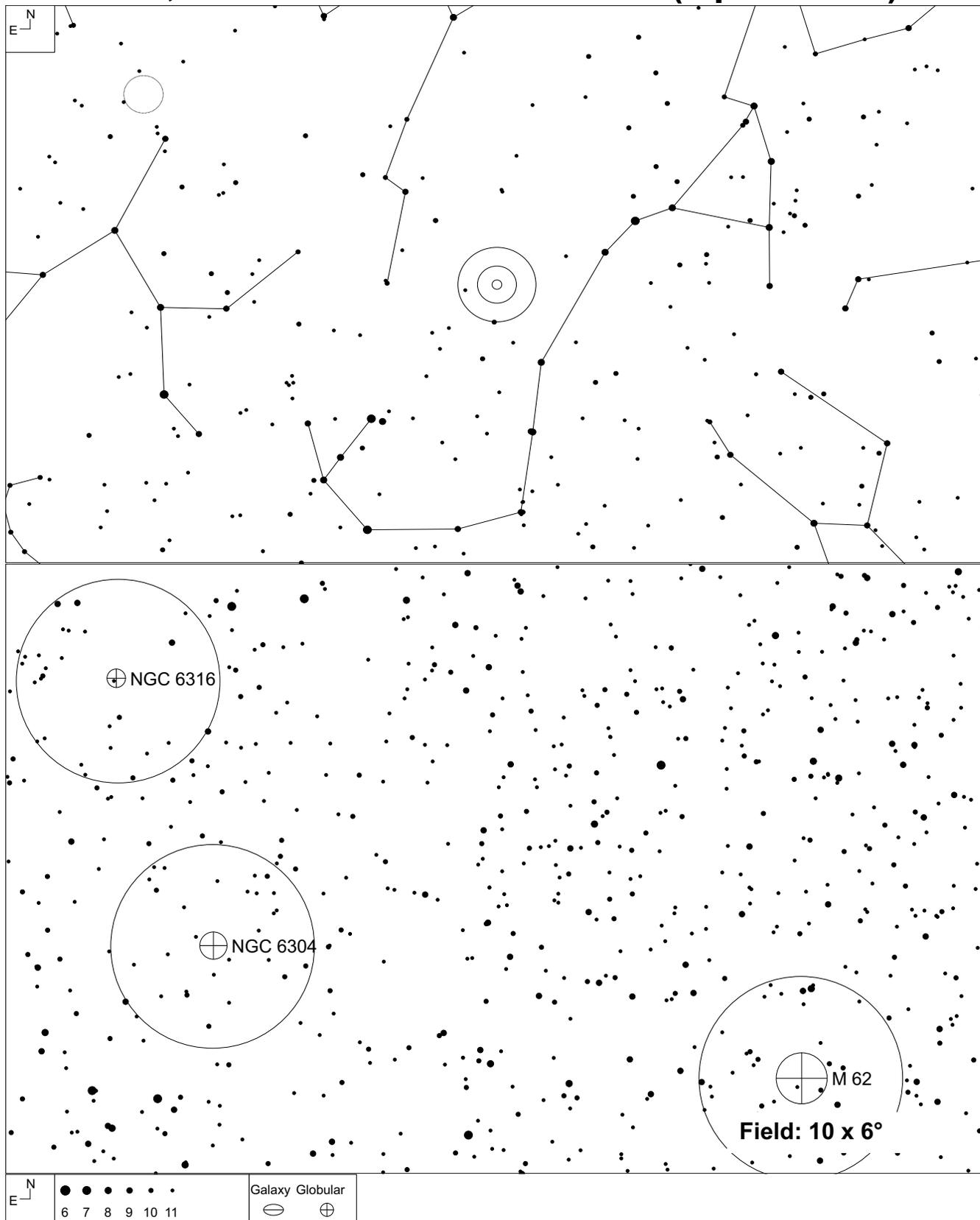
Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
M19	17 02 37.7	-26 16 05	6.8	17	14	13	17'
NGC 6293	17 10 10.4	-26 34 54	8.3	16.5	14.3	12.9	8.2'
Globular Clusters			62	www.FaintFuzzies.com			

NGC 6355 (Ophiuchus)



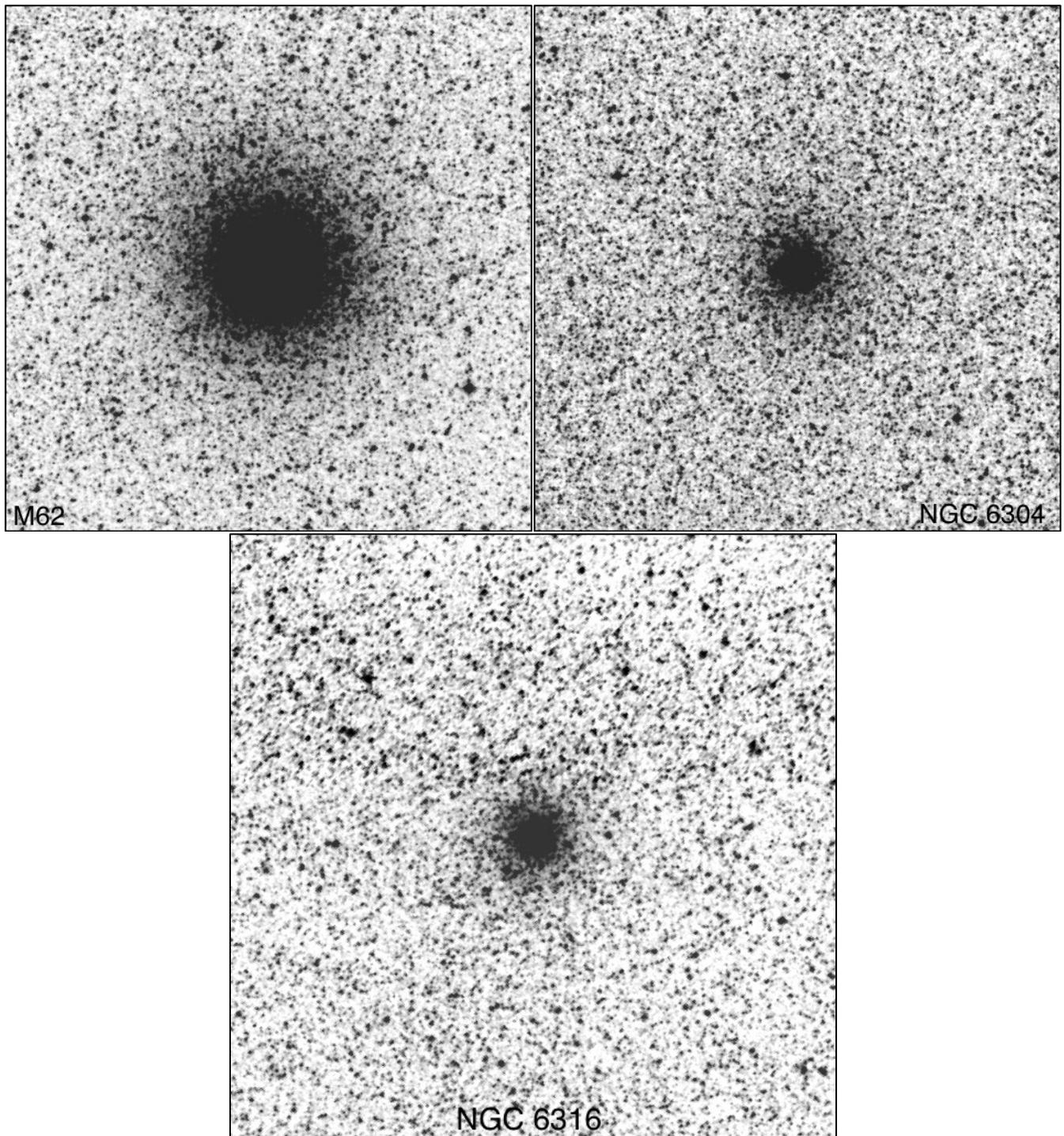
Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
NGC 6355	17 23 58.6	-26 21 13	8.6	17.2	-	11.7	4.2'

M62, NGC 6304 and NGC 6316 (Ophiuchus)

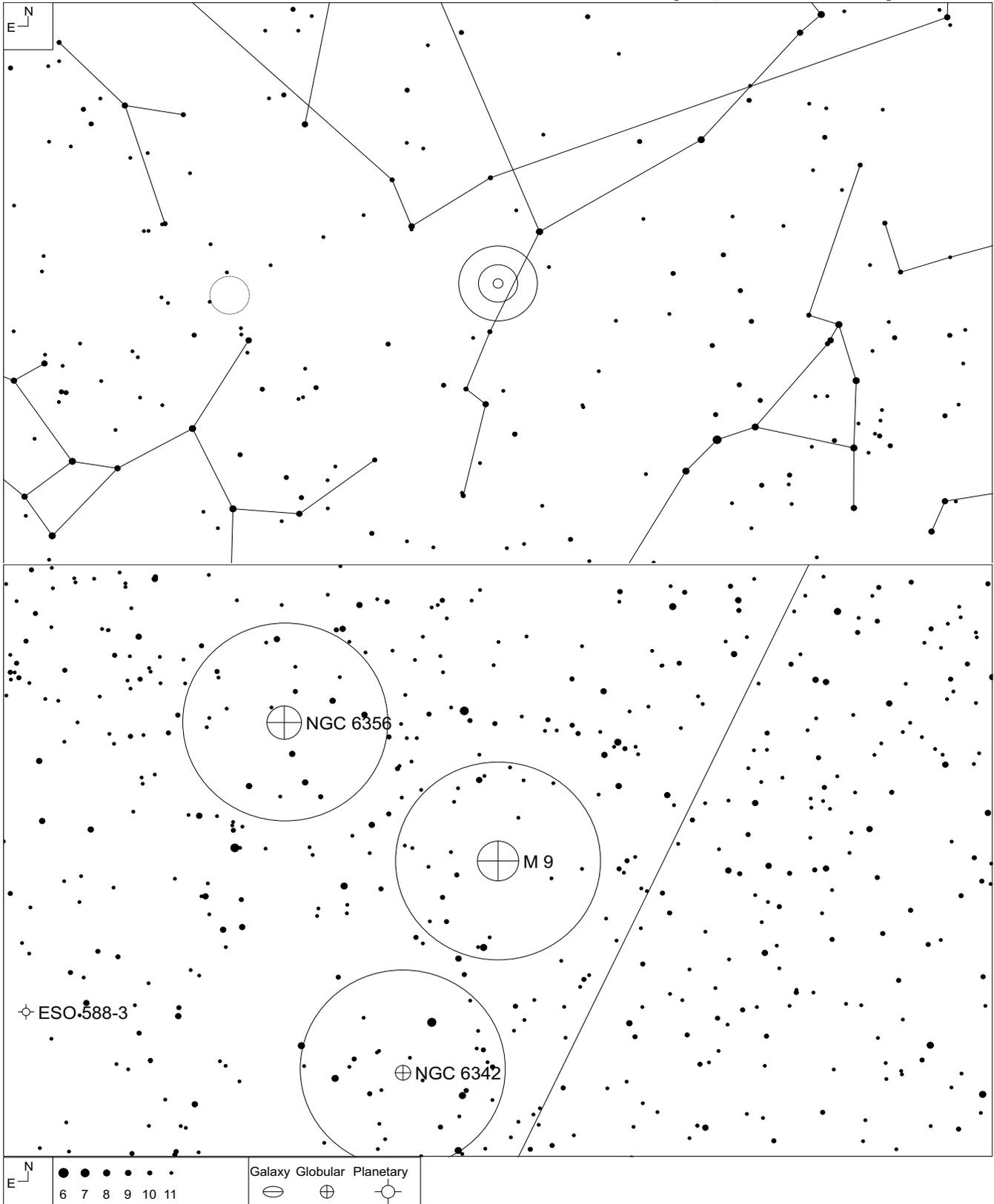


Object	RA	Dec	V _{mag}	HB _{Mag}	Bt ⁺ _{Mag}	SB	Size
M62	17 01 12.6	-30 06 44	6.4	16.3	13.2	12.3	15'
NGC 6304	17 14 32.5	-29 27 44	8.3	16.2	14.5	12.8	8'
NGC 6316	17 16 37.4	-28 08 24	8.1	17.8	15	11.8	5.4'

M62, NGC 6304 and NGC 6316 (Ophiuchus)



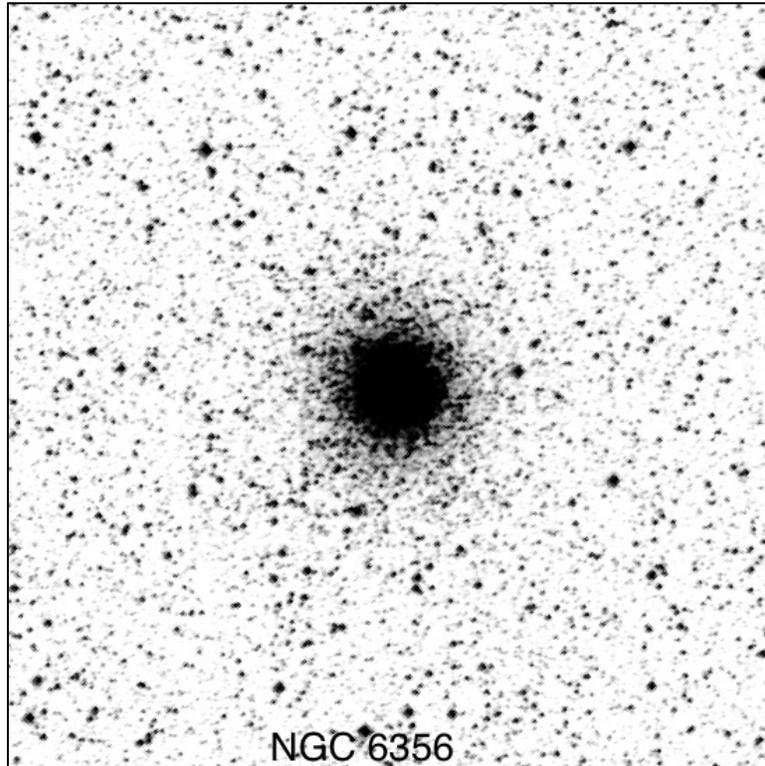
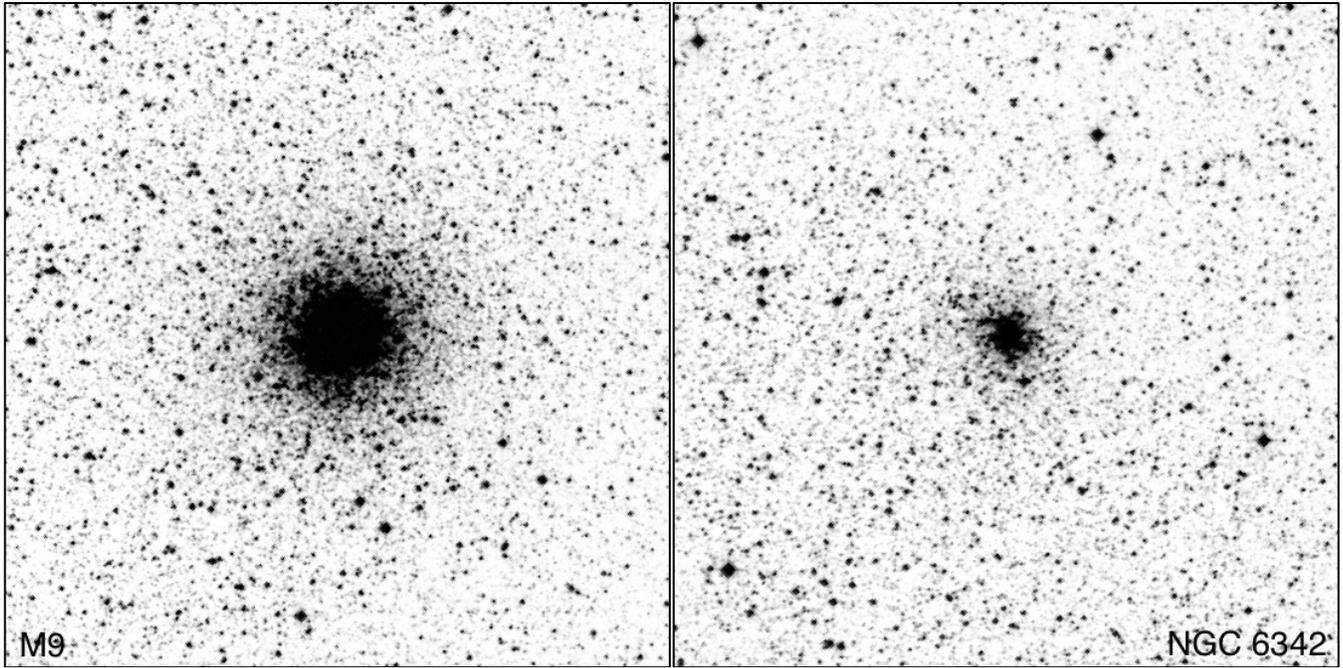
M9, NGC 6342 and NGC 6356 (Ophiuchus)



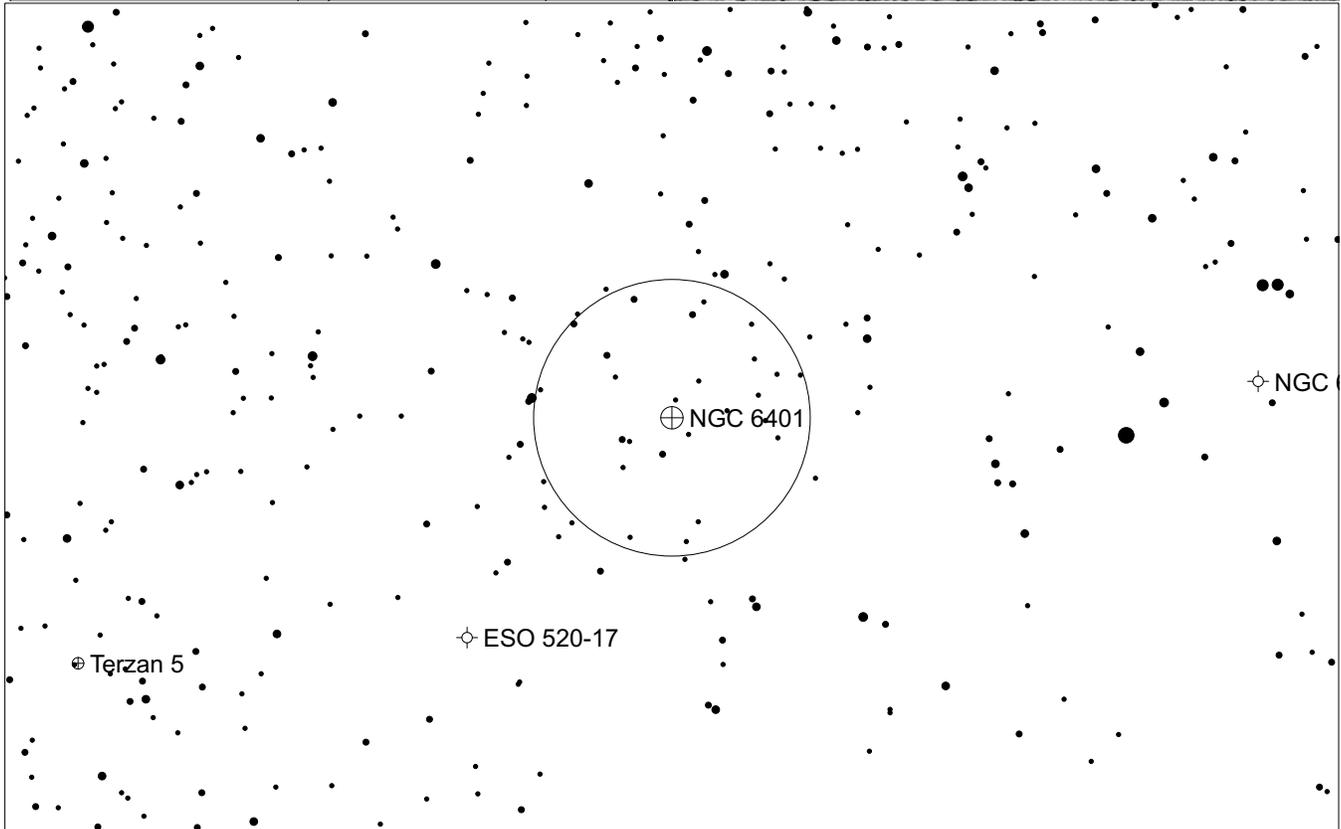
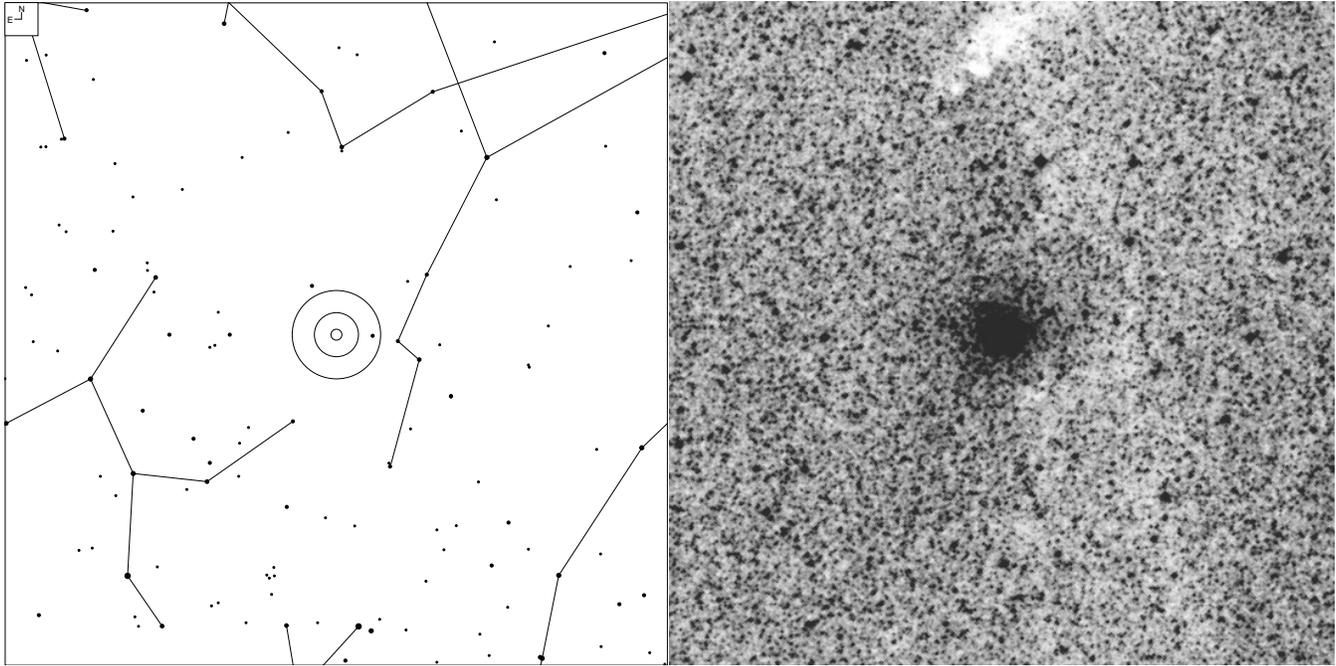
Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
--------	----	-----	------------------	-------------------	--------------------	----	------

M9	17 19 11.8	-18 30 59	7.8	16.2	13.5	13.2	12'
NGC 6342	17 21 10.2	-19 35 14	9.5	16.9	15	12.7	4.4'
NGC 6356	17 23 35.0	-17 48 47	8.2	17.7	15.1	13.2	10'

M9, NGC 6342 and NGC 6356 (Ophiuchus)



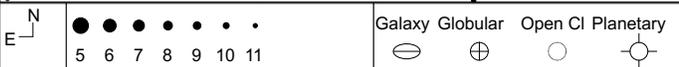
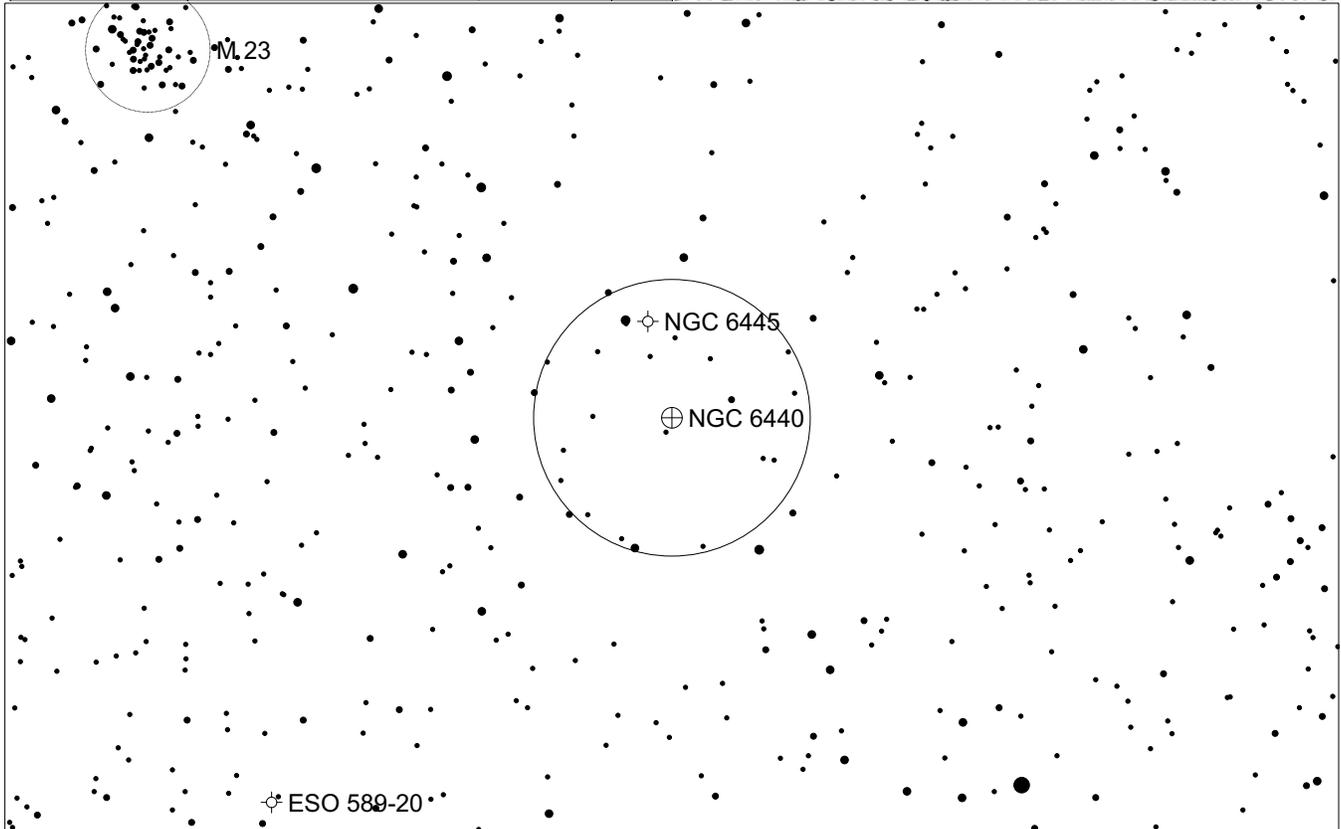
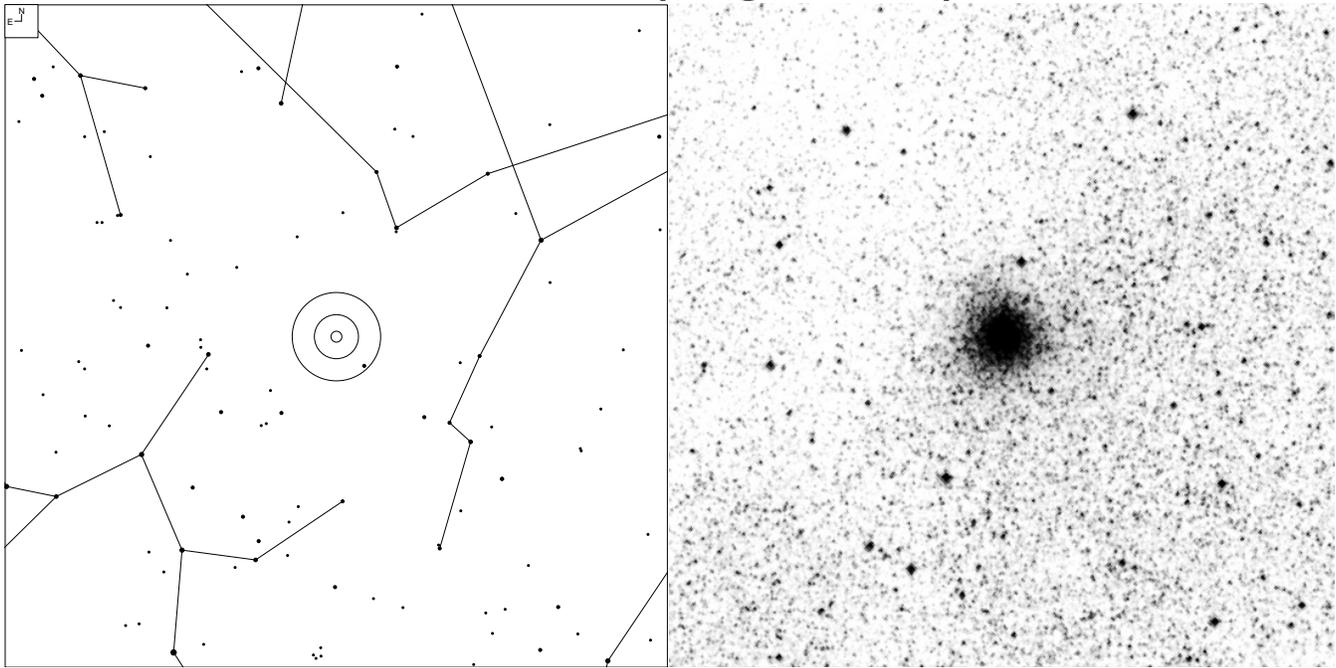
NGC 6401 (Ophiuchus)



N E	● ● ● ● ● ● ●	Galaxy	Globular	Planetary
	5 6 7 8 9 10 11	☾	⊕	⊙

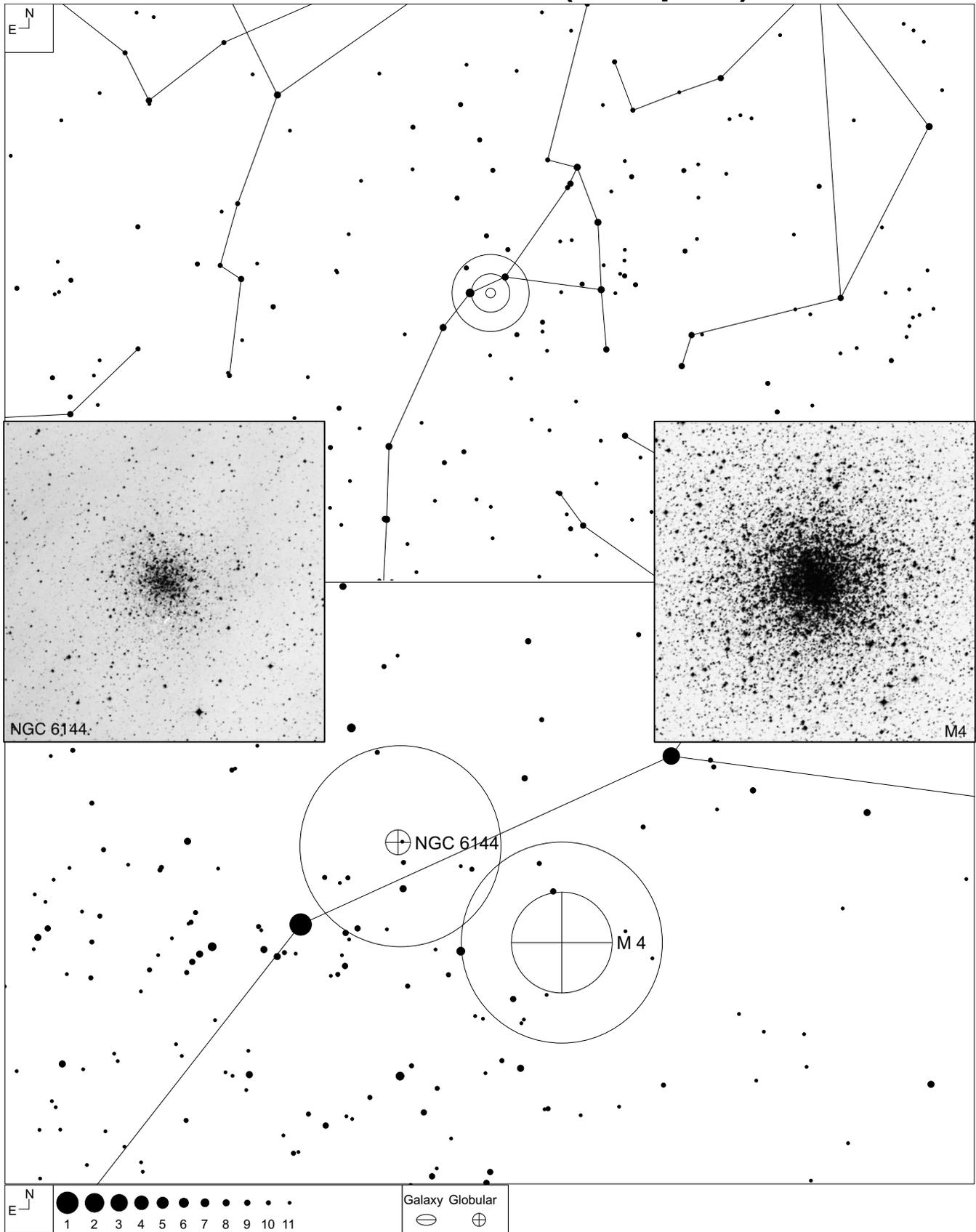
	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
NGC 6401	17 38 36.9	-23 54 32	7.4	18	15.5	8.7	1.8'

NGC 6440 (Sagittarius)



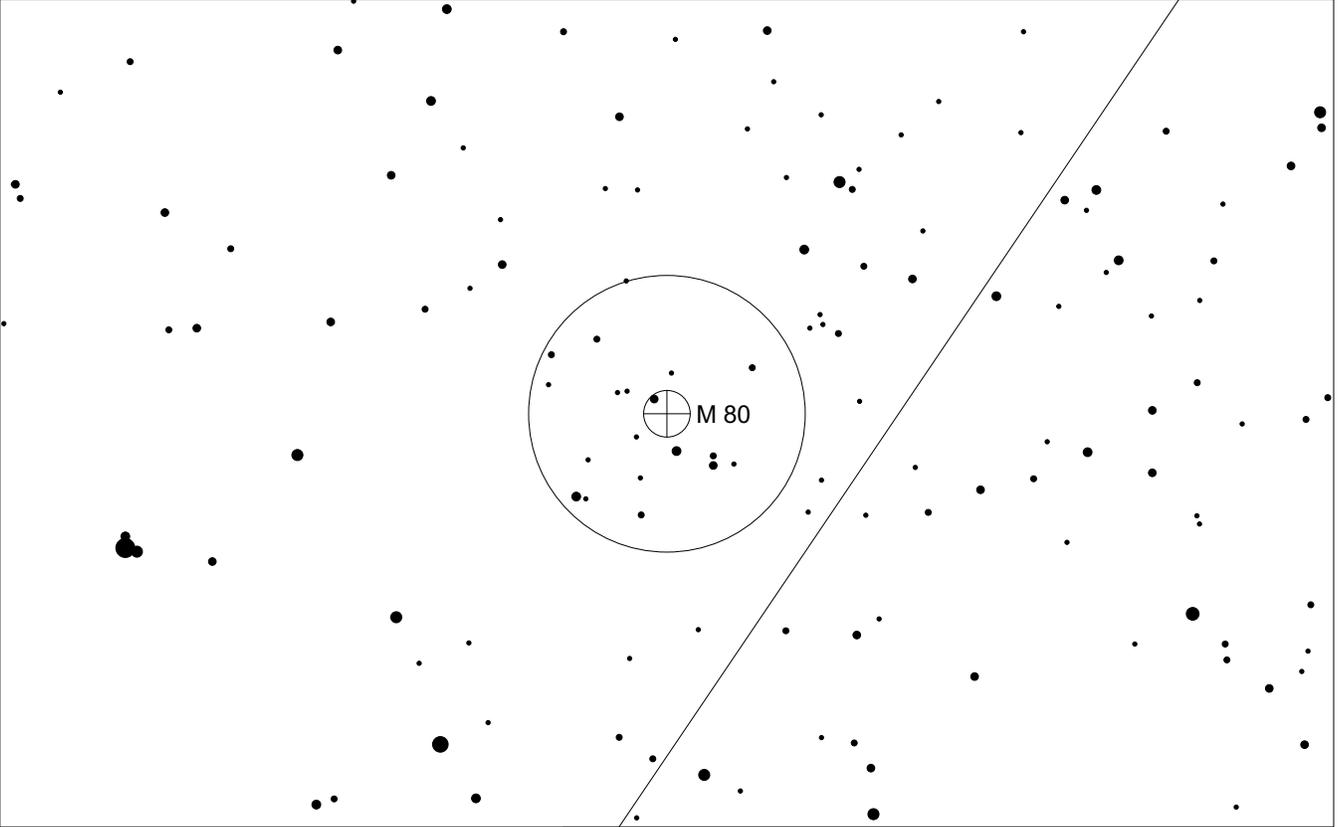
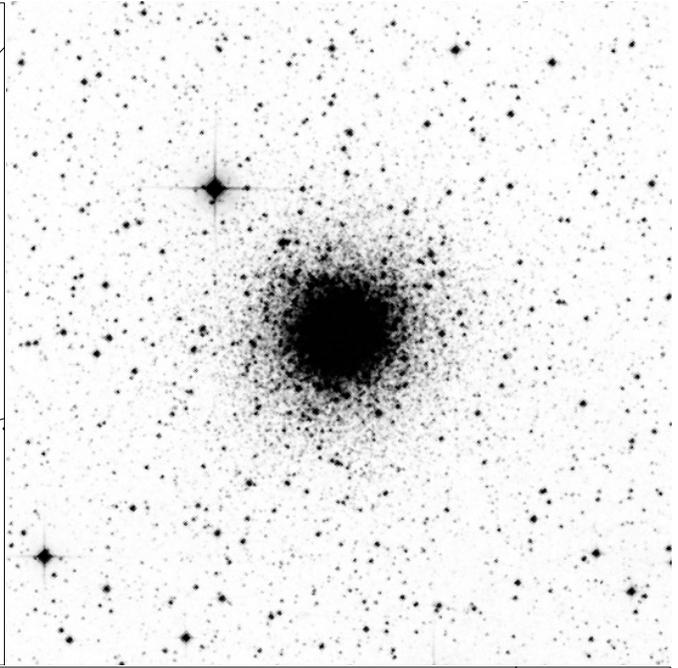
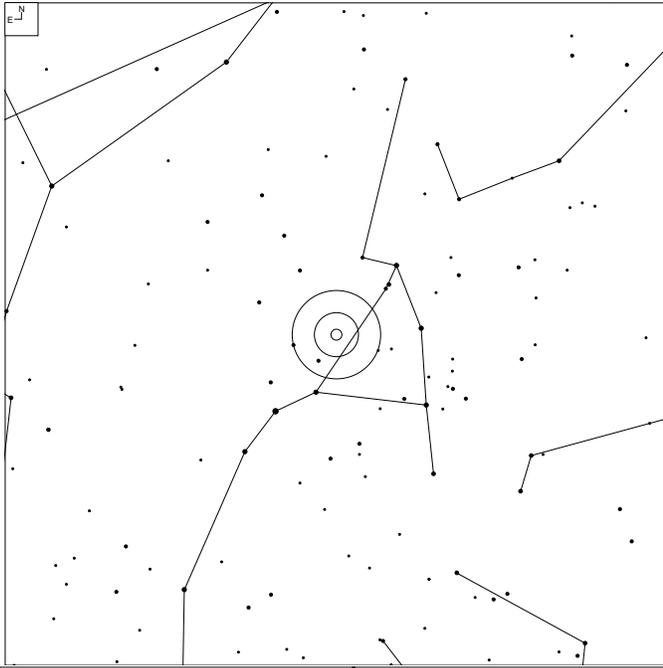
Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
NGC 6440	17 48 52.6	-20 21 34	9.3	18.7	16.7	12.5	4.4'

M4 and NGC 6144 (Scorpius)



Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
M4	16 23 35.5	-26 31 31	5.4	13.4	10.8	13.2	36'
NGC 6144	16 27 14.1	-26 01 29	9	16.5	13.4	13.3	7.4'
Globular Clusters			70				

M80 (Scorpius)

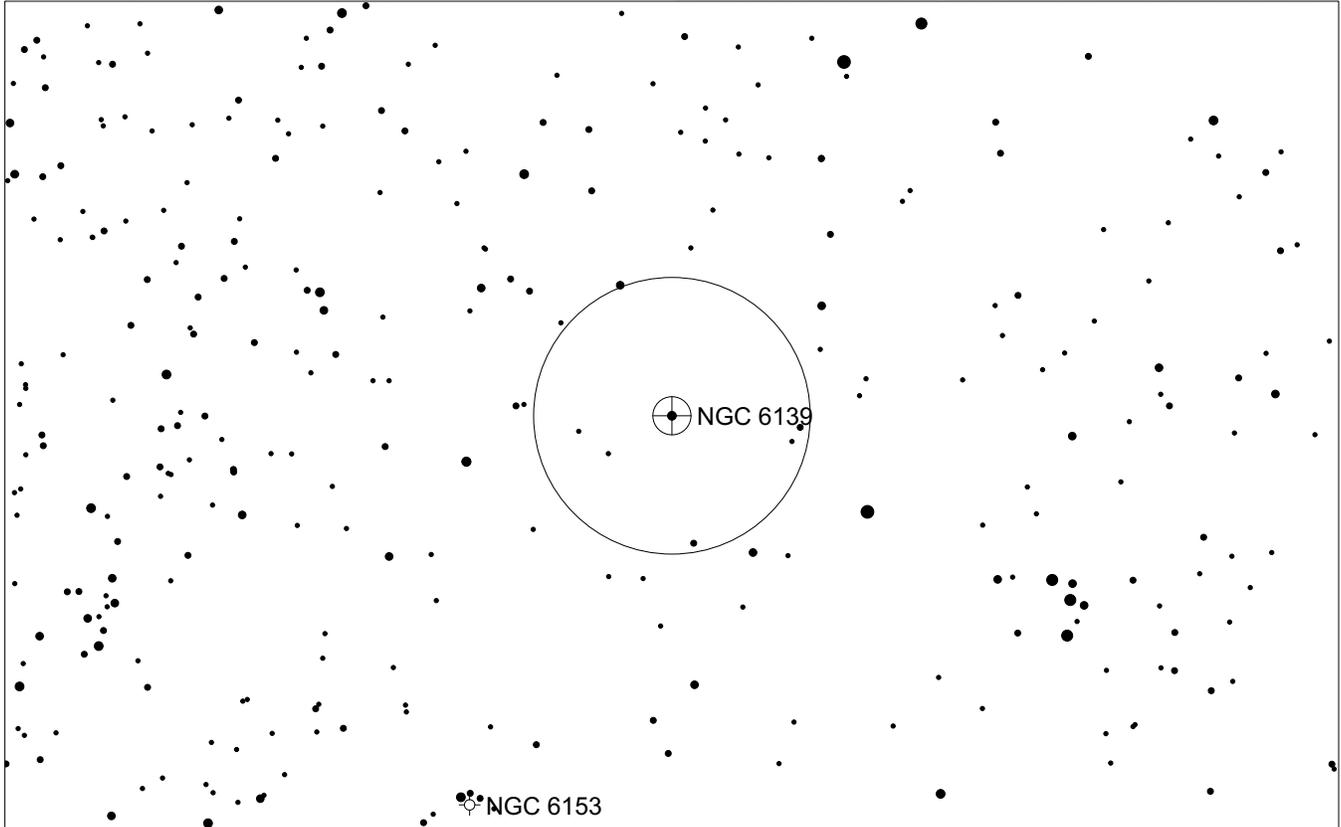
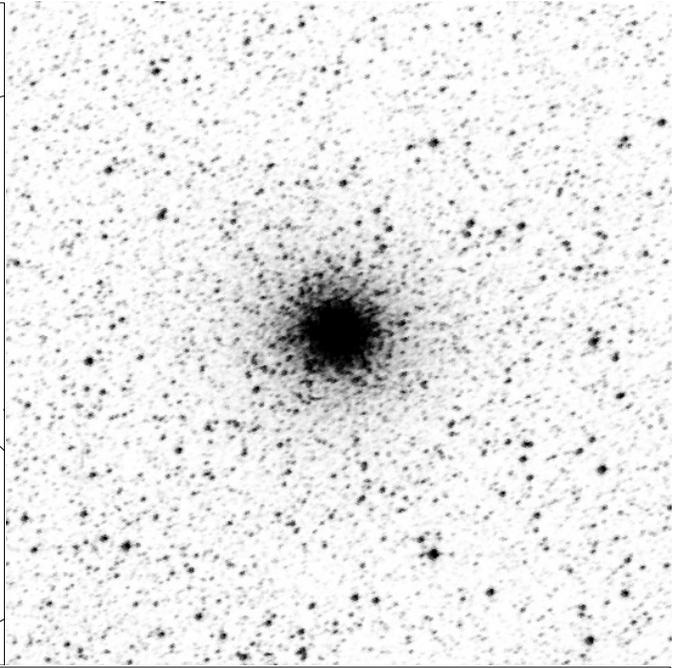
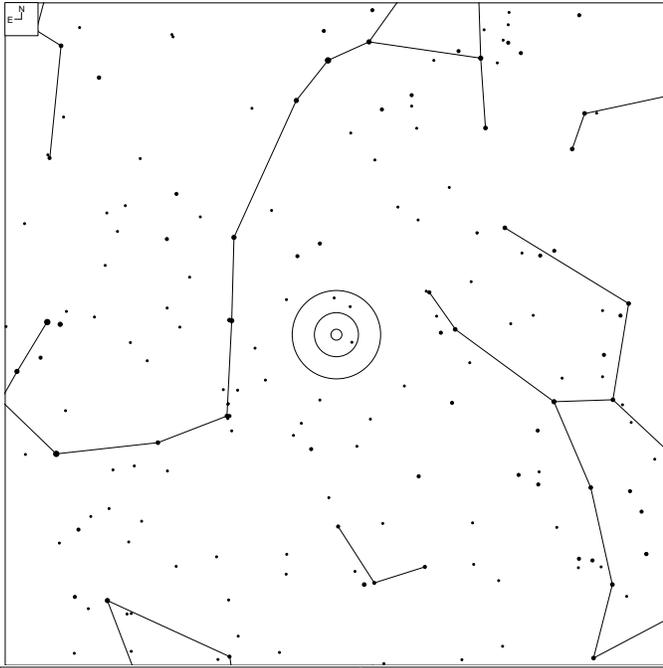


4 5 6 7 8 9 10 11

Galaxy Globular +

	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
M80	16 17 02.5	-22 58 30	7.3	16.2	12.5	12.3	10'

NGC 6139 (Scorpius)

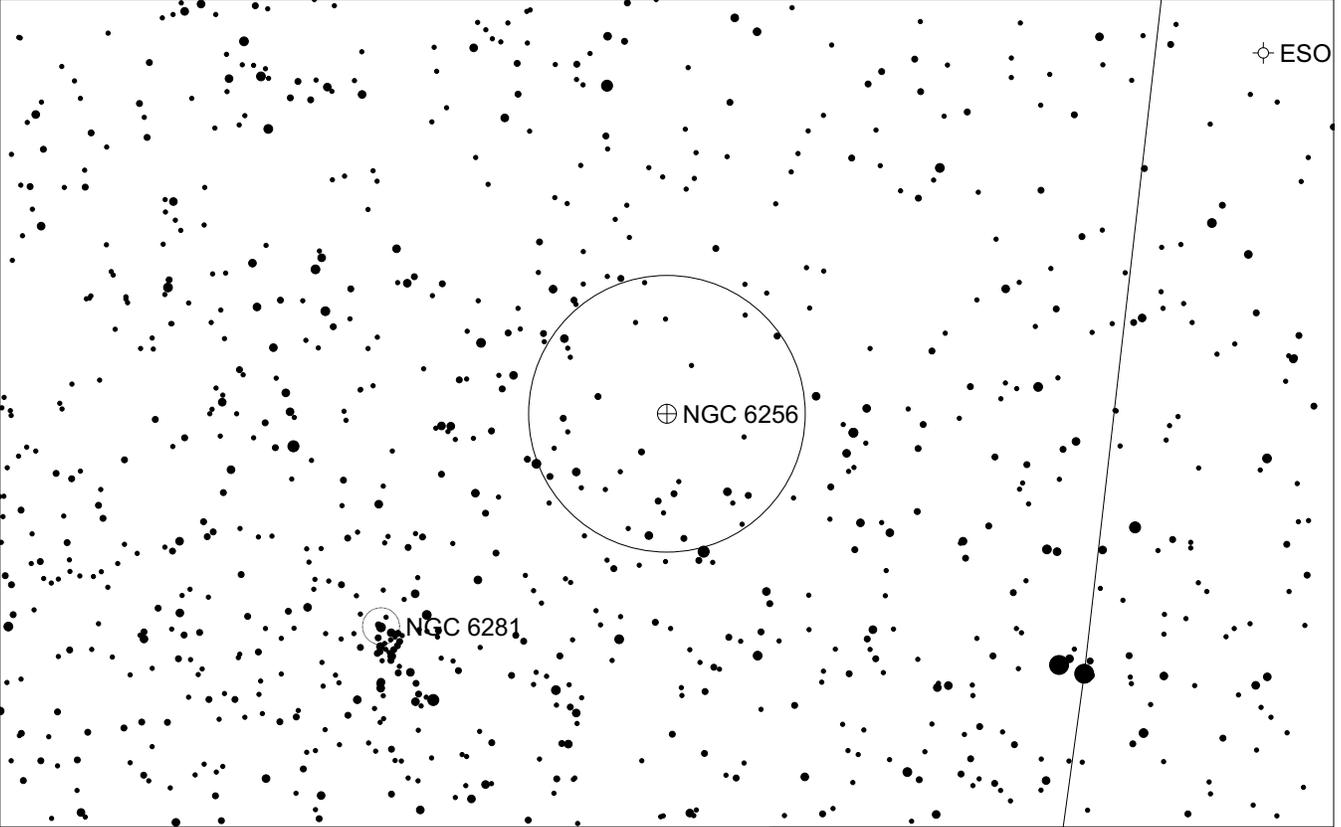
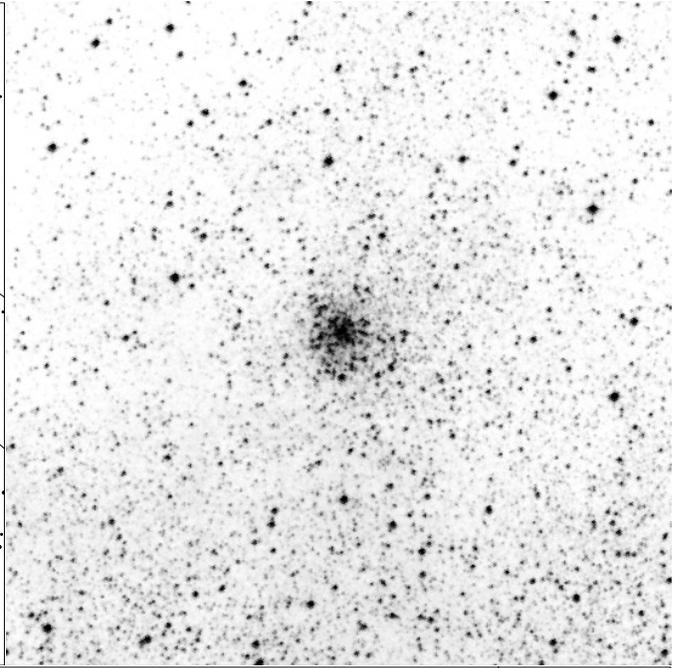
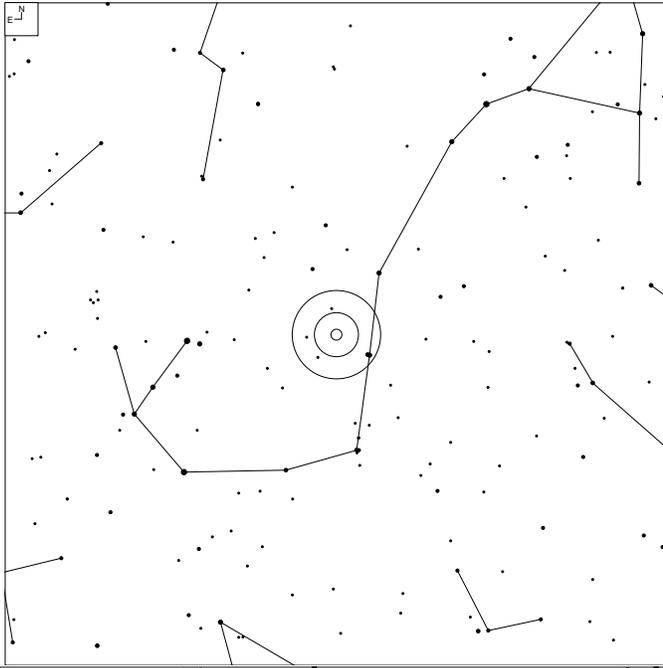


● ● ● ● ●
 6 7 8 9 10 11

Galaxy	Globular	Planetary
☾	⊕	⊙

RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
16 27 40.4	-38 50 56	9.1	17.9	15	13.7	8.2'

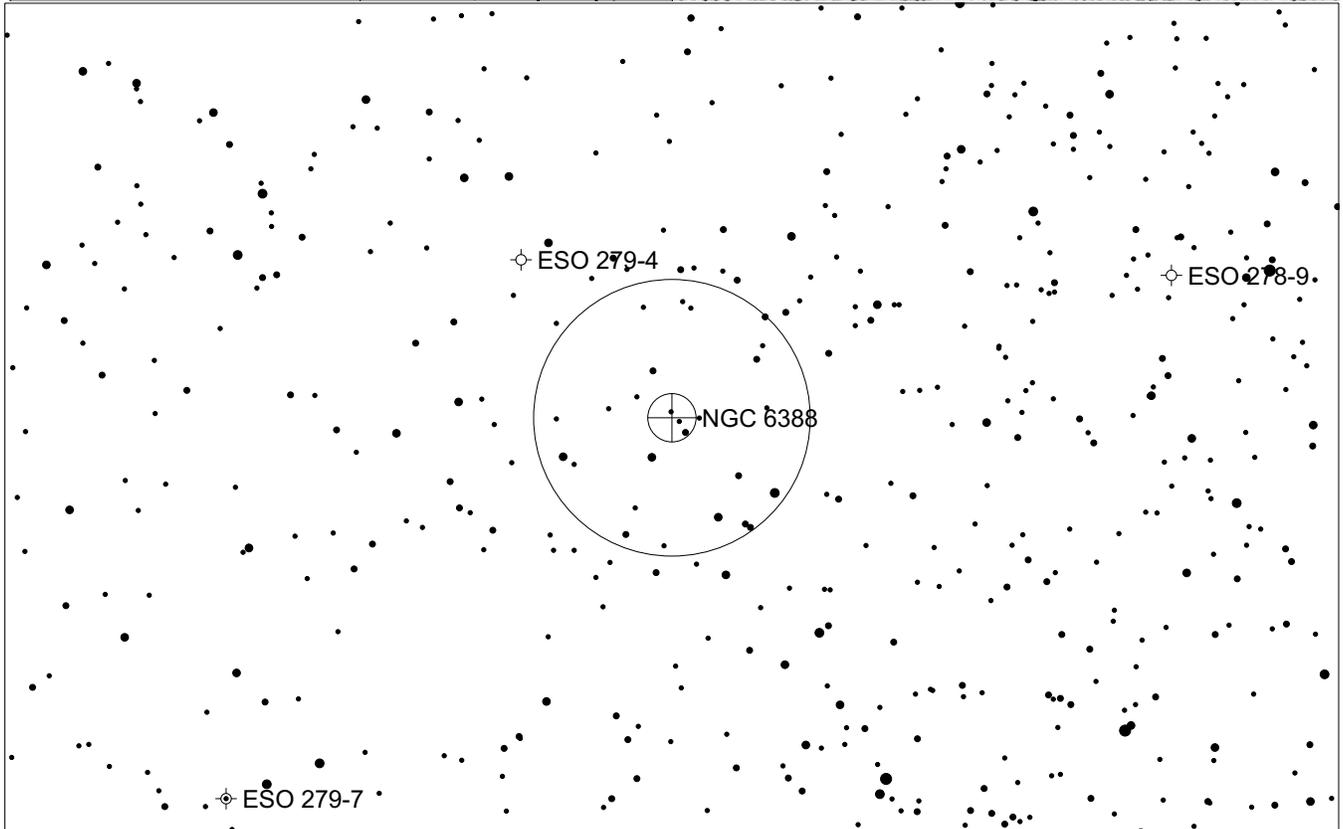
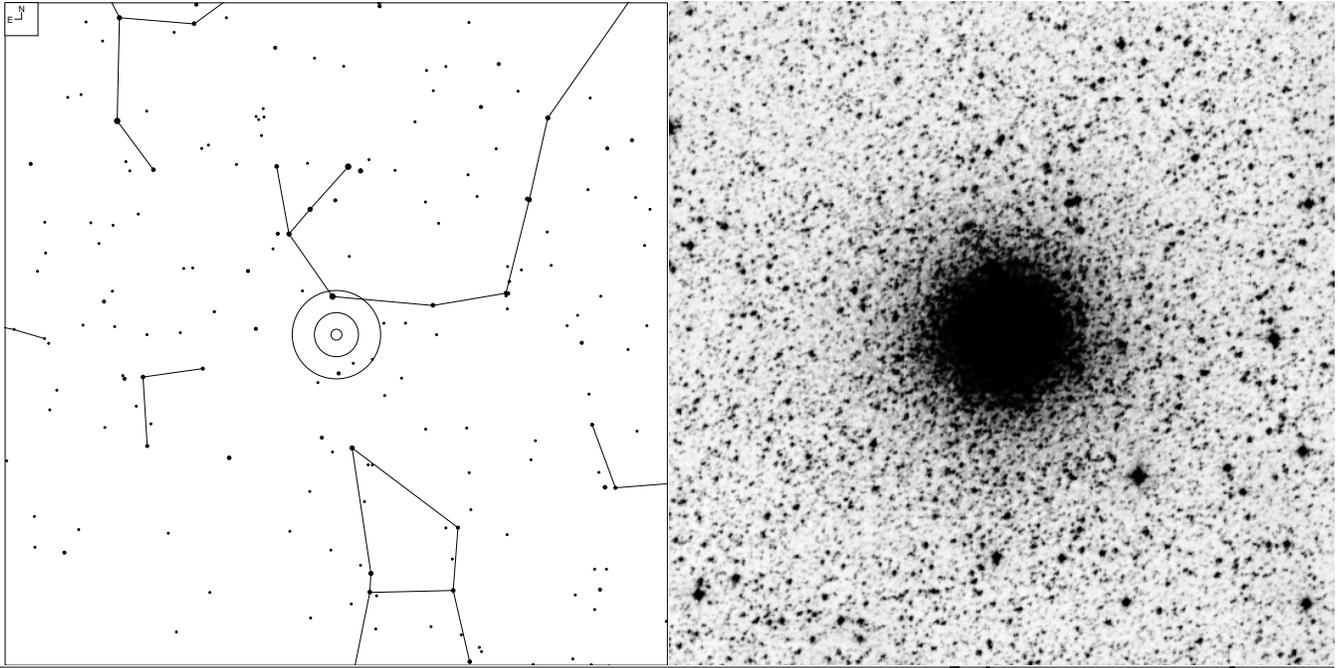
NGC 6256 (Scorpius)



Galaxy
 Globular
 Open Cl
 Planetary

RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
16 59 32.6	-37 07 17	11.3	18.2	15.3	14.4	4.1'

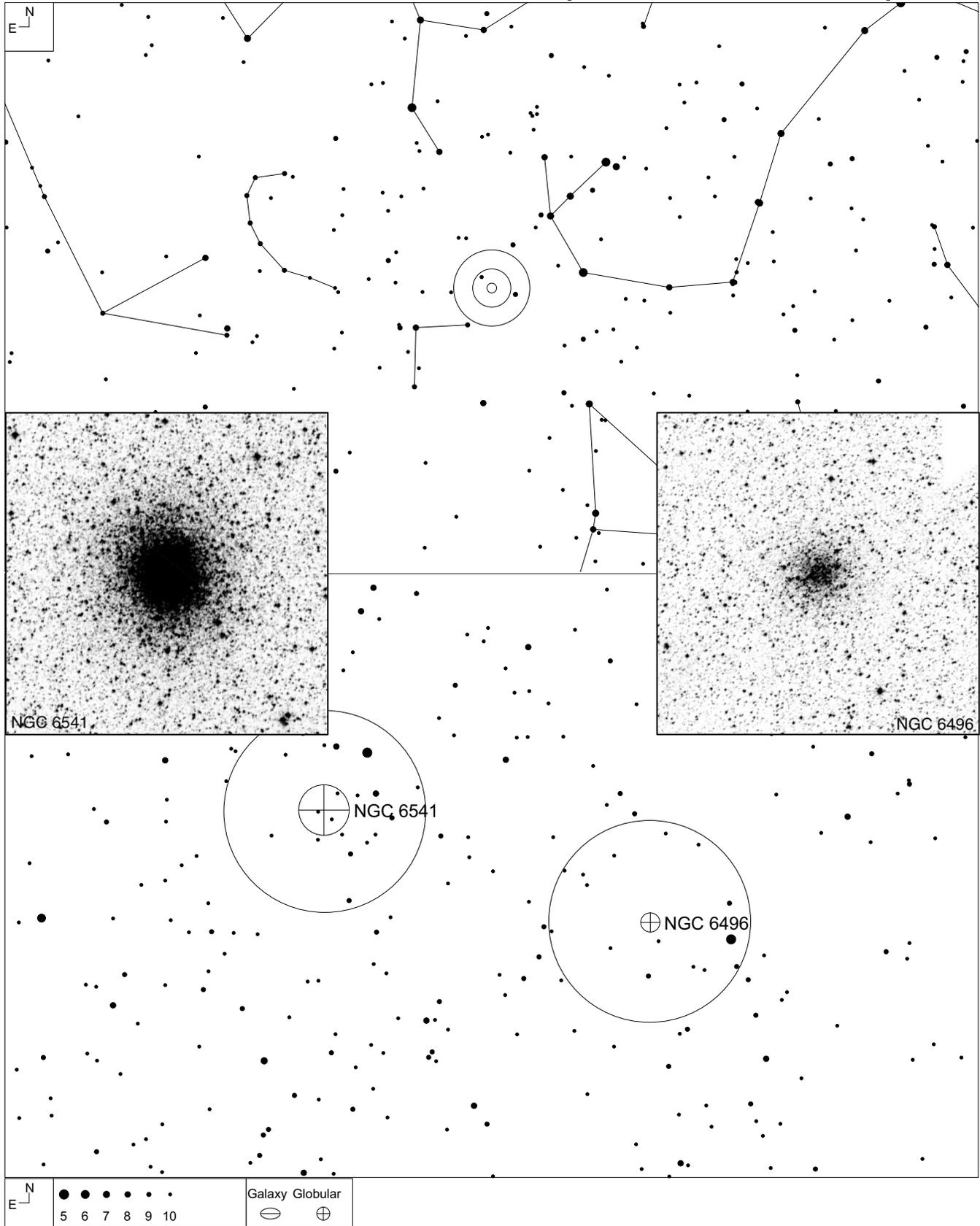
NGC 6388 (Scorpius)



Galaxy
 Globular
 Planetary

Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
NGC 6388	17 36 17.0	-44 44 06	6.8	17.2	14.8	11.9	10.4'

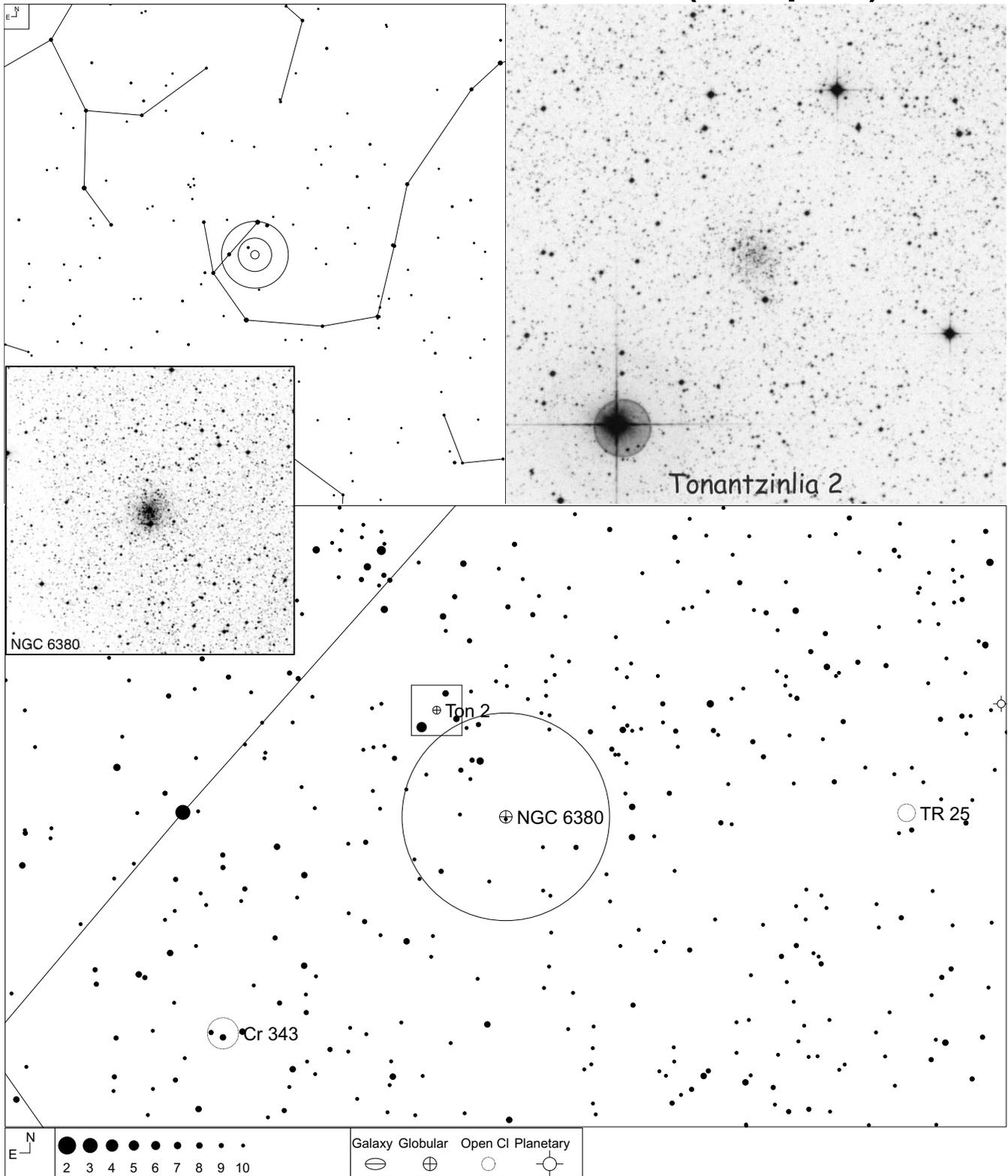
NGC 6496 and NGC 6541 (Corona Australis)



Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
NGC 6496	17 59 04.0	-44 15 57	8.6	16.5			5.6'
NGC 6541	18 08 02.2	-43 42 20	6.3	15.3	12.1	12.2	15'

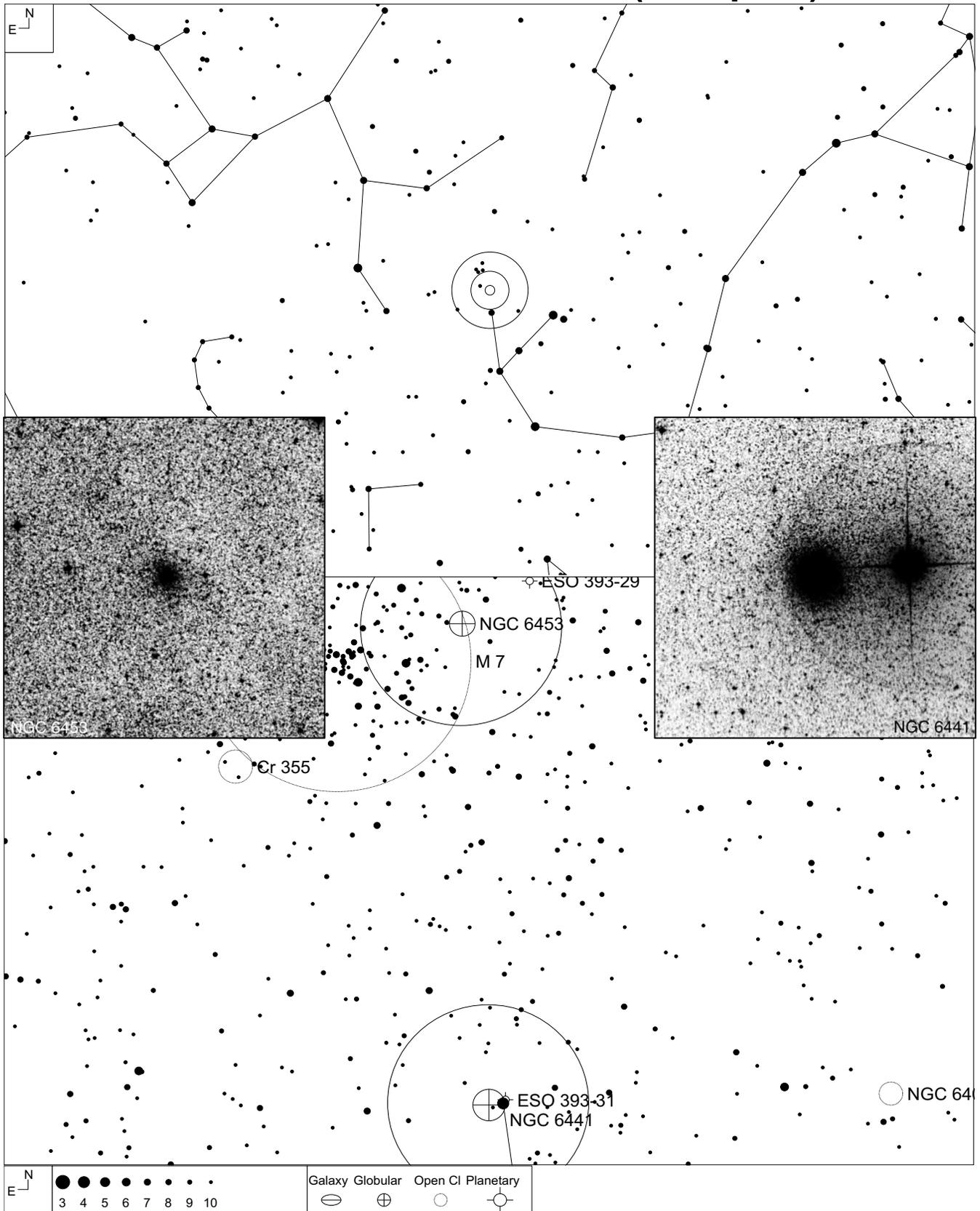
Globular Clusters 75 www.FaintFuzzies.com

NGC 6380 and Tonantzinlia 2 (Scorpius)



Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
NGC 6380	17 34 28.0	-39 04 09	11.5	19.5	17	14.3	3.6'
Ton 2	17 36 10.5	-38 33 12	12.2	18.2	-	-	2.2'

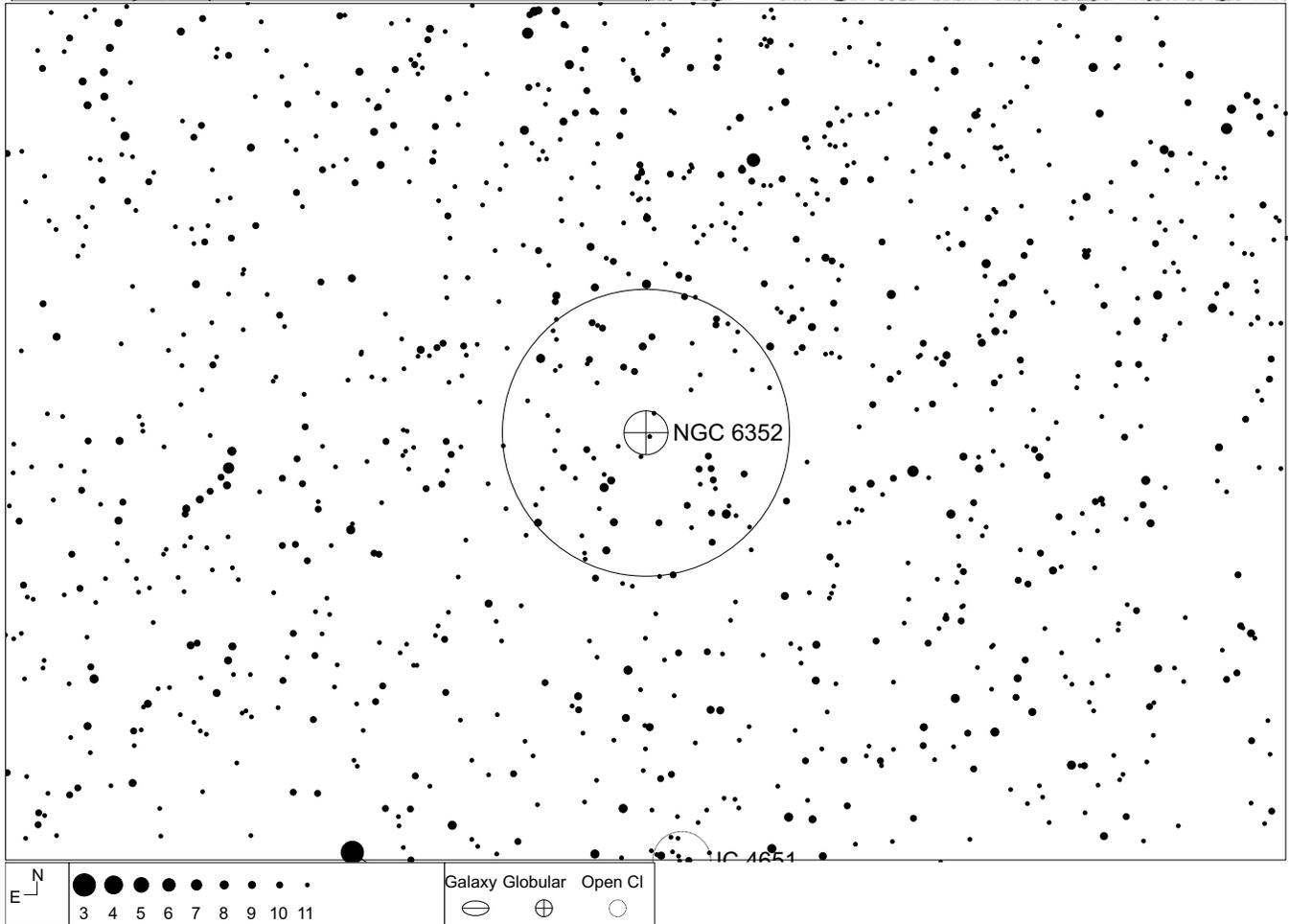
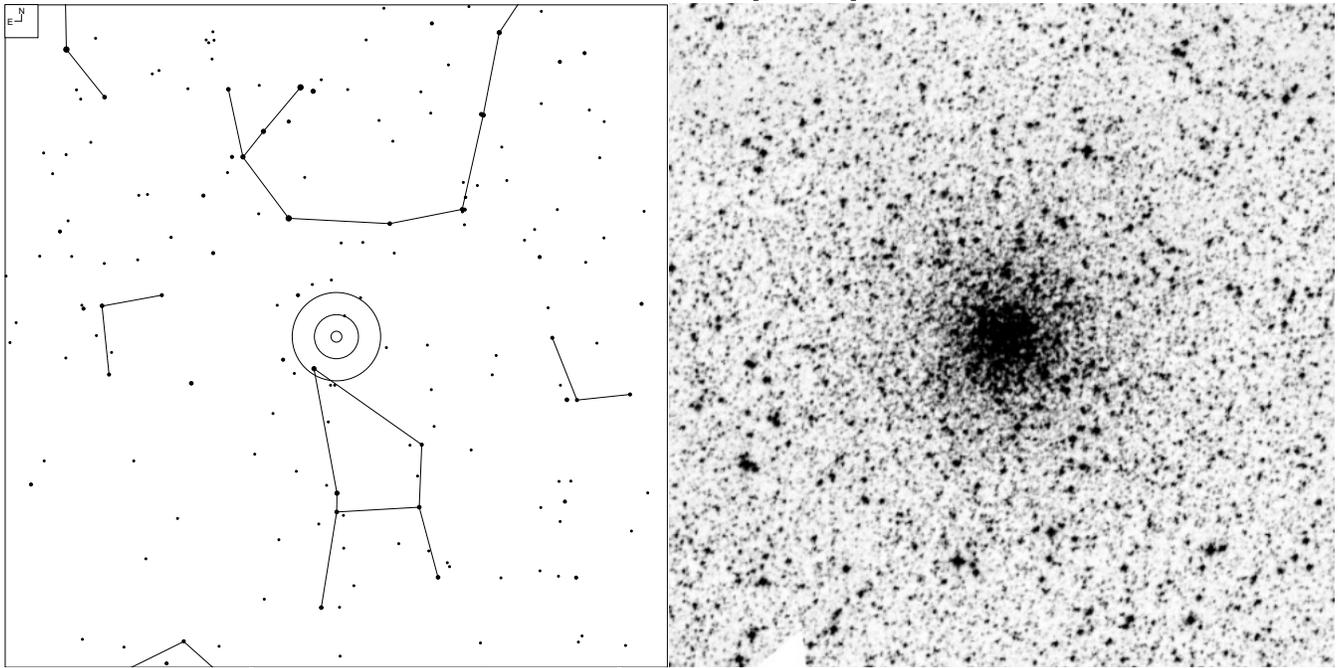
NGC 6441 and NGC 6453 (Scorpius)



Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
NGC 6441	17 50 12.9	-37 03 04	7.2	17.5	15.4	12.1	9.6'
NGC 6453	17 50 51.8	-34 35 55	10.2	17.5	14.3	14.6	7.6'

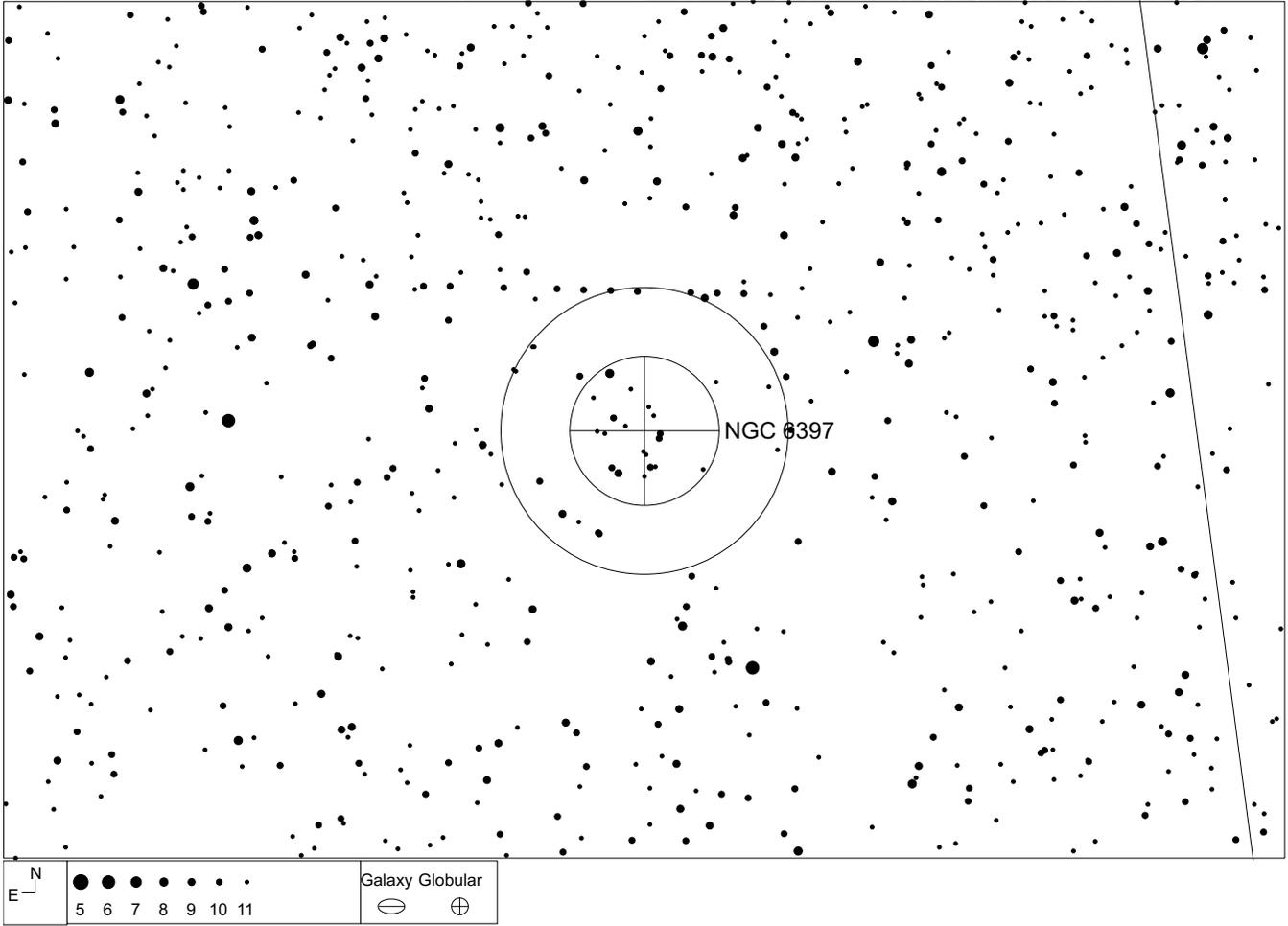
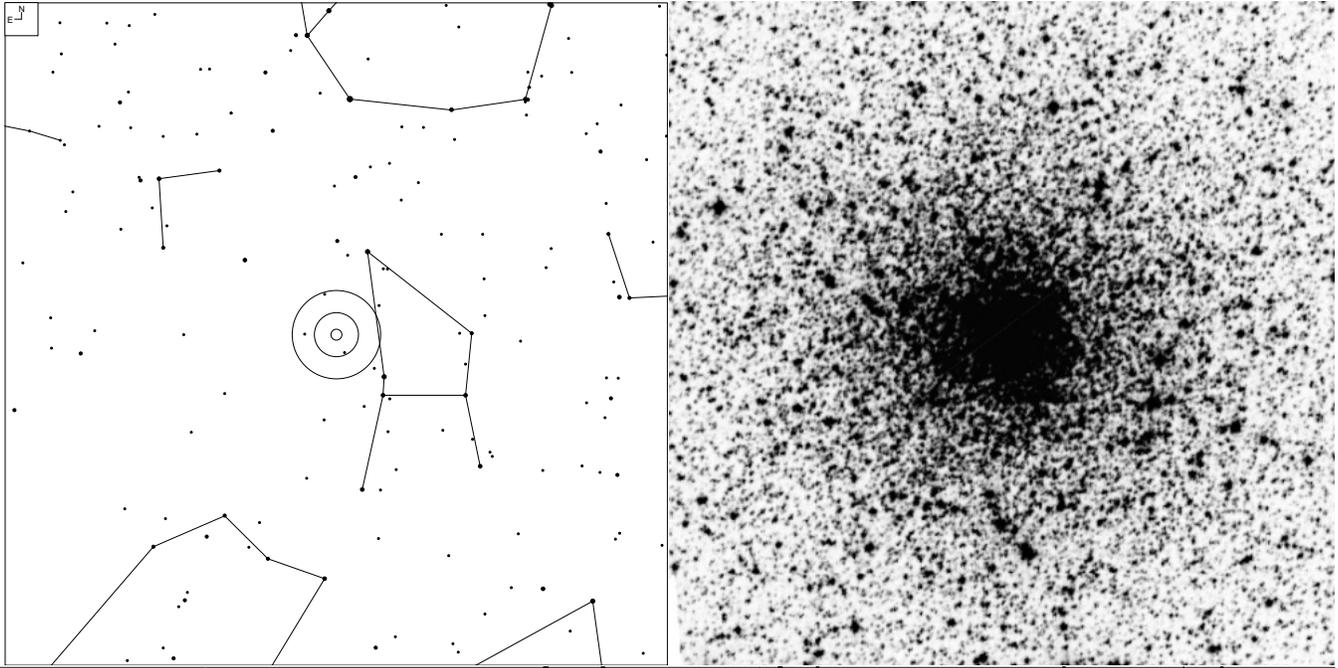
Look for JaFu2, a planetary nebula, in NGC 6441. See page xxx.

NGC 6352 (Ara)



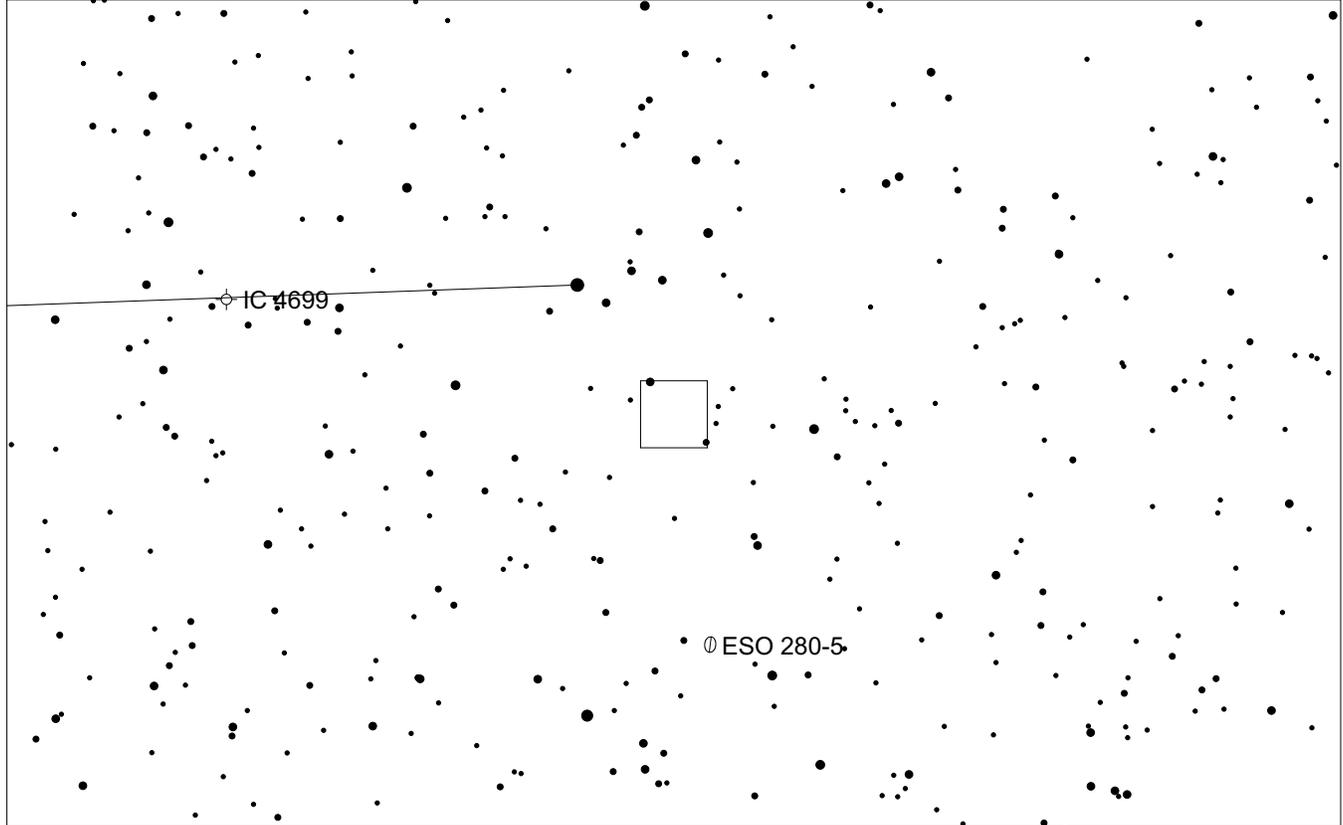
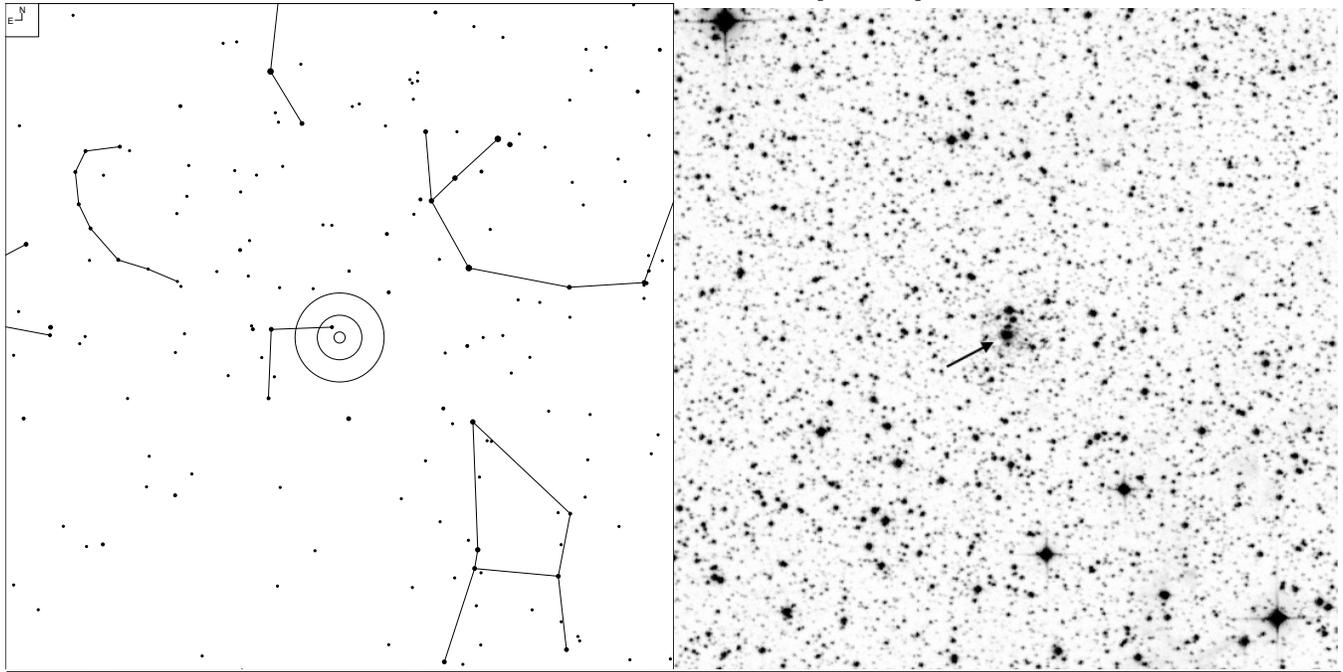
RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
17 25 29	-48 25 20	7.96	15.1	13.4	12.6	9

NGC 6397 (Ara)



RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
17 40 42	-53 40 28	5.73	12.9	10.0	12.8	31

ESO 280-SC06 (Ara)

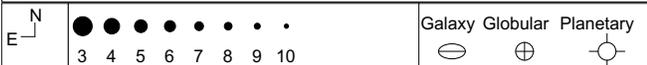
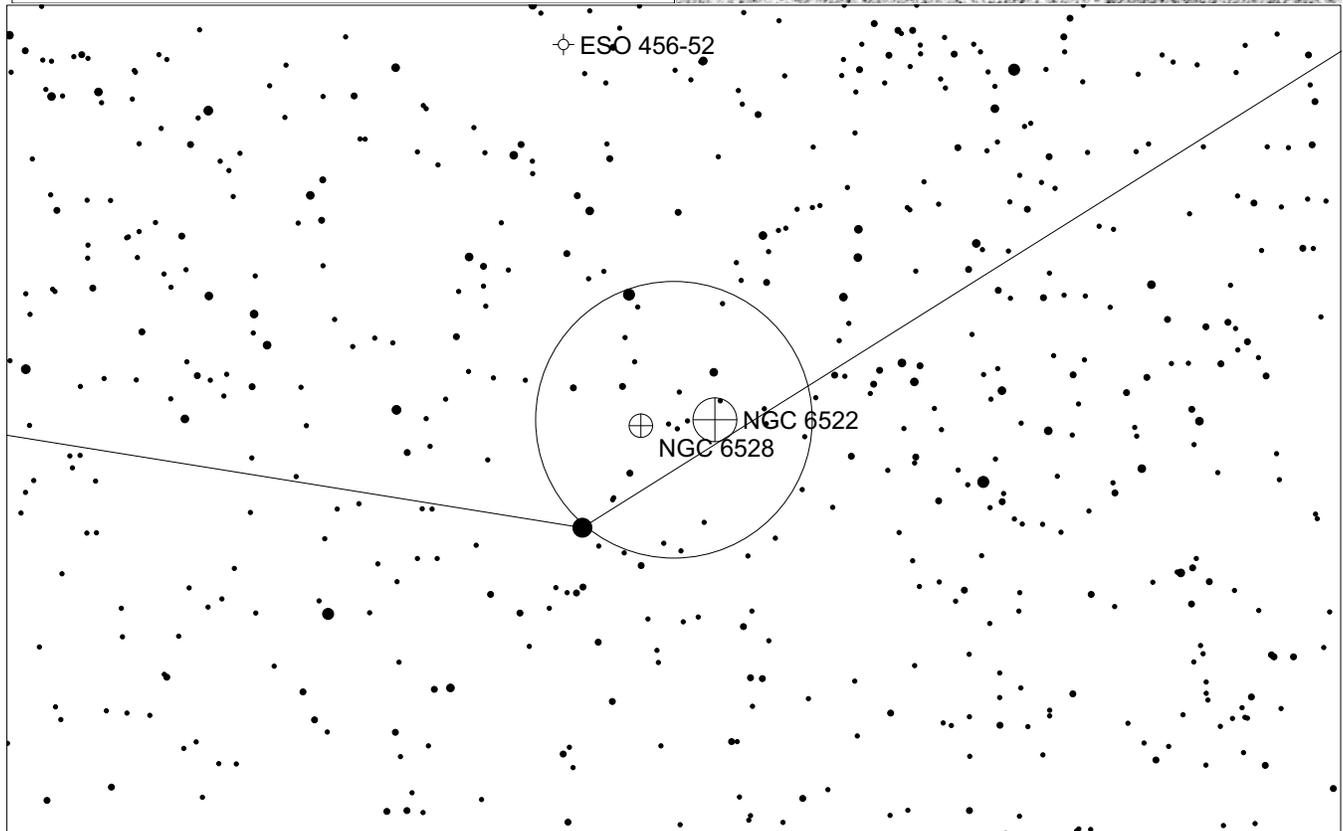
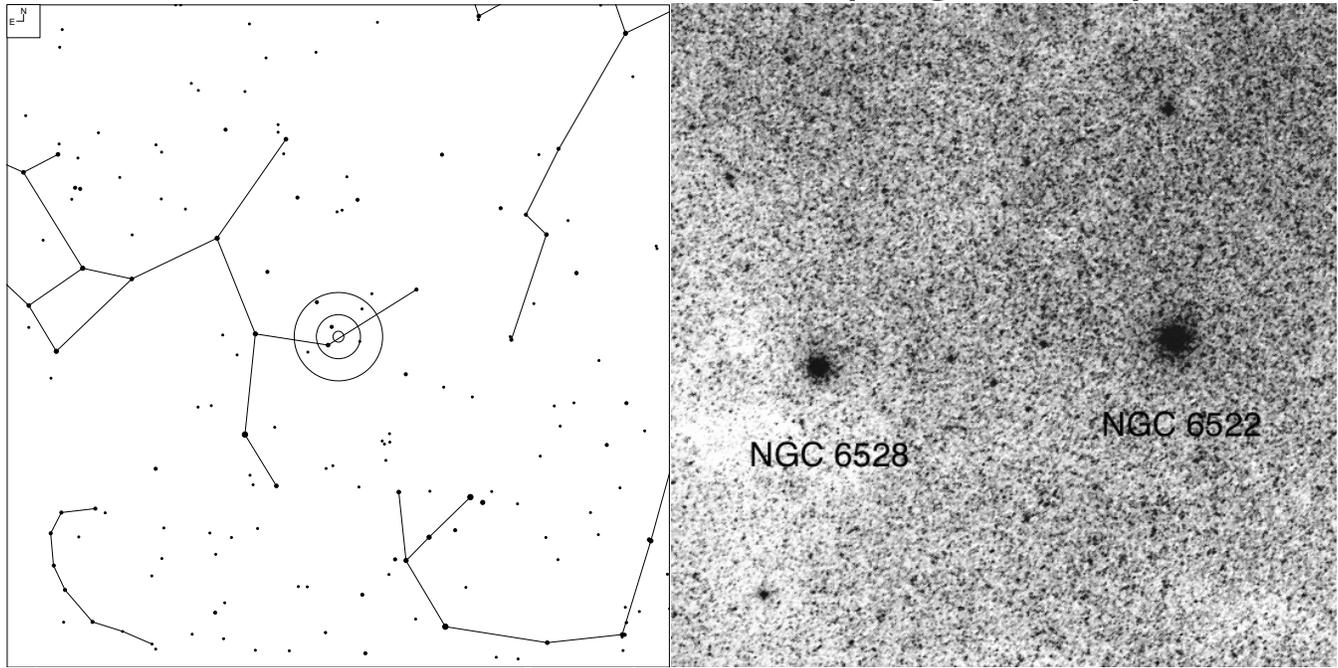


Galaxy Planetary

RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
18 09 12.7	-46 25 26	12.0	17.4	14	-	1.4'

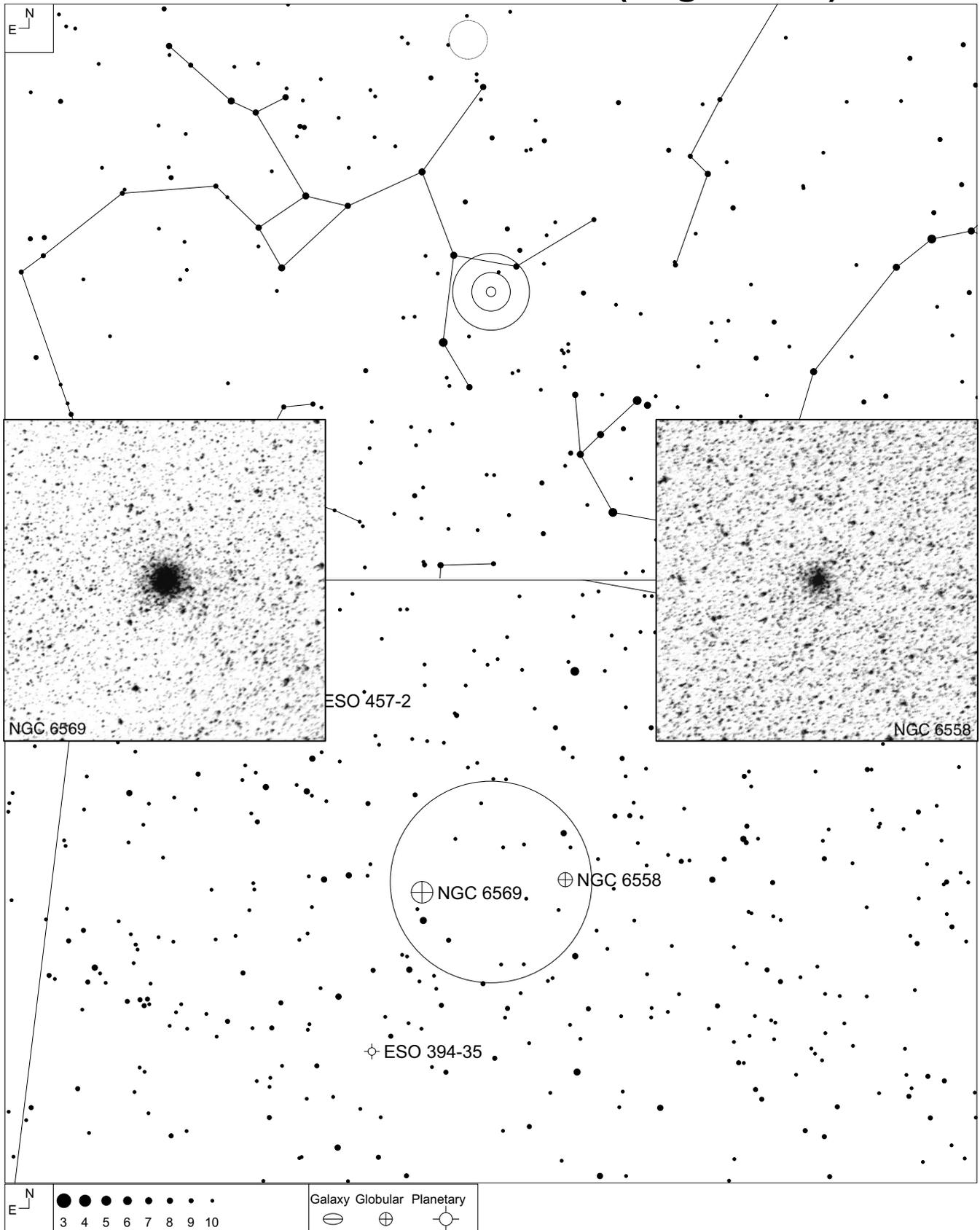
Discovered in 2000 by S. Ortolani, E. Bica and B. Barbuy from ESO observations. This is the 150th Milky Way cluster to be discovered. S. Ortolani, et al, "ESO 280-SC06: a new globular cluster in the Galaxy," *Astronomy and Astrophysics* Vol 361 (2000): L57-L59

NGC 6522 and NGC 6528 (Sagittarius)



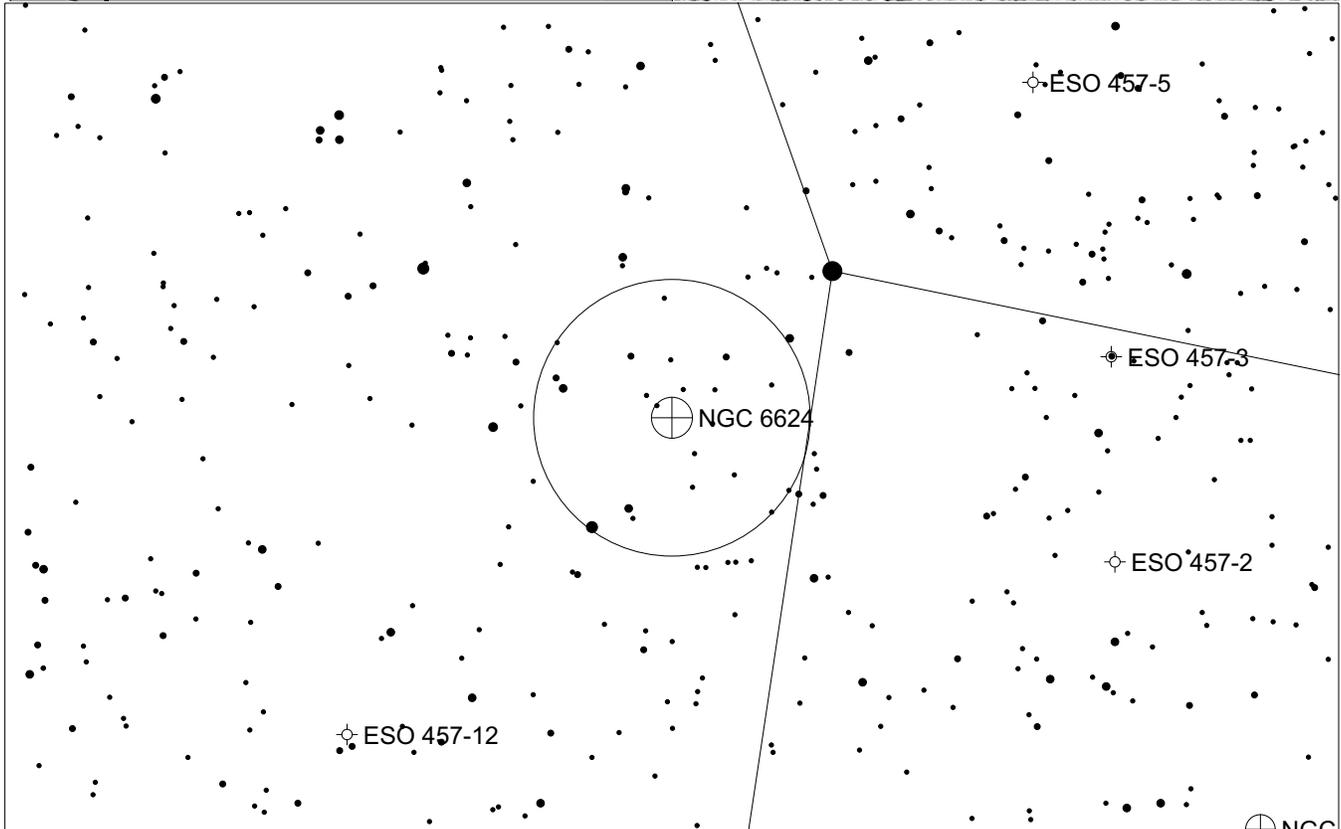
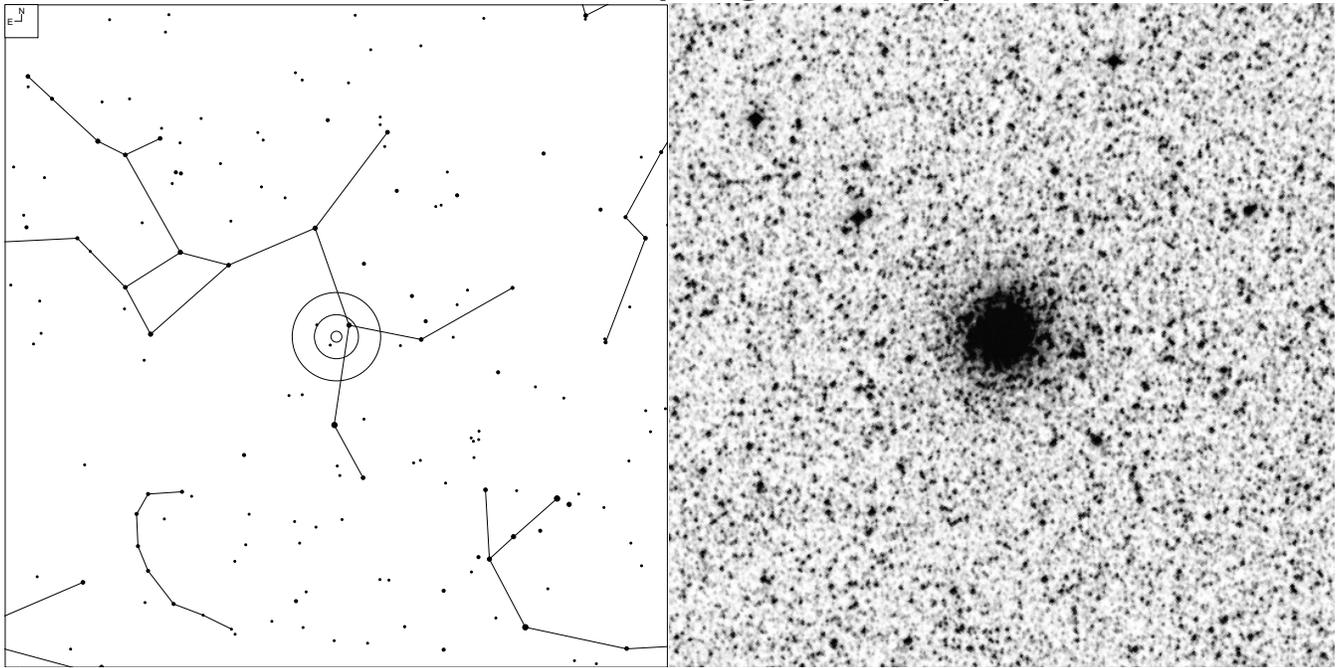
Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
NGC 6522	18 03 35.0	-30 02 02	9.9	16.9	14.1	14.8	9.4'
NGC 6528	18 04 49.6	-30 03 21	9.6	17.1	15.5	13.1	5'

NGC 6558 and NGC 6569 (Sagittarius)



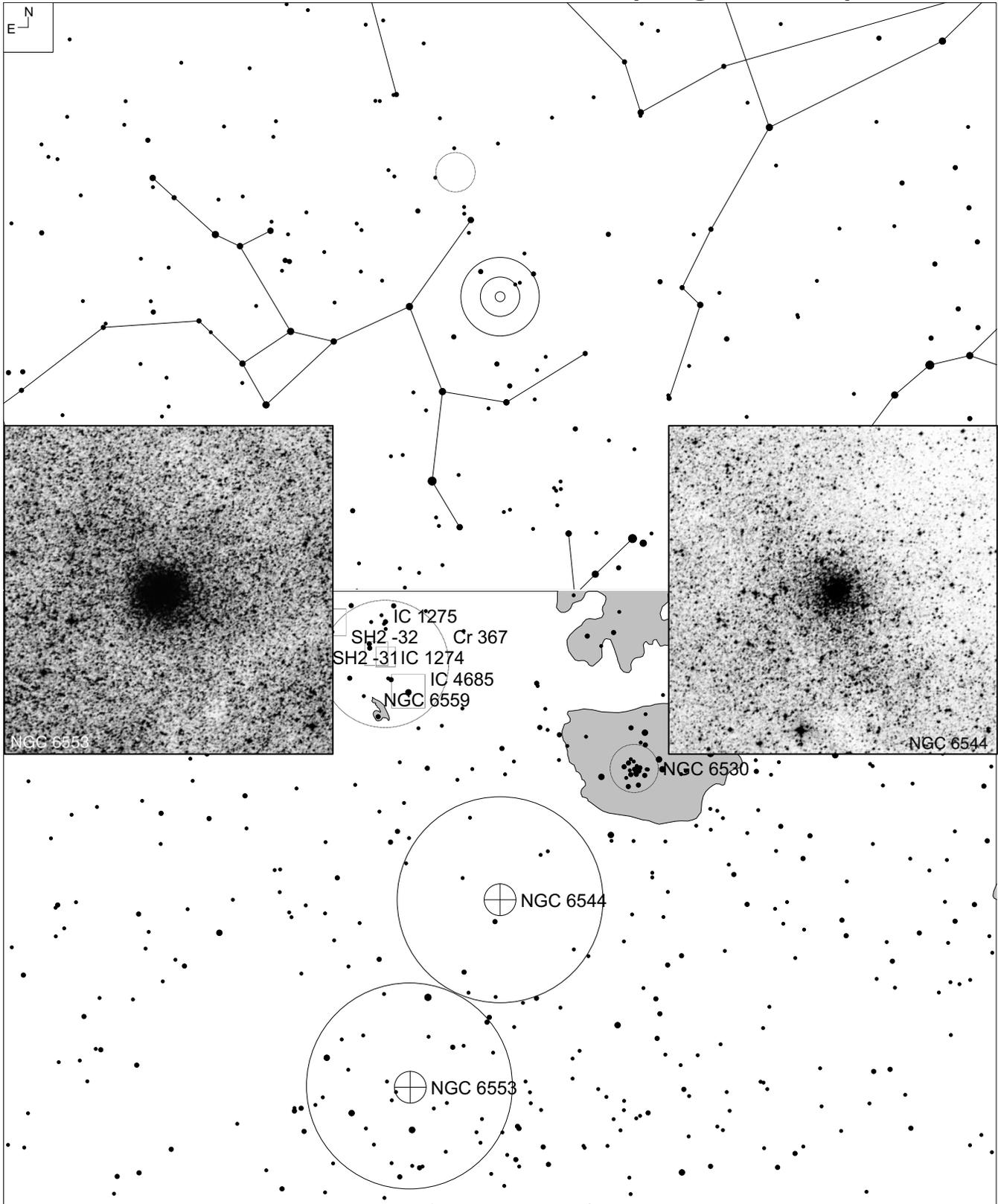
Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
NGC 6558	18 10 17.6	-31 45 47	8.6	16.7	-	-	4.2'
NGC 6569	18 13 38.9	-31 49 35	8.4	17.5	14.9	12.4	6.4'
Globular Clusters			83		www.FaintFuzzies.com		

NGC 6624 (Sagittarius)



	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
NGC 6624	18 23 40.5	-30 21 40	7.6	16.1	14	12.3	8.8'

NGC 6544 and NGC 6553 (Sagittarius)



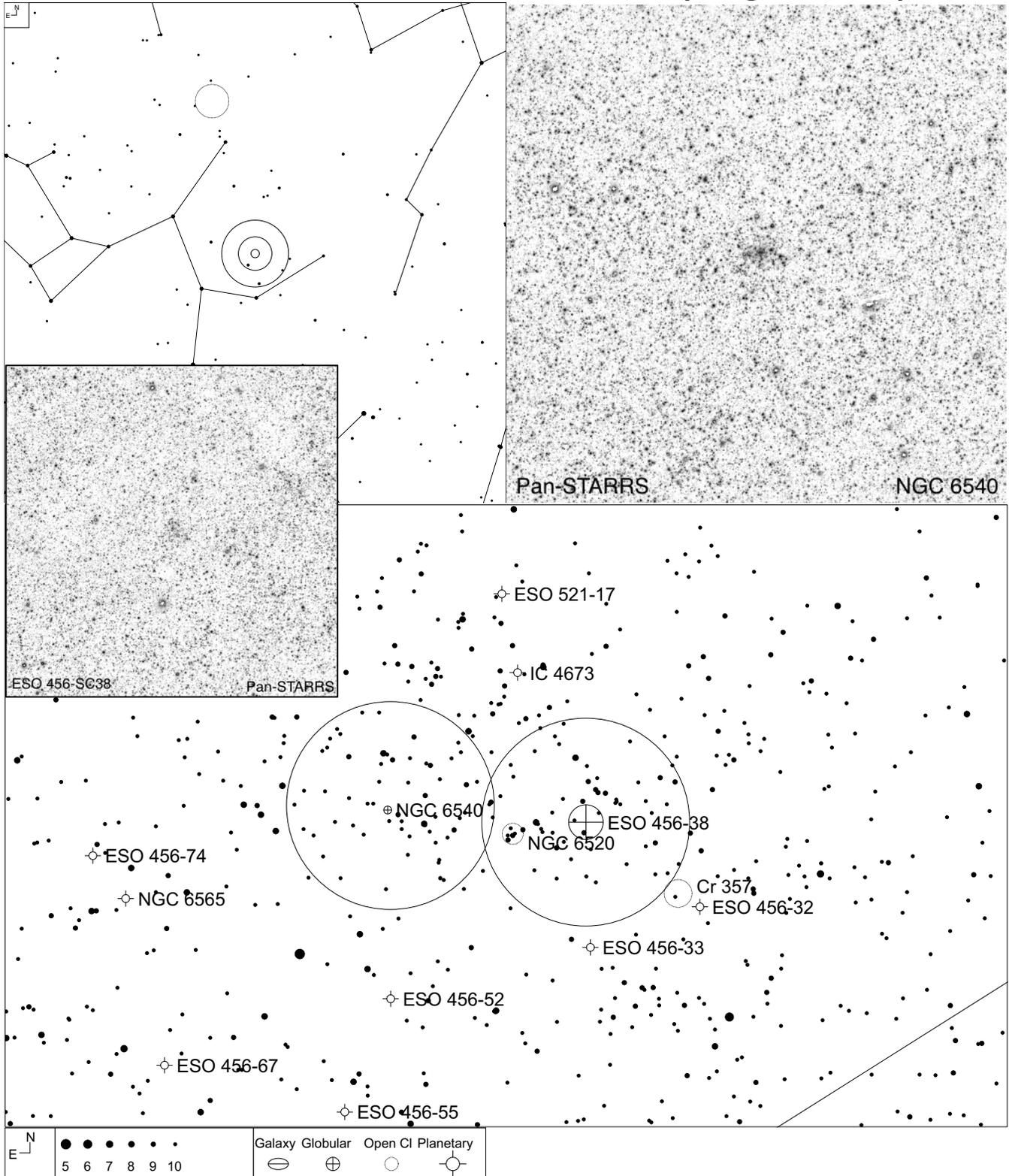
● ● ● ● ●
 6 7 8 9 10

Galaxy Globular Open Cl Brt Neb

Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
NGC 6544	18 07 20.6	-24 59 51	7.5	14.9	12.8	12.3	9.2'
NGC 6553	18 09 17.3	-25 54 28	8.3	15.3	16.9	13.1	9.2'

Globular Clusters

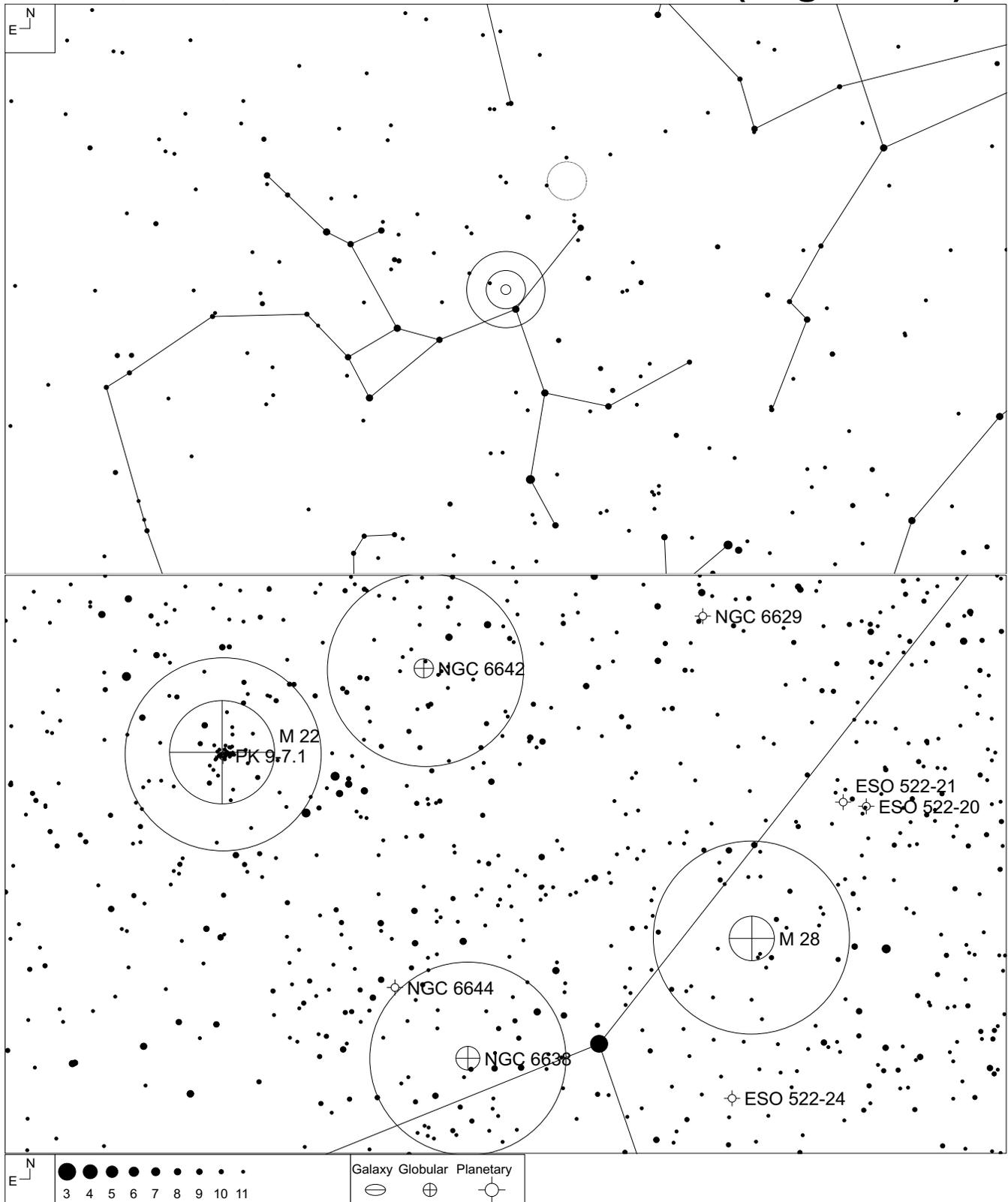
NGC 6540 and ESO 456-SC38 (Sagittarius)



Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
NGC 6540	18 06 08.6	-27 45 44	14.6	15.30	-	15.5	1.5'
ESO 456-38	18 01 49.1	-27 49 33	9.9	17.6	15.5	14.9	9.9'

Both globular clusters were heavily obscured in the central bulge, the DSS image is very difficult to use. The images in this chart are from Pan-STARRS.

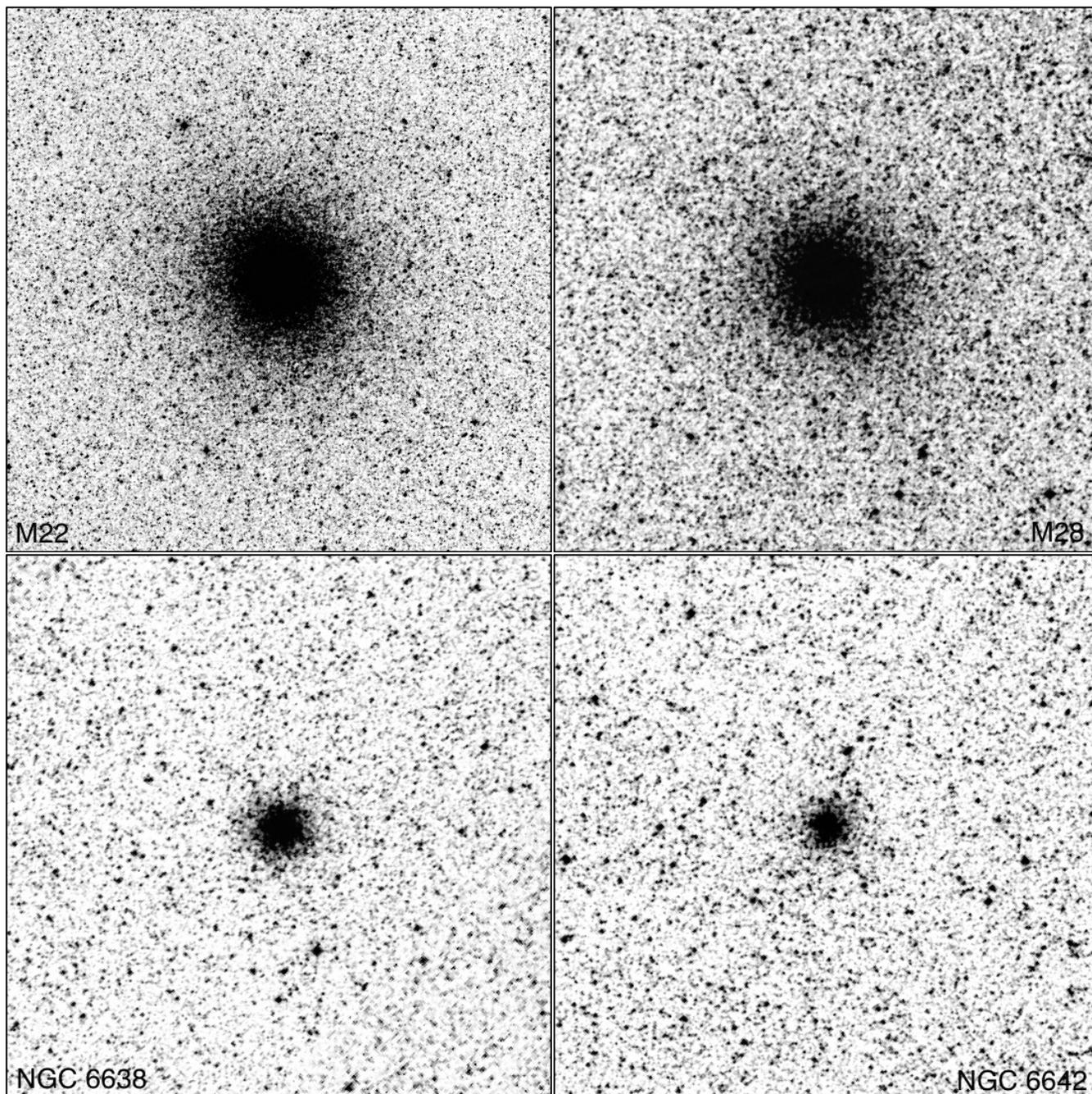
M22, M28, NGC 6638 and NGC 6642 (Sagittarius)



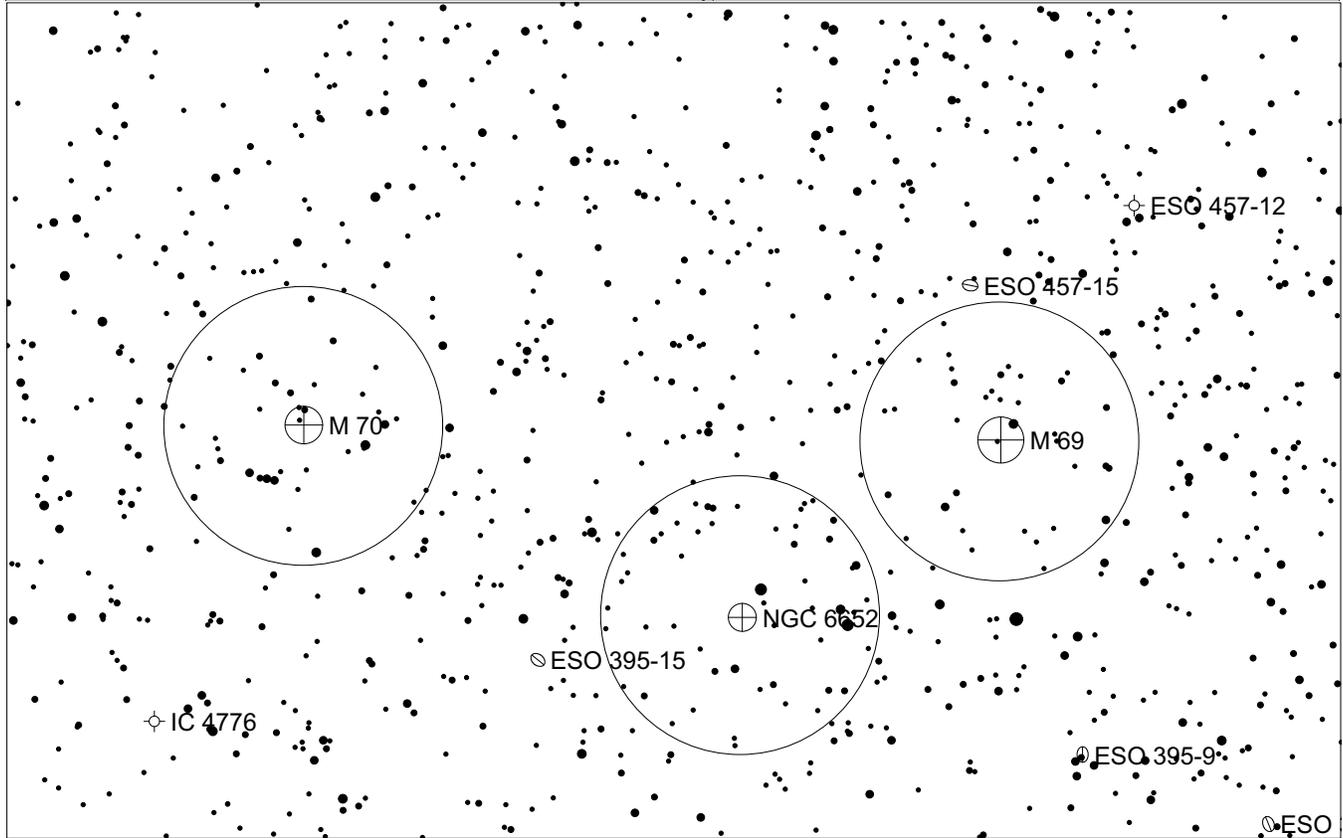
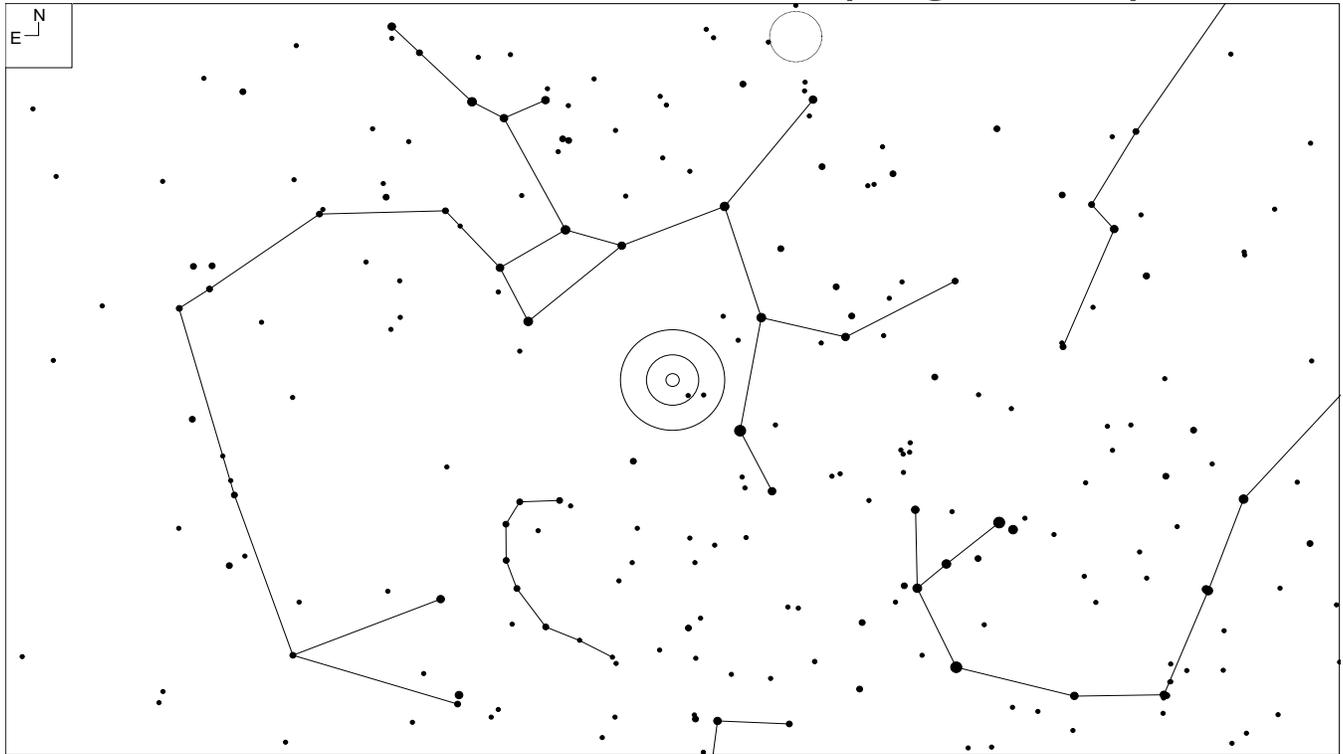
Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
M22	18 36 24.2	-23 54 12	5.2	14.2	10.7	12.7	32'
M28	18 24 32.9	-24 52 12	6.9	15.7	12	12.6	13.8'
NGC 6638	18 30 56.2	-25 29 47	9.2	16.5	14.2	13.5	7.3'
NGC 6642	18 31 54.3	-23 28 35	8.9	16.3	-	12.7	5.8'

Look for planetary nebula, GJJC1, in M-22. See page xxx.

M22, M28, NGC 6638 and NGC 6642 (Sagittarius)



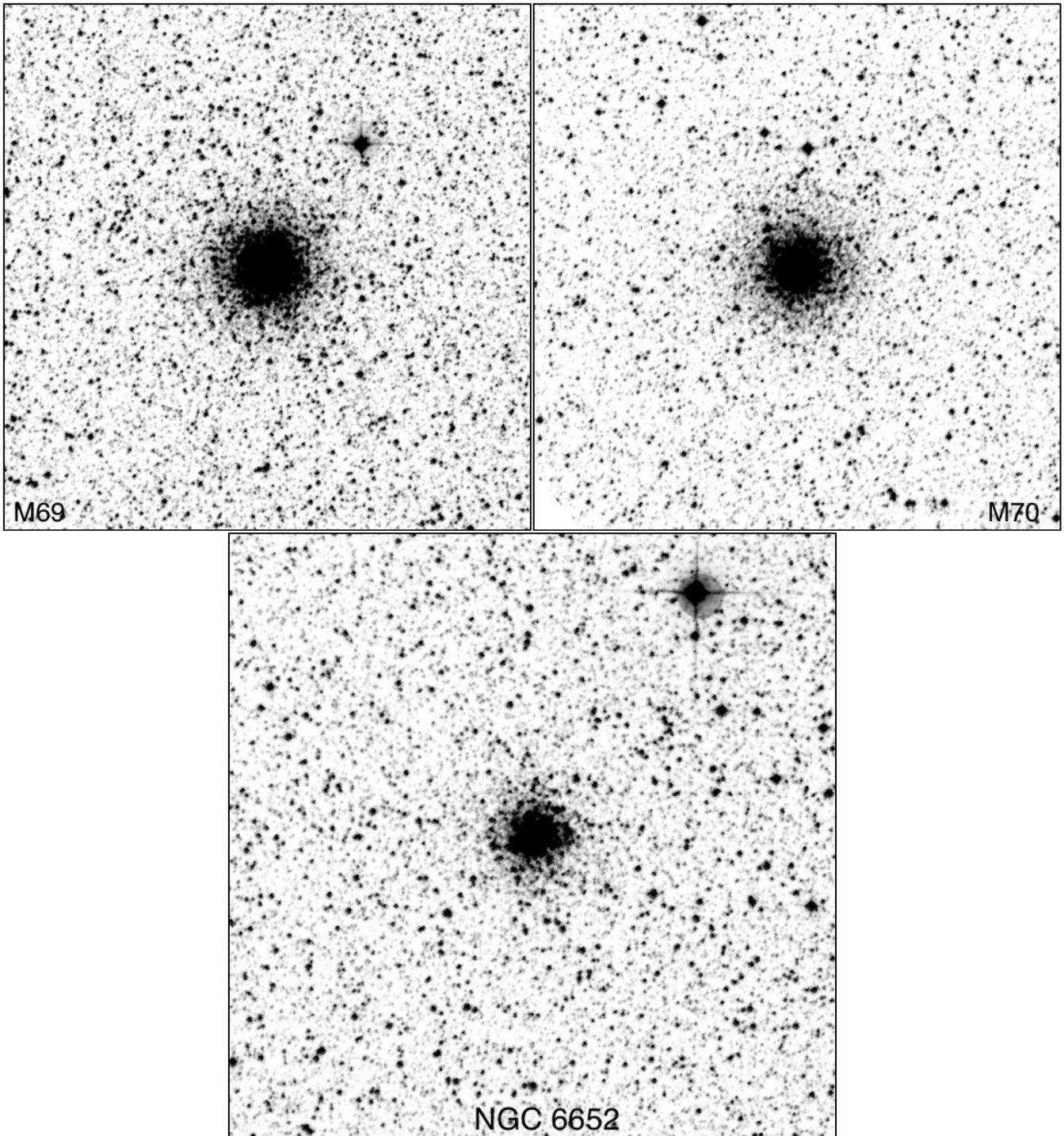
M69, M70 and NGC 6652 (Sagittarius)



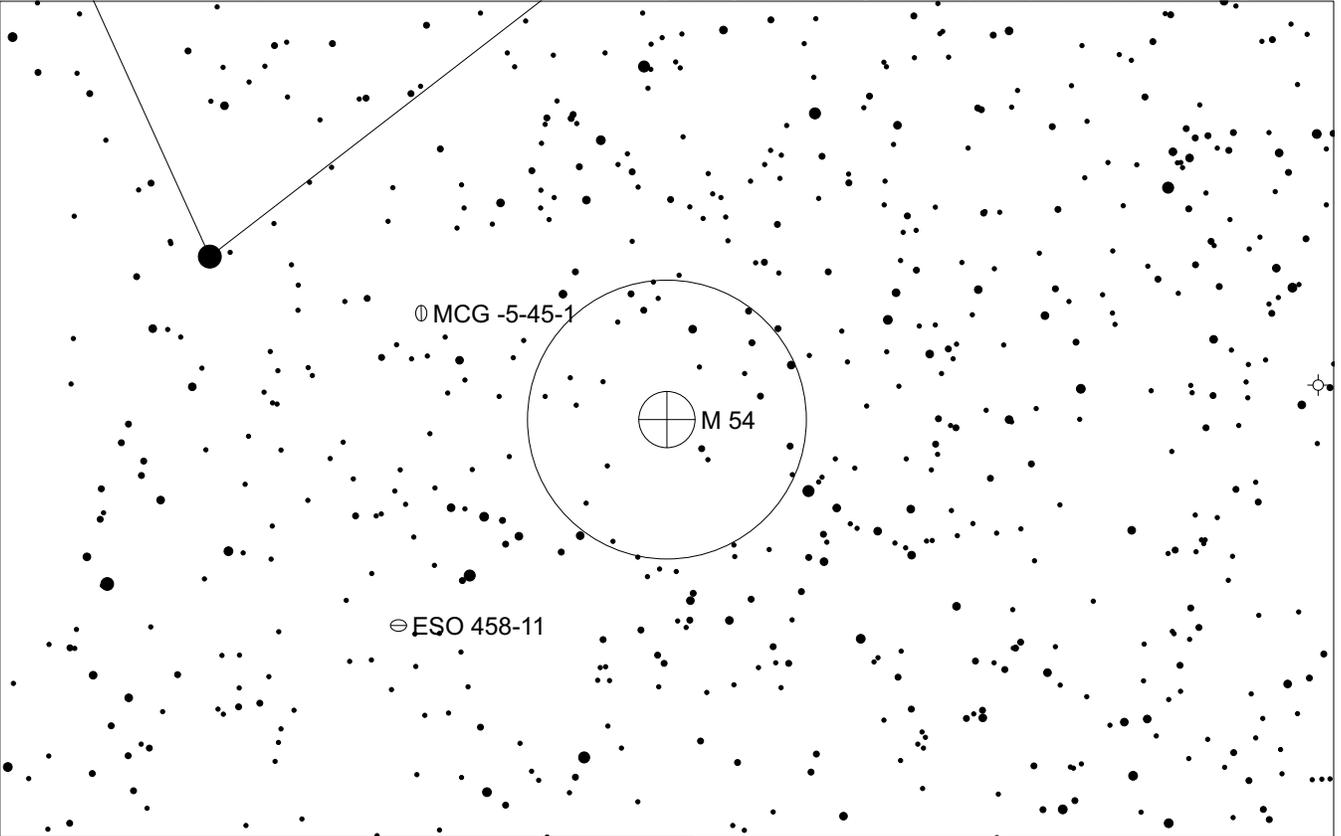
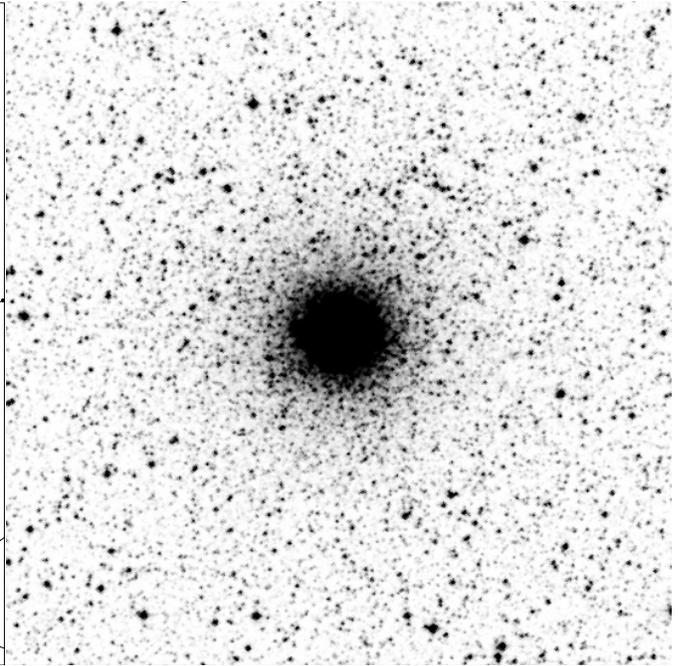
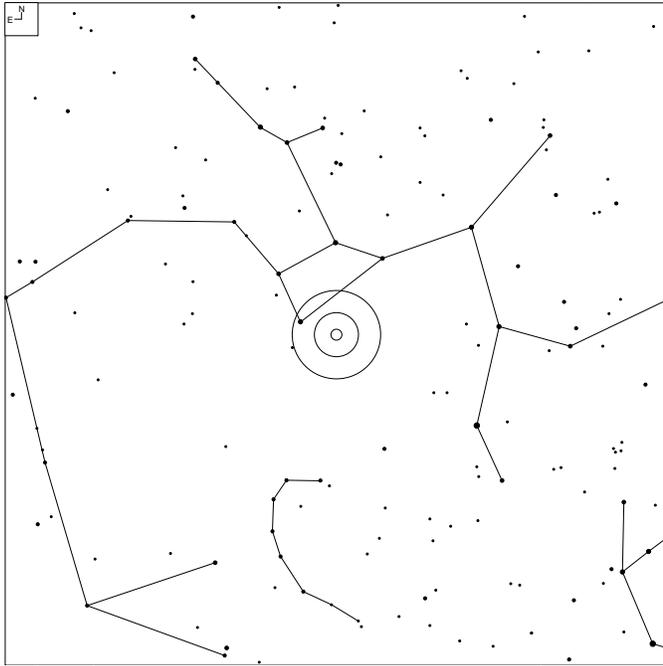
Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
M69	18 31 23.2	-32 20 53	7.7	15.9	13.7	12.7	9.8'
M70	18 43 12.7	-32 17 31	7.8	15.6	13	12.3	8'
NGC 6652	18 35 45.7	-32 59 25	8.5	16	13.3	12.4	6'

Globular Clusters

M69, M70 and NGC 6652 (Sagittarius)



M54 (Sagittarius)



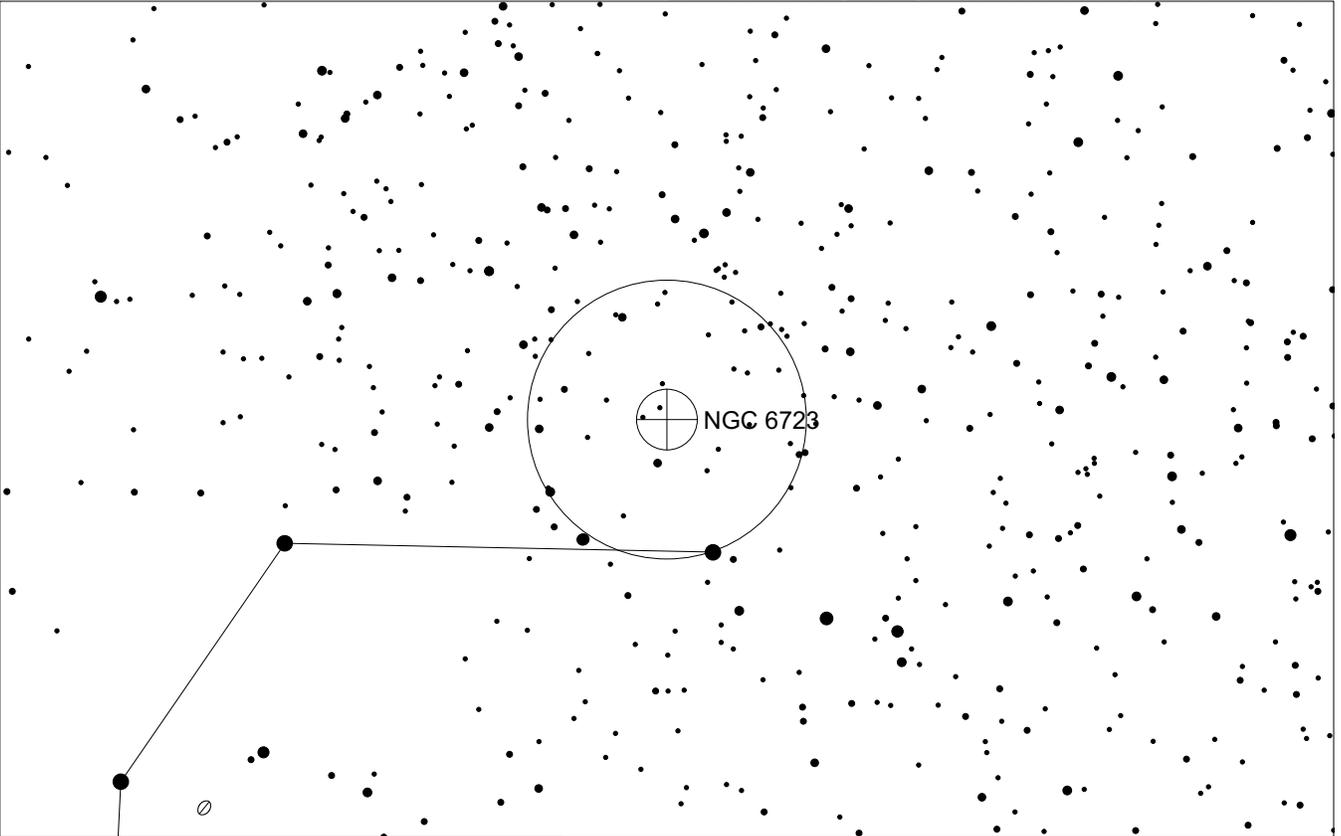
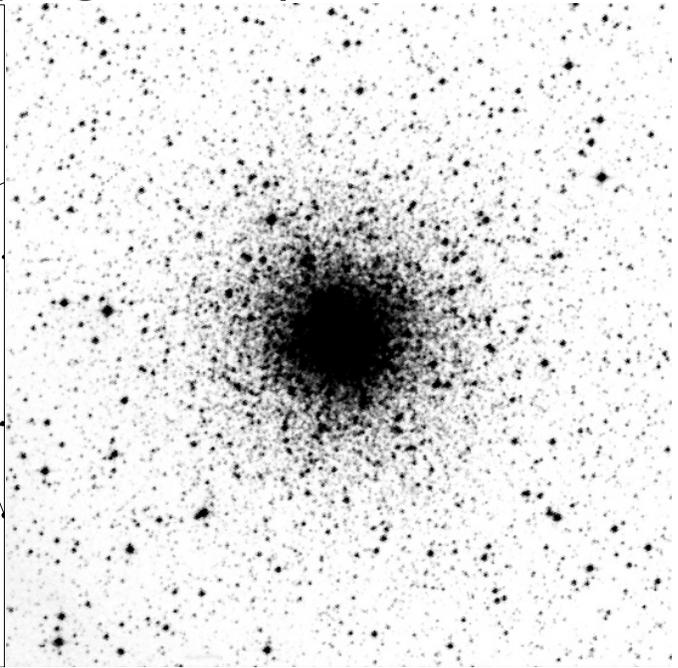
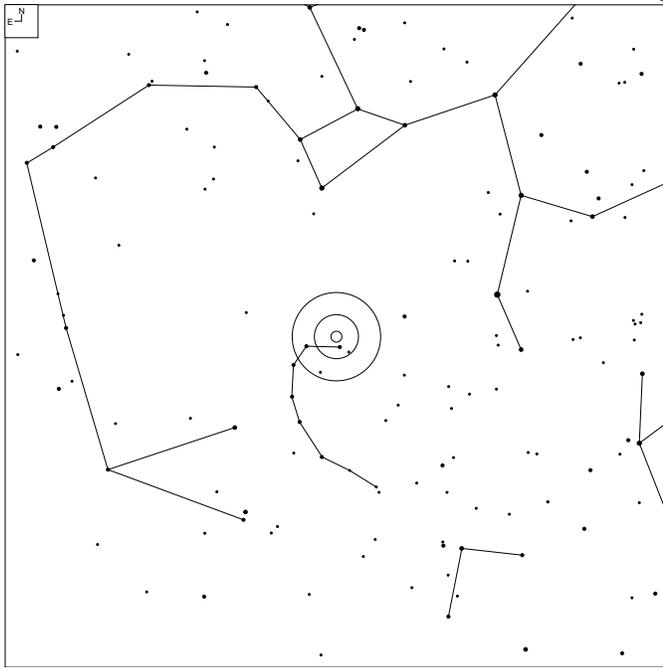
N
E

Galaxy Globular Planetary

+
-

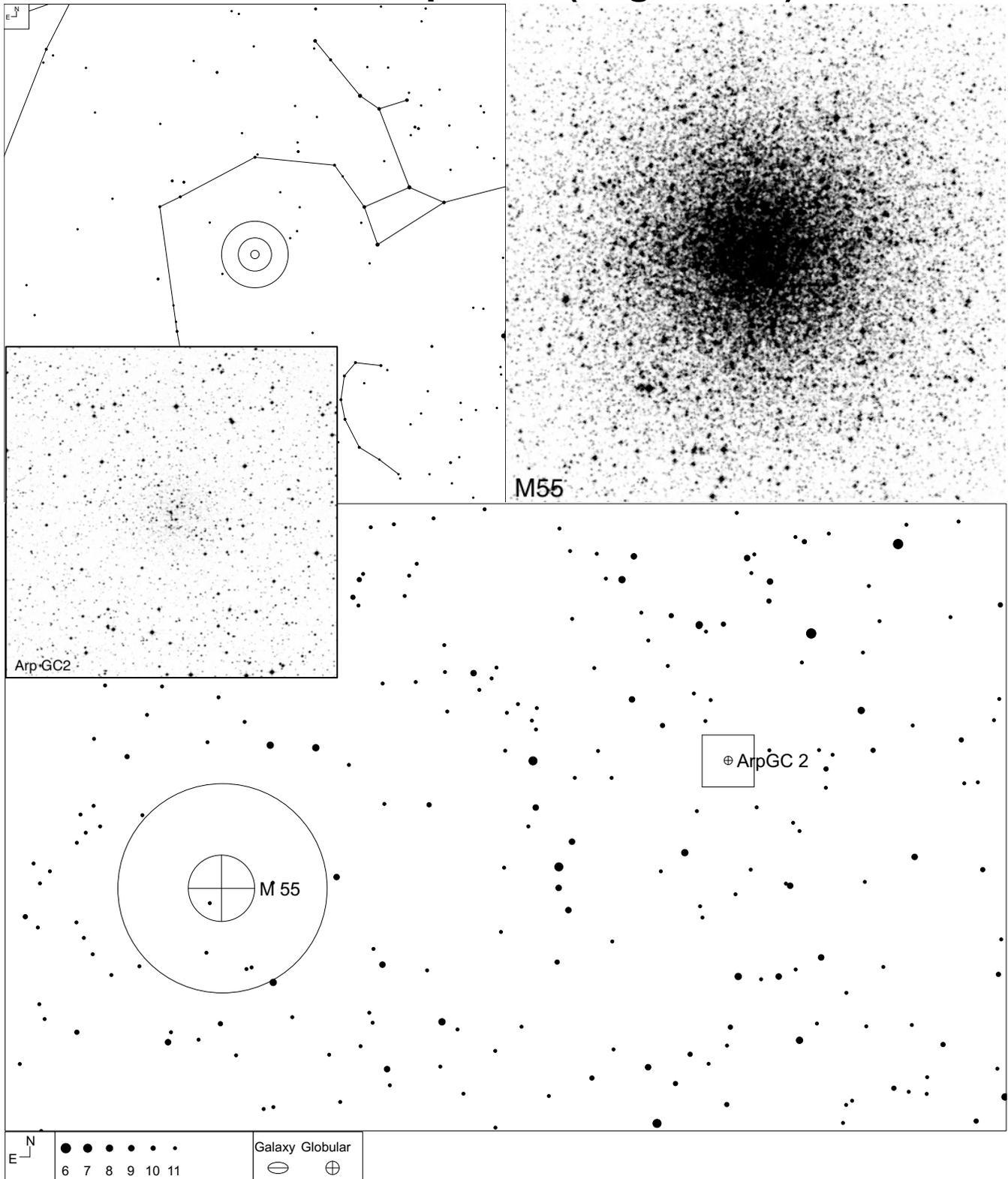
Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
M54	18 55 03.3	-30 28 42	7.7	18.2	15.2	13.1	12'

NGC 6723 (Sagittarius)



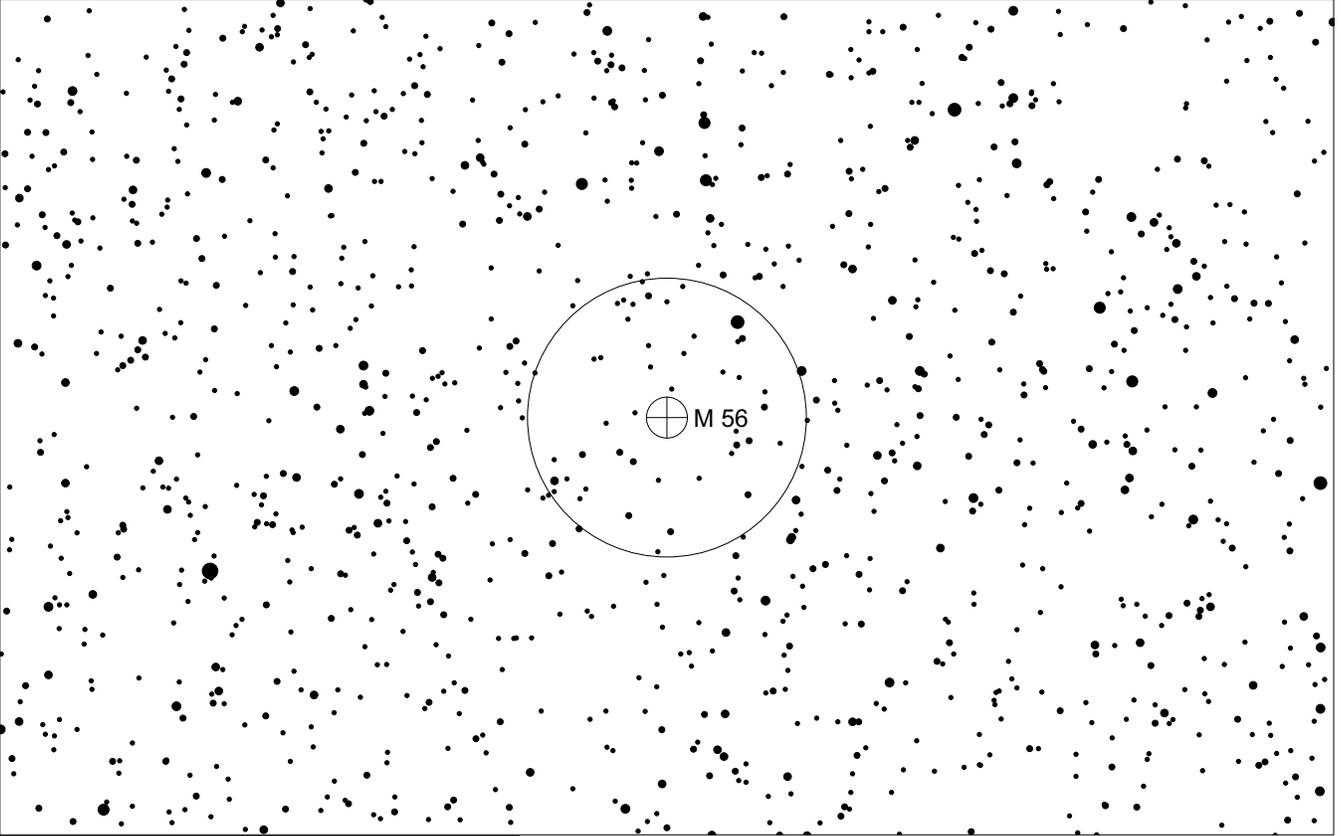
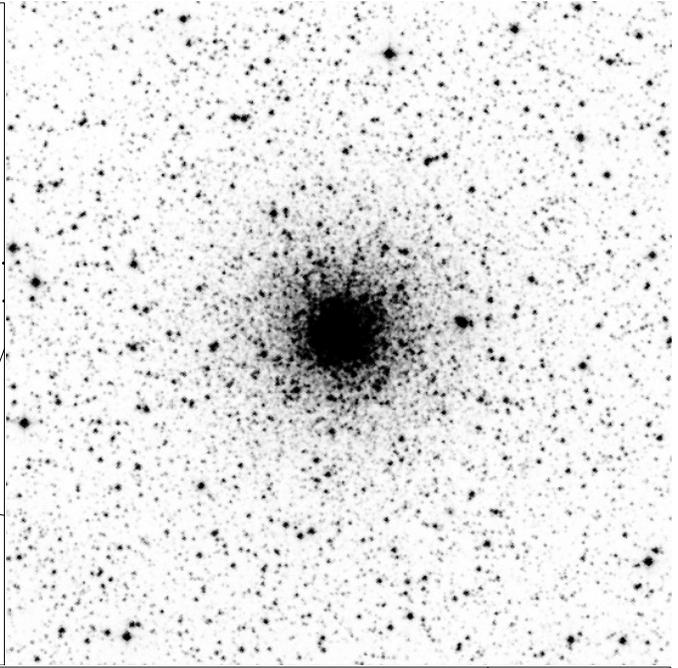
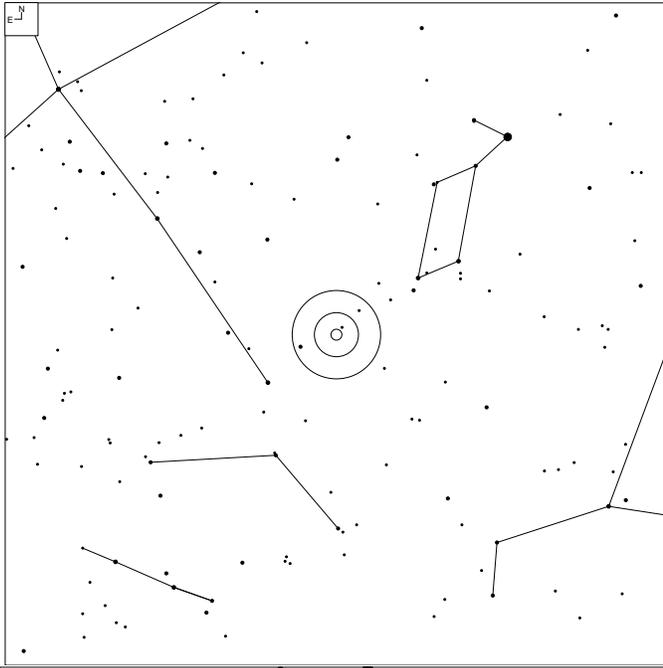
RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
18 59 33.2	-36 37 54	6.8	15.5	12.8	12.4	13'

M55 and Arp GC2 (Sagittarius)



Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
M55	19 39 59.4	-30 57 44	6.3	14.4	11.2	12.7	19'
Arp GC 2	19 28 44.1	-30 21 14	13	18.2	15.5	14.8	2.3'

M56 (Lyra)

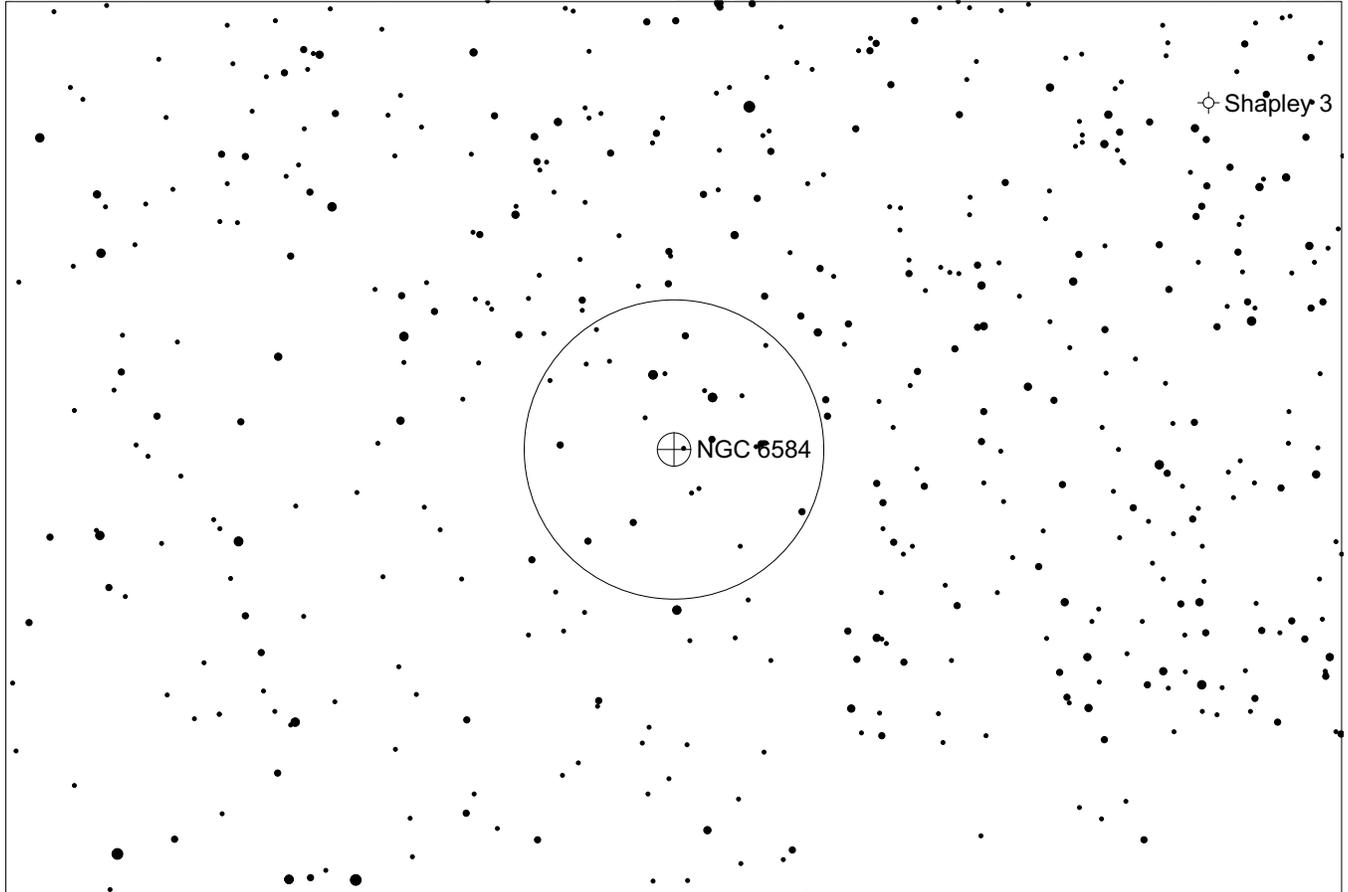
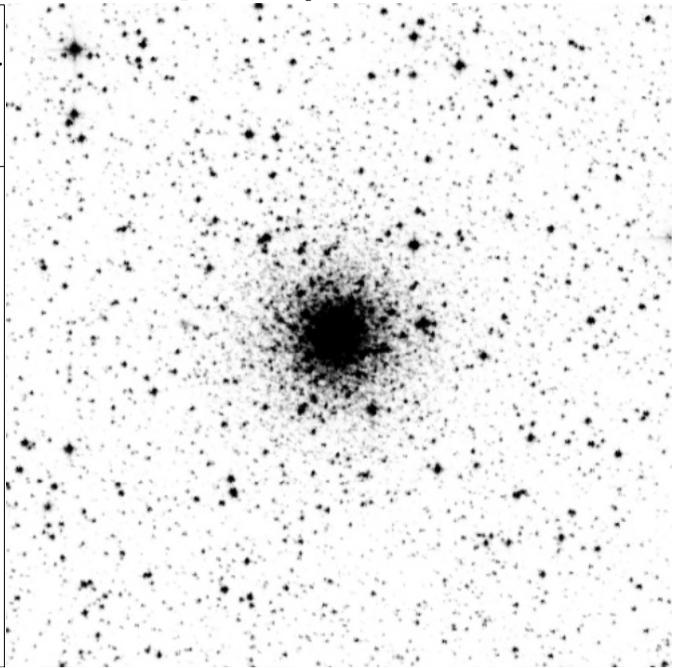
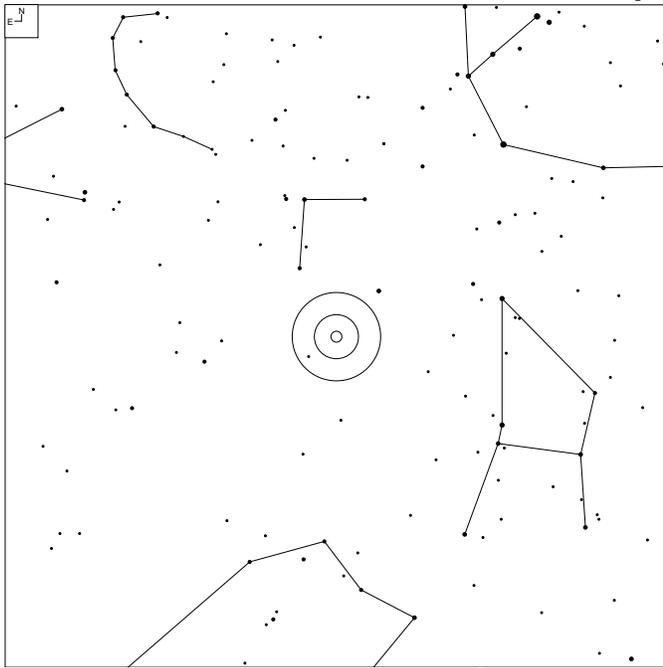


5 6 7 8 9 10 11

Galaxy Globular

RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
19 16 35.5	+30 11 05	8.4	16.3	13.2	13.1	8.8'

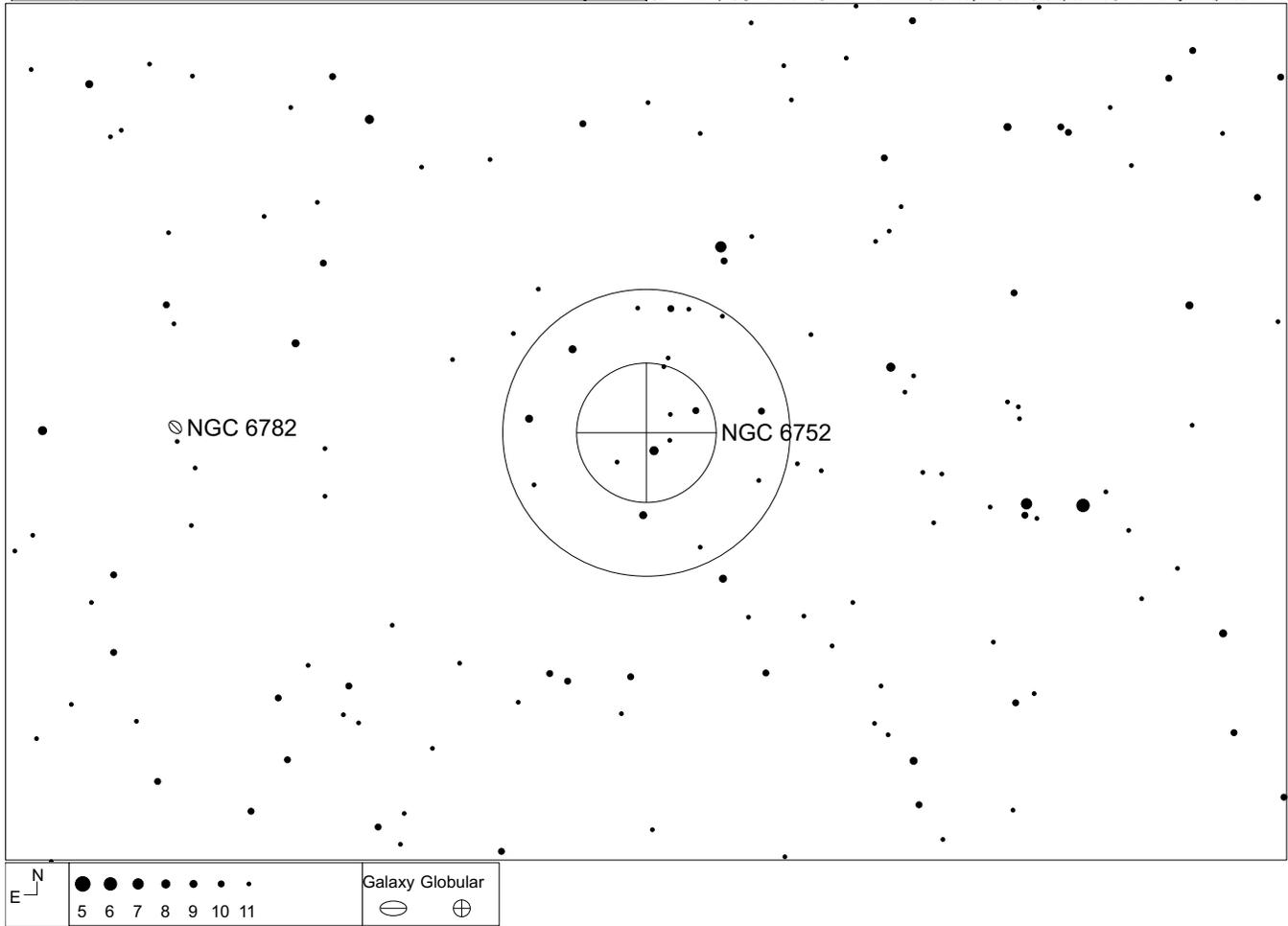
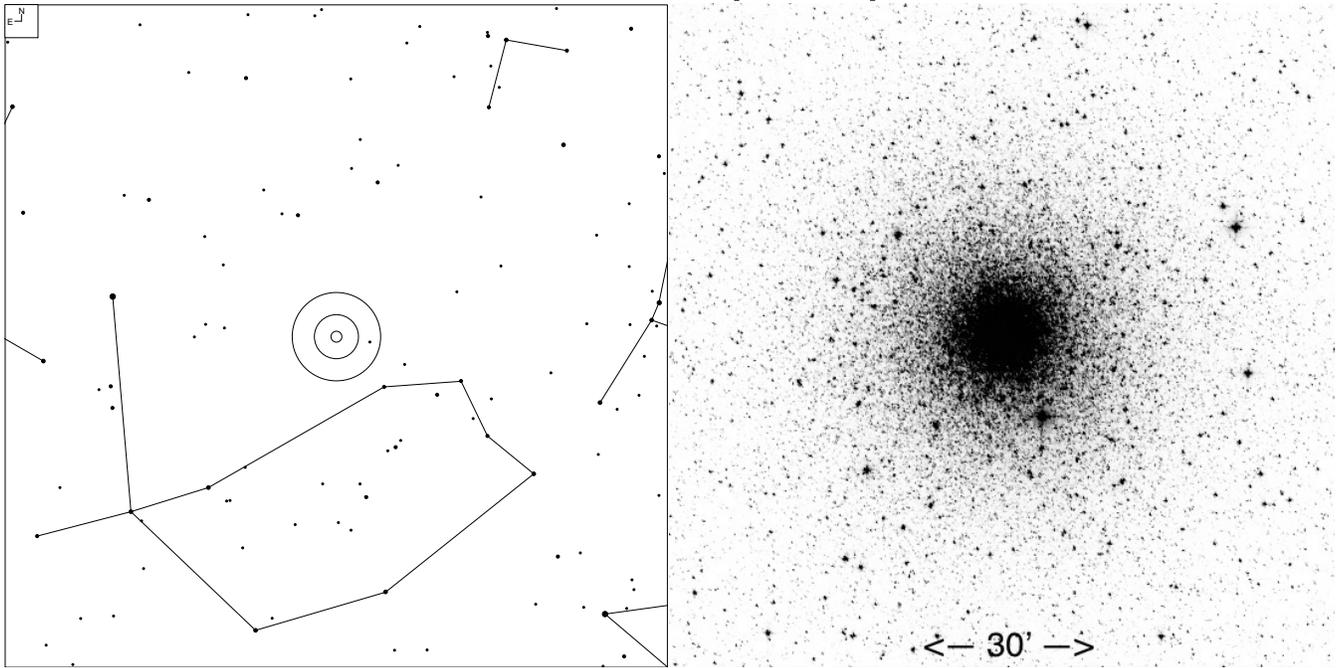
NGC 6584 (Telescopium)



E ↘
N
● ● ● ● ● Galaxy Globular Planetary
7 8 9 10 11
⊖ ⊕ ⊙

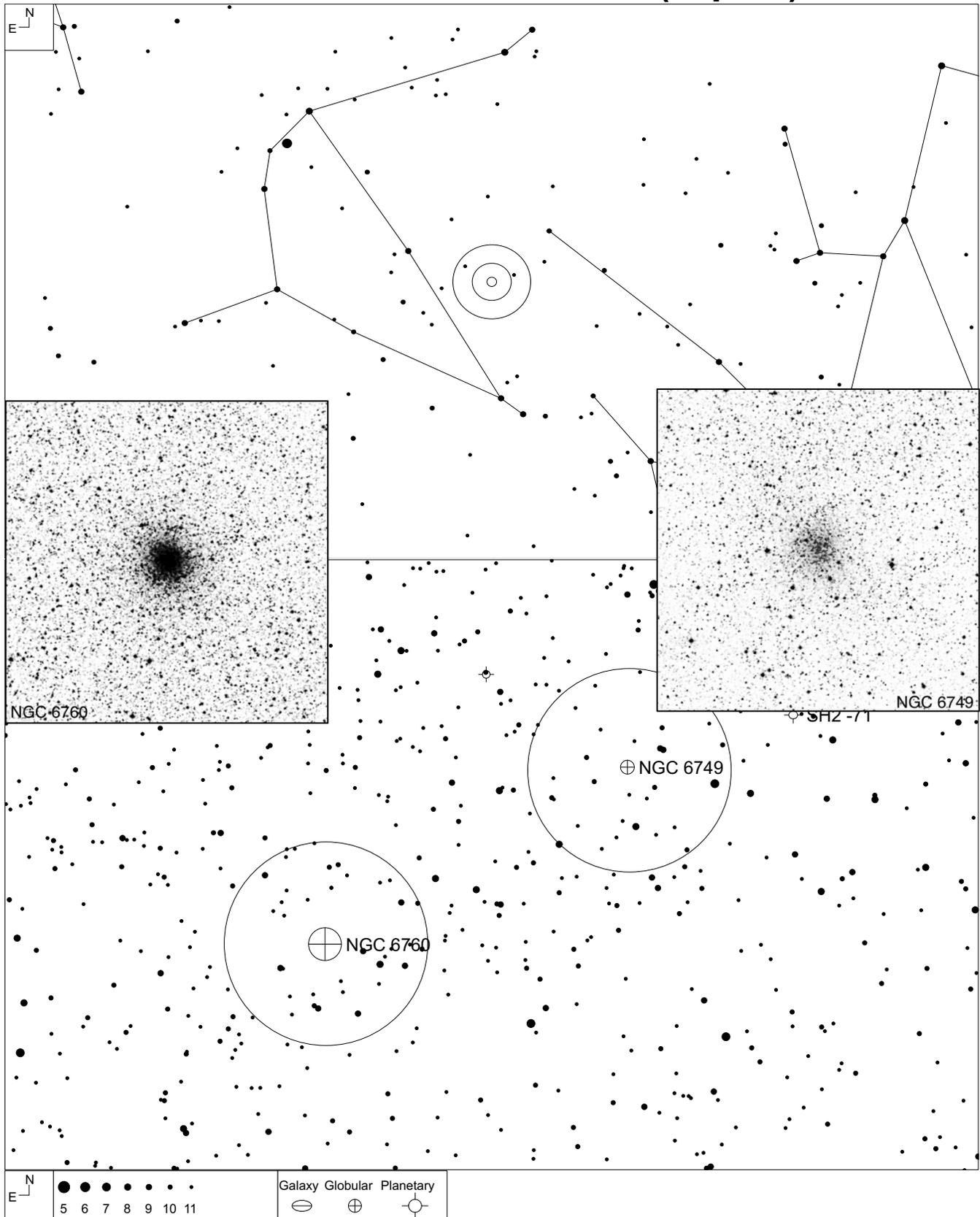
RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
18 18 38	-52 12 57	8.27	16.5	13.5	12.0	6.6

NGC 6752 (Pavo)



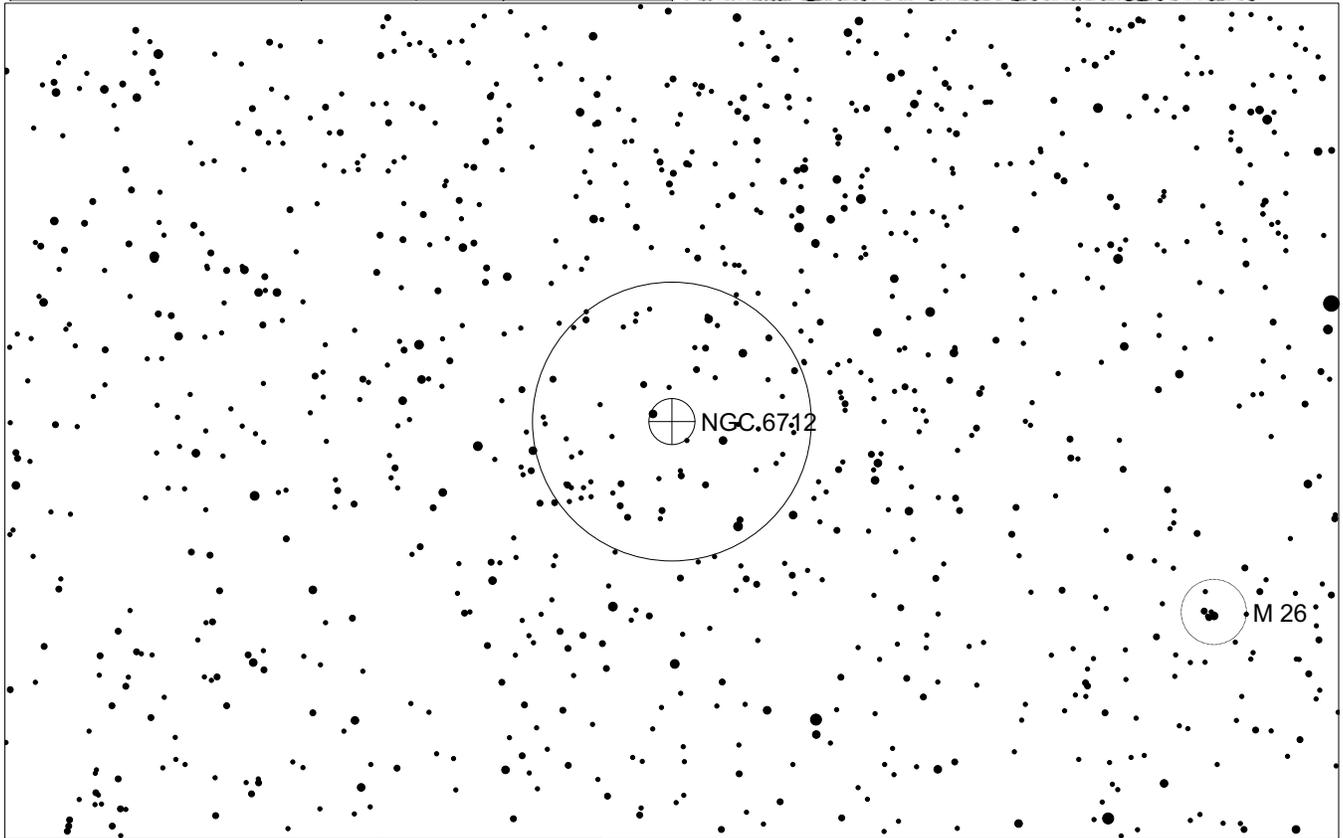
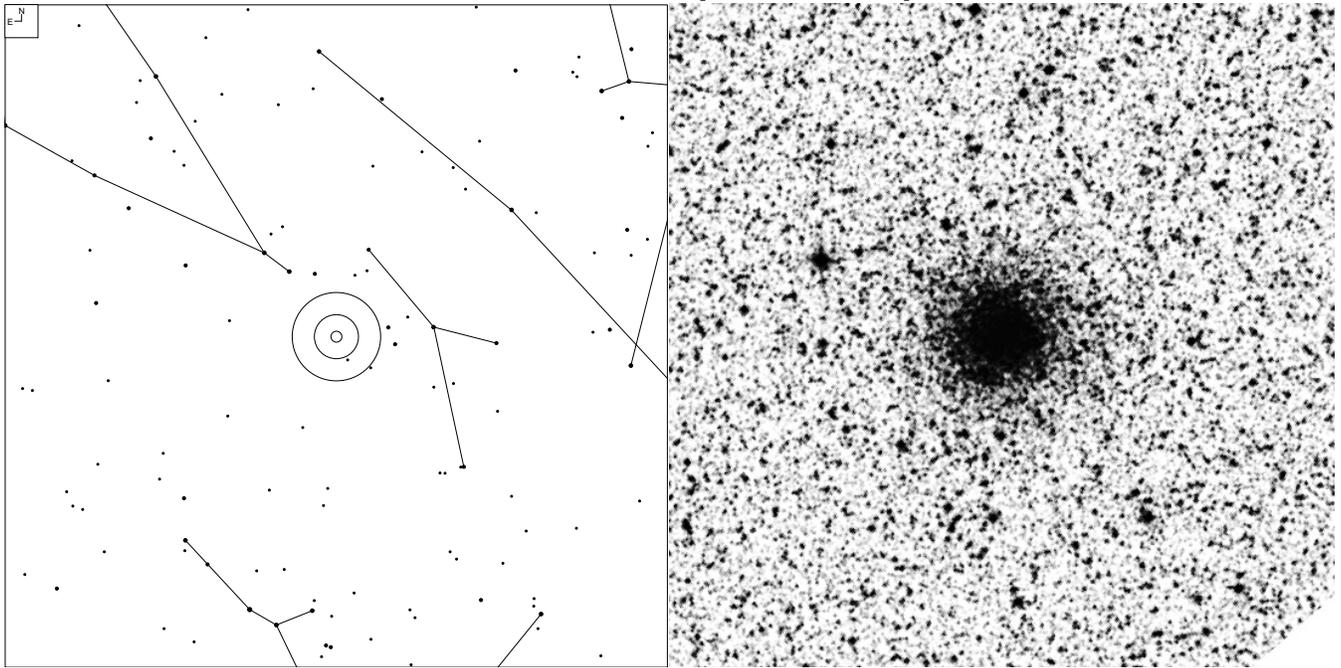
RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
19 10 52	-59 59 04	5.4	13.7	10.5	12.6	29

NGC 6749 and NGC 6760 (Aquila)



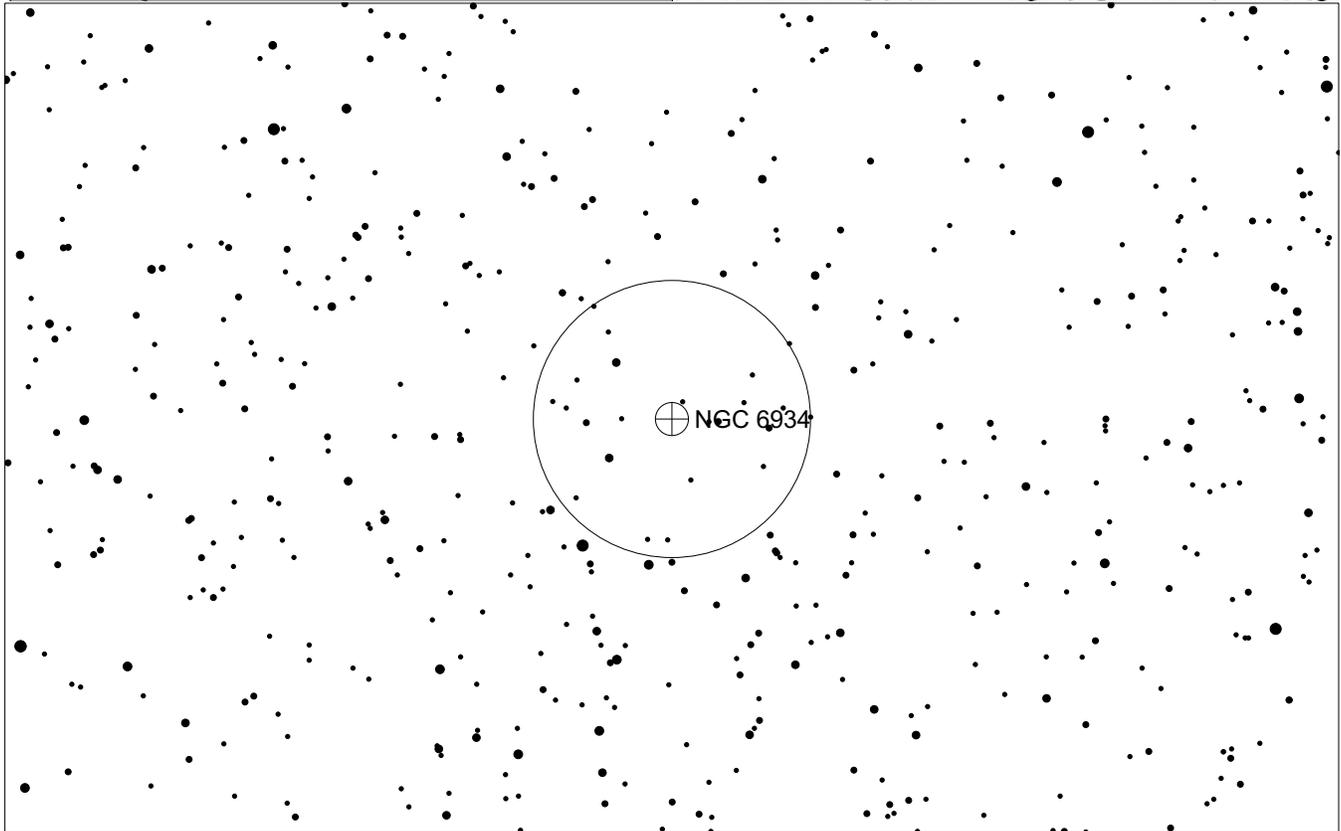
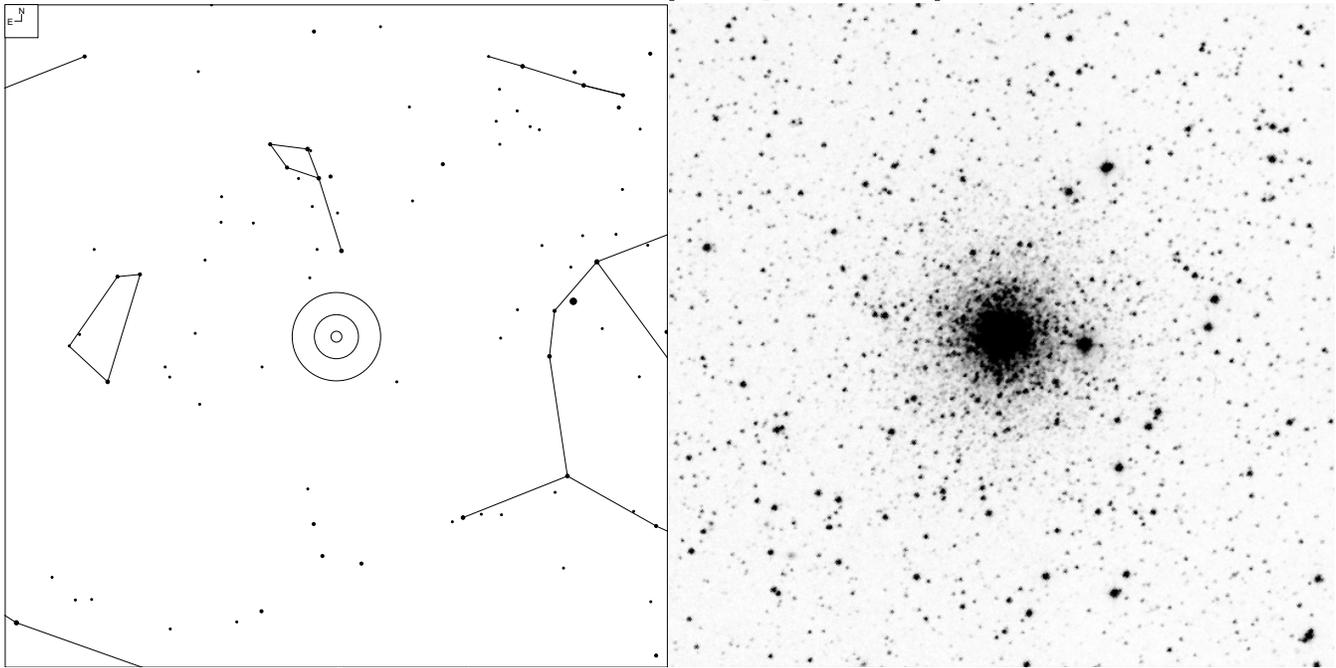
Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
NGC 6749	19 05 15.3	+01 54 03	12.4	19.7	16.5	15.4	4'
NGC 6760	19 11 12.1	+01 01 50	9	17.5	15.6	13.8	9'

NGC 6712 (Scutum)



RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
18 53 04.3	-08 42 22	8.1	16.3	13.3	13.1	9.8'

NGC 6934 (Delphinus)



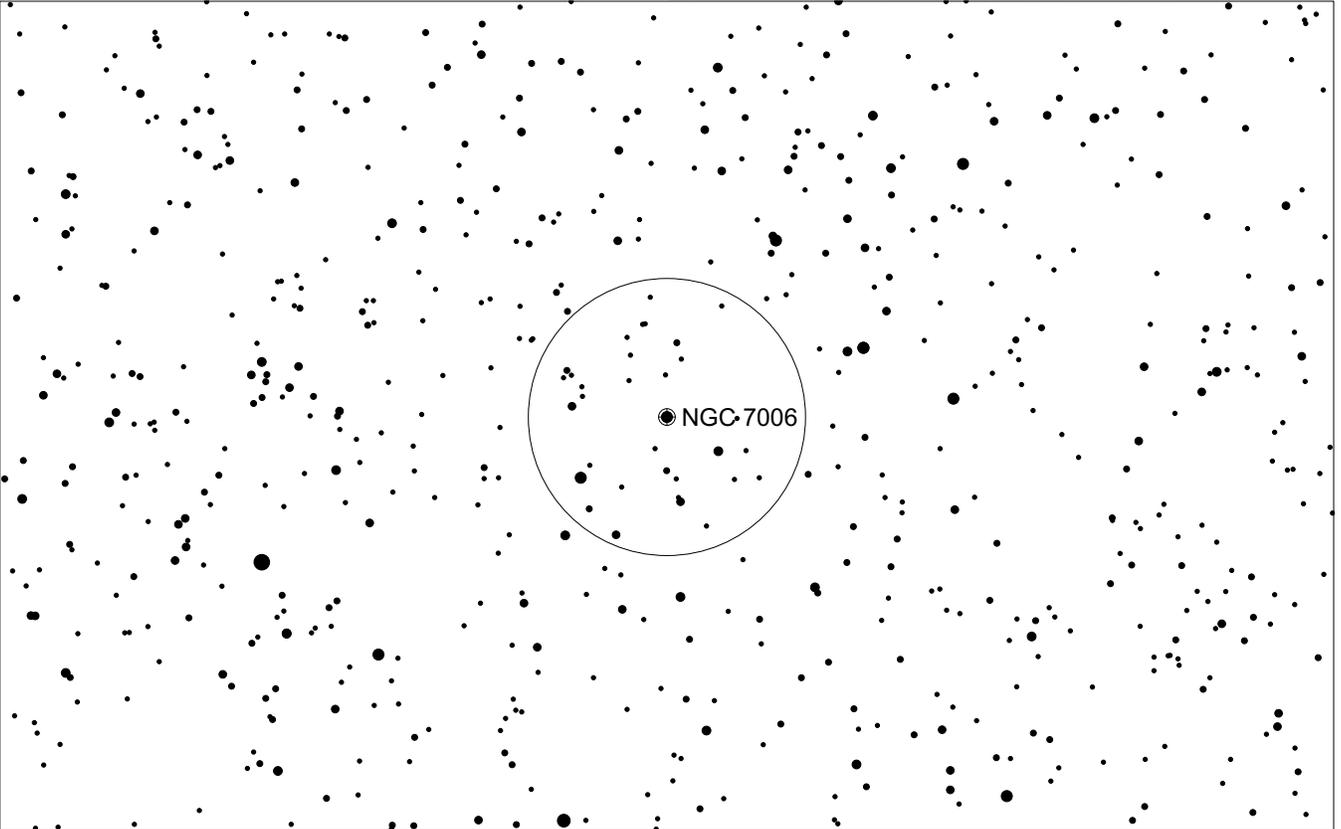
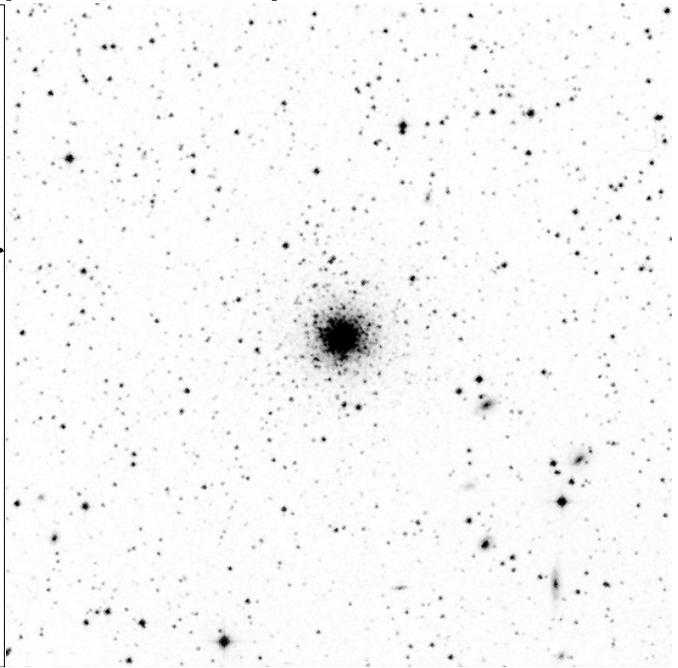
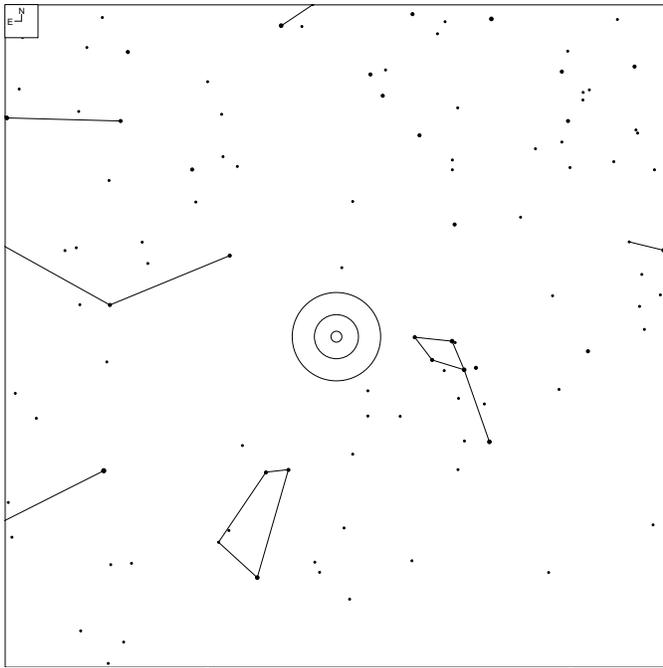
E ↙ N ↘

 ● ● ● ● ●
 6 7 8 9 10 11

 Galaxy Globular
 ⊖ ⊕

RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
20 34 11.6	+07 24 15	8.9	17.1	13.8	13.2	7.1'

NGC 7006 (Delphinus)

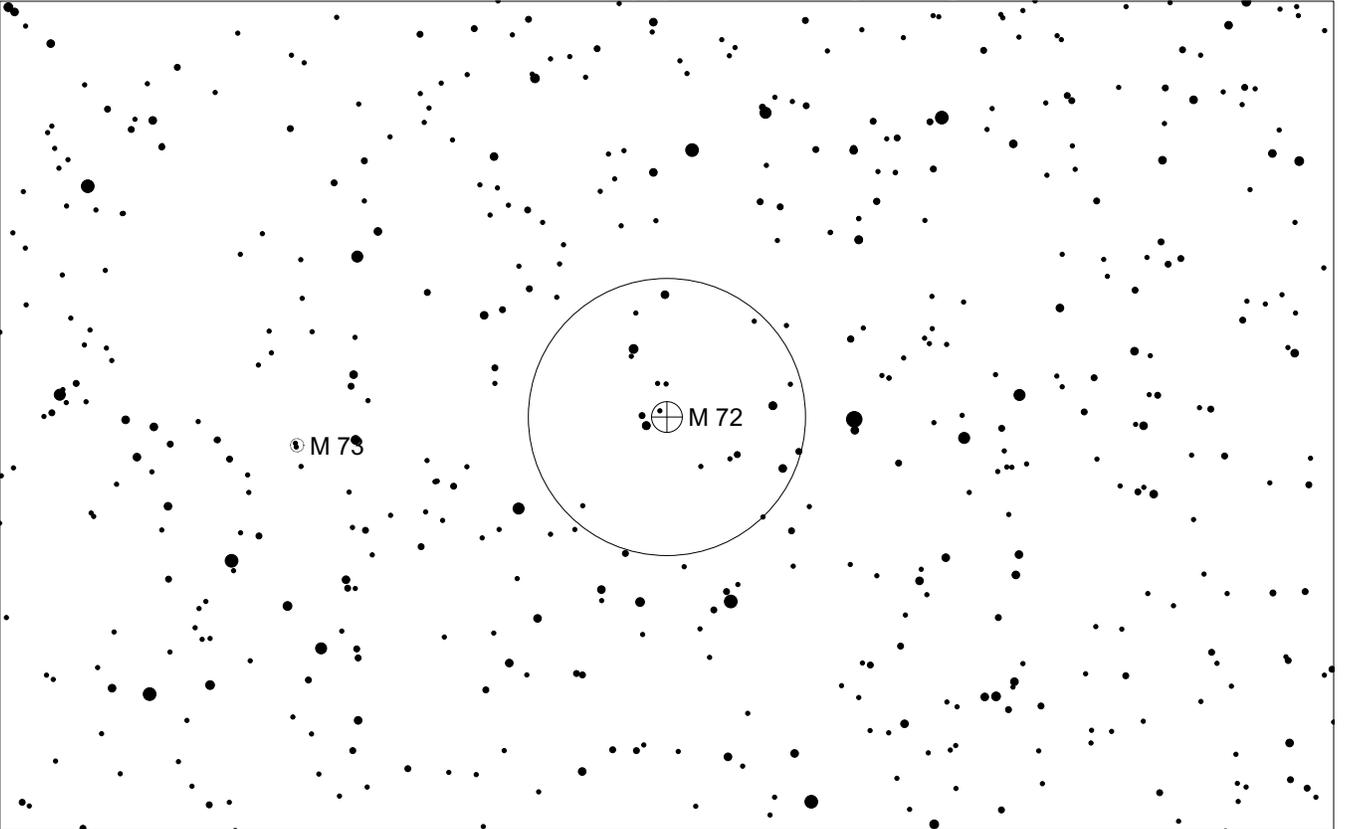
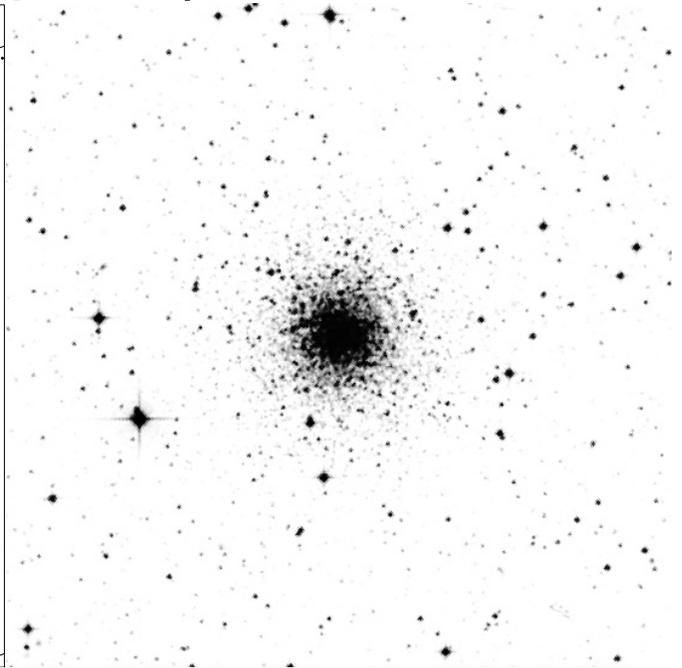
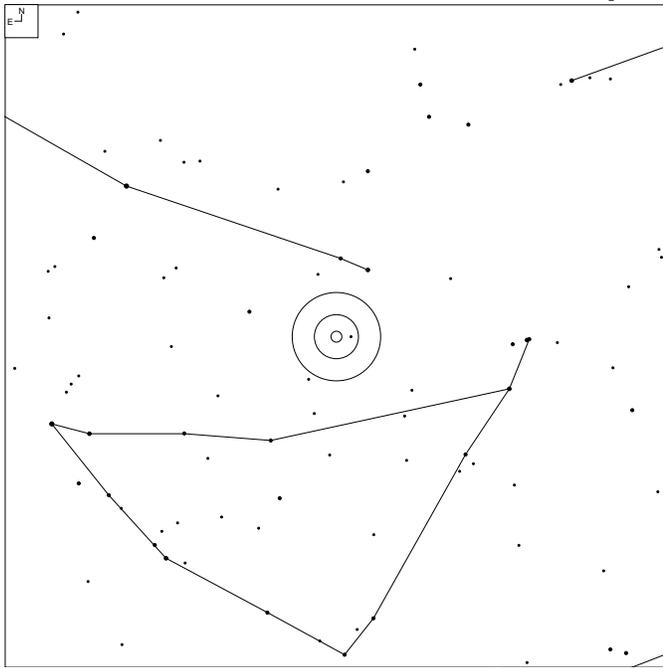


5 6 7 8 9 10 11

Galaxy Globular

RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
21 01 29.5	+16 11 15	10.6	18.8	15.6	13.4	3.6'

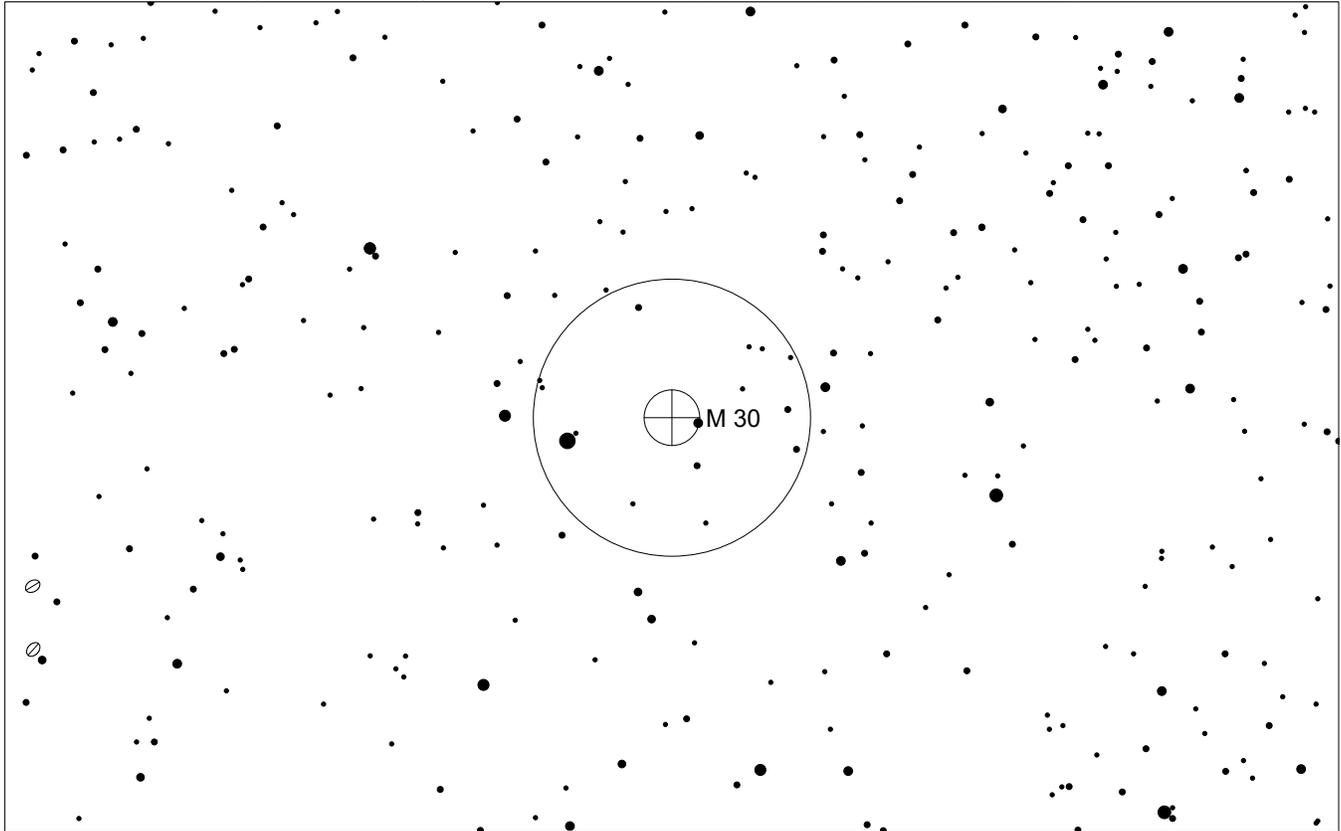
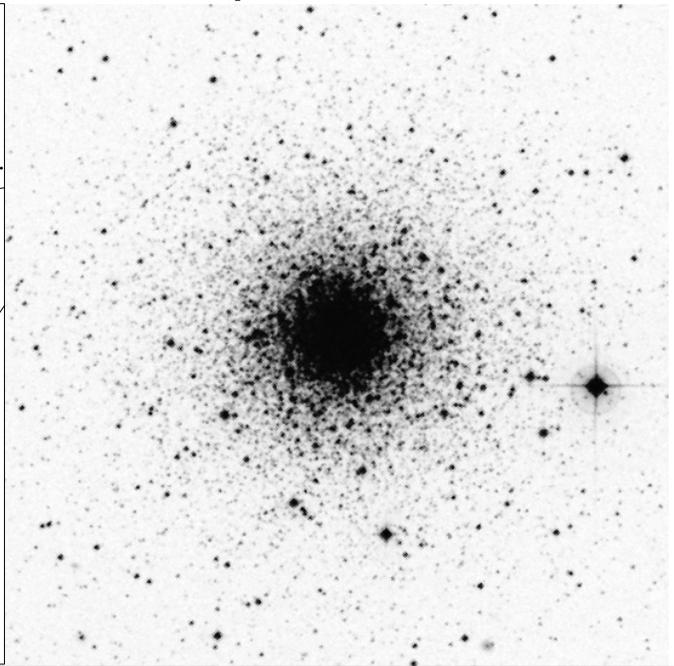
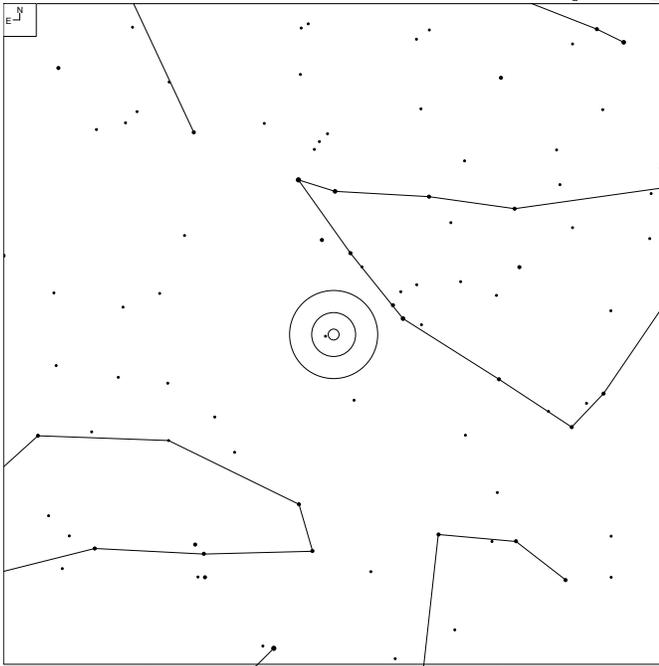
M72 (Aquarius)



E ↙ N ↘	● ● ● ● ● ● ● ●	Galaxy	Globular	Open Cl
	6 7 8 9 10 11 12	☾	⊕	○

RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
20 53 27.9	-12 32 13	9.2	16.9	14.2	13.3	6.6'

M30 (Capricornus)



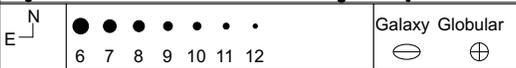
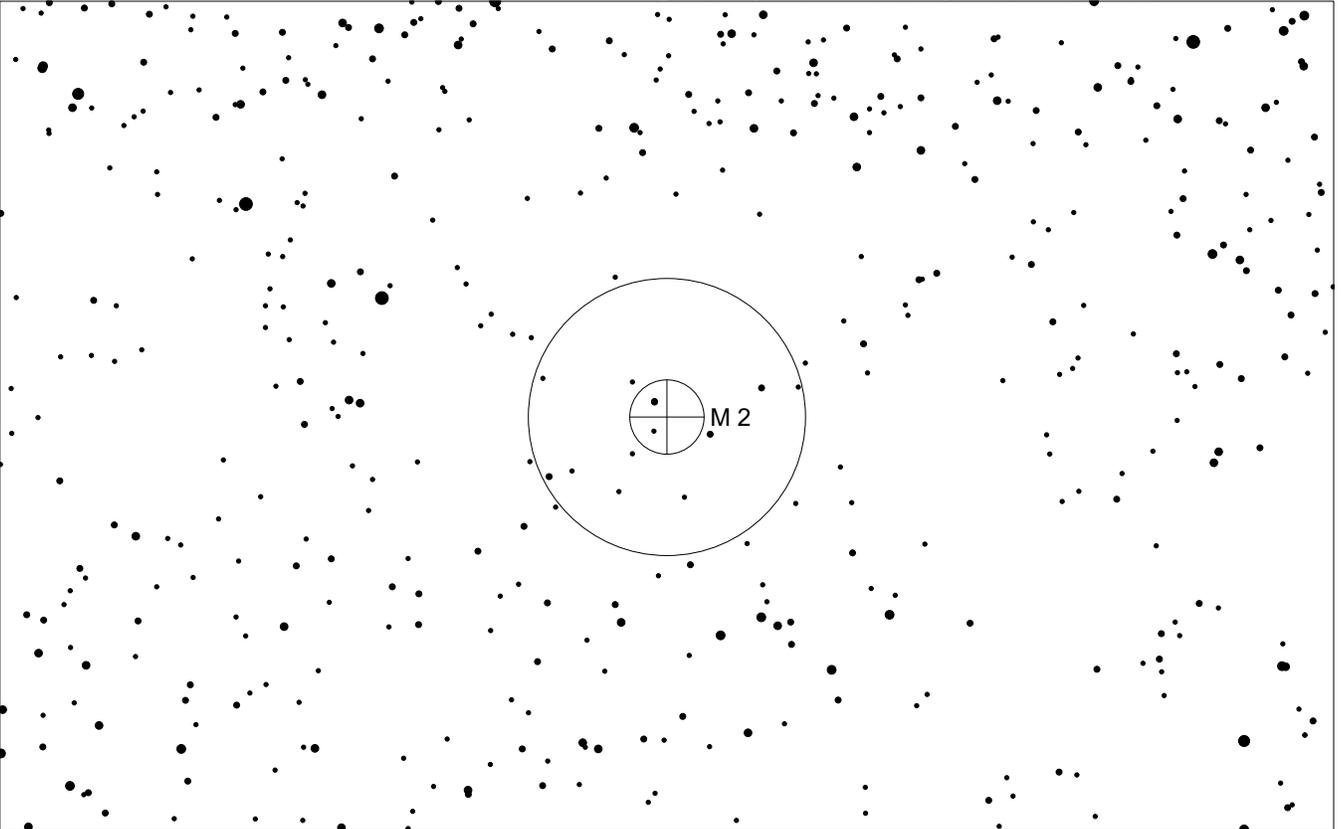
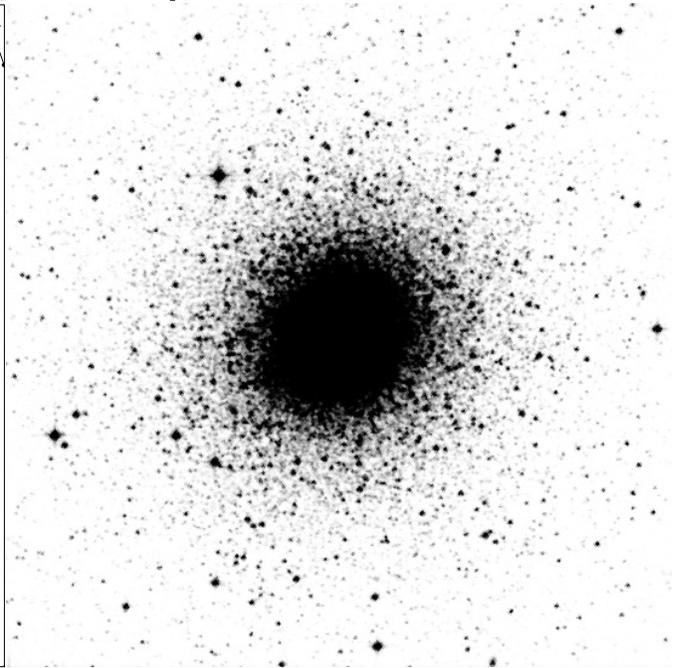
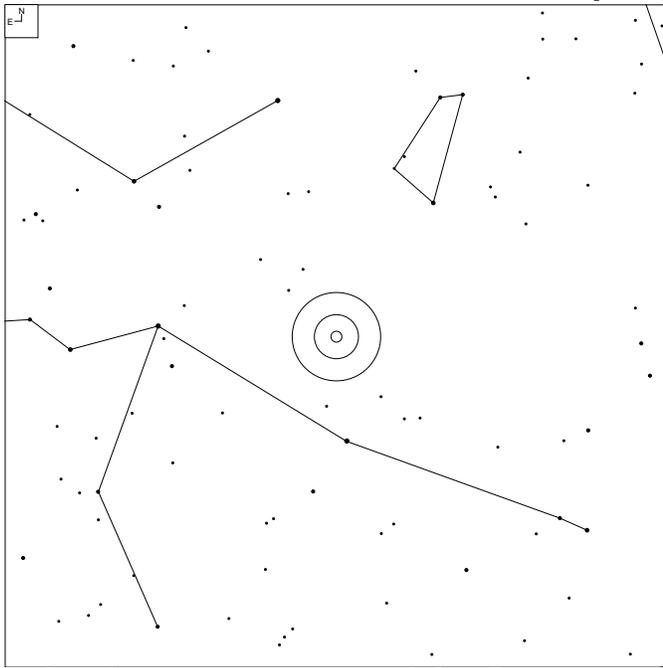
5 6 7 8 9 10 11 12

Galaxy Globular

⊖ ⊕

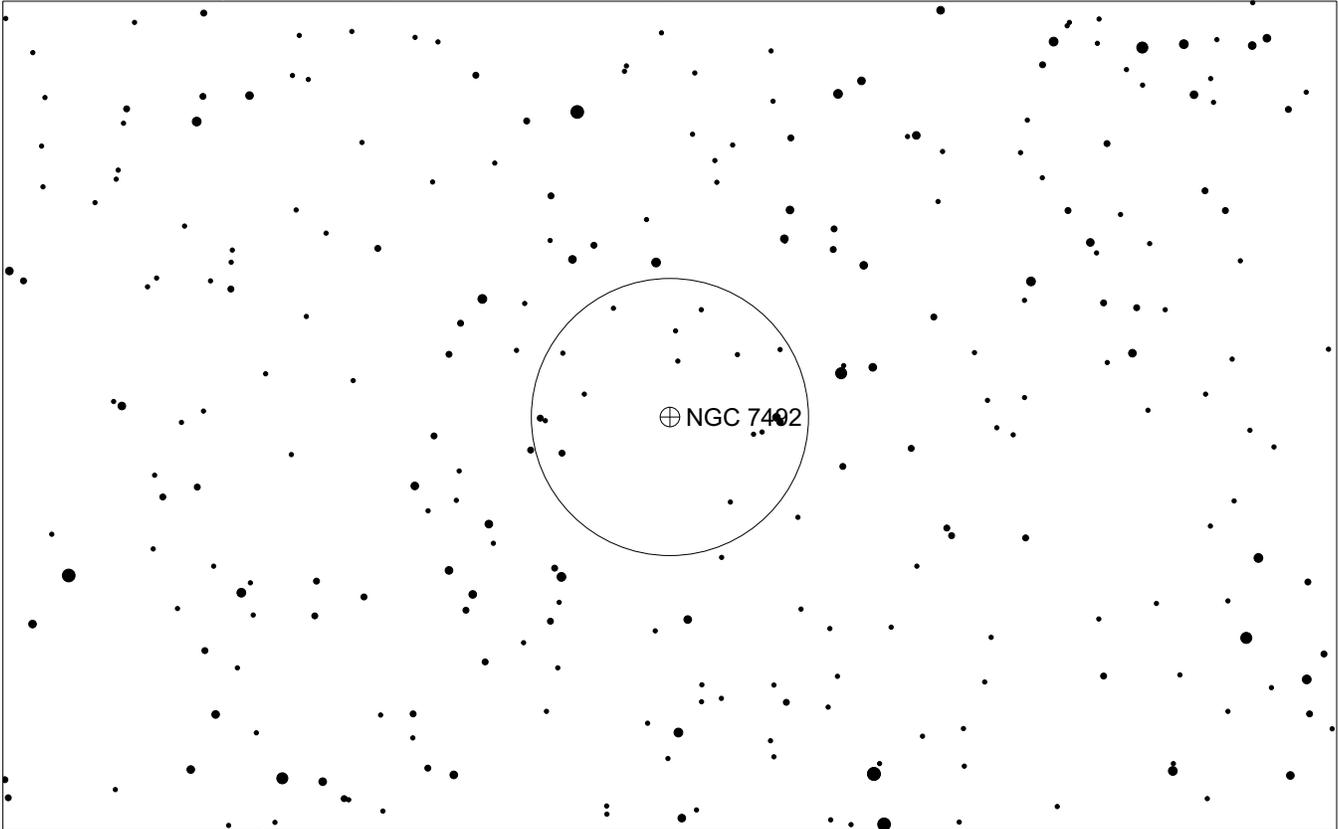
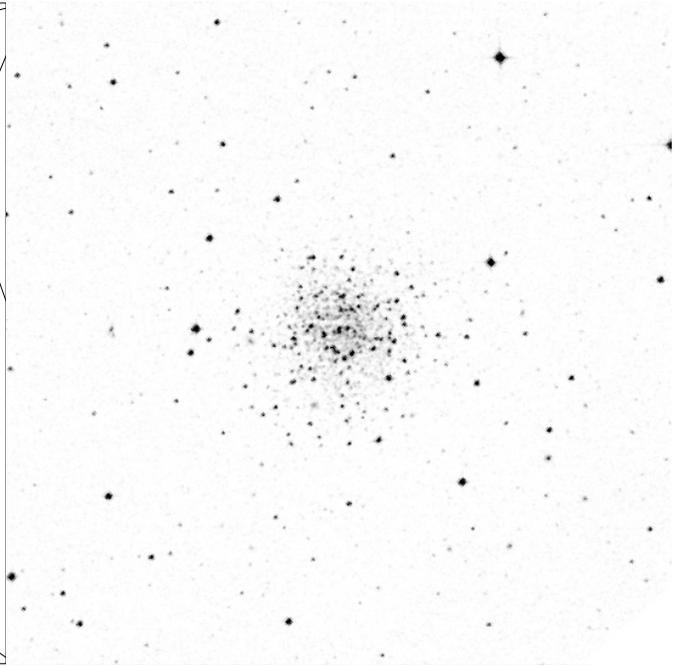
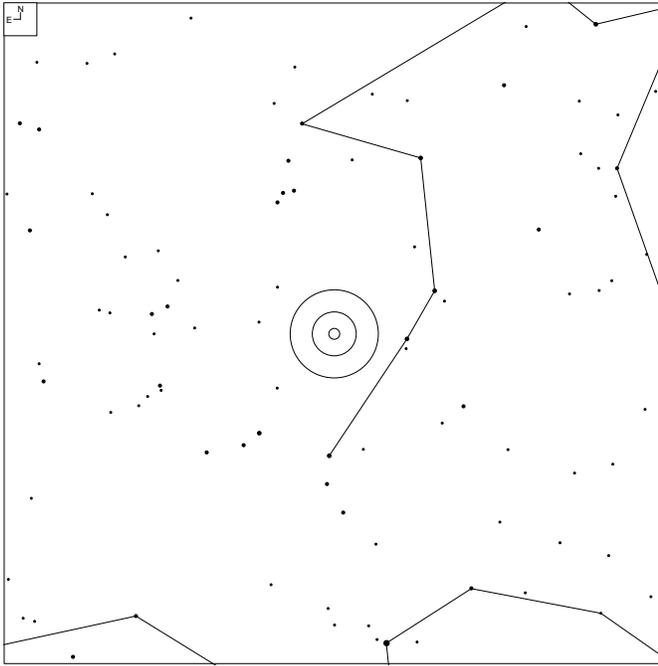
RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
21 40 22.0	-23 10 45	6.9	15.1	12.1	12.3	12'

M2 (Aquarius)



RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
21 33 27.0	-00 49 12	6.6	16.1	13.1	12.6	16'

NGC 7492 (Aquarius)



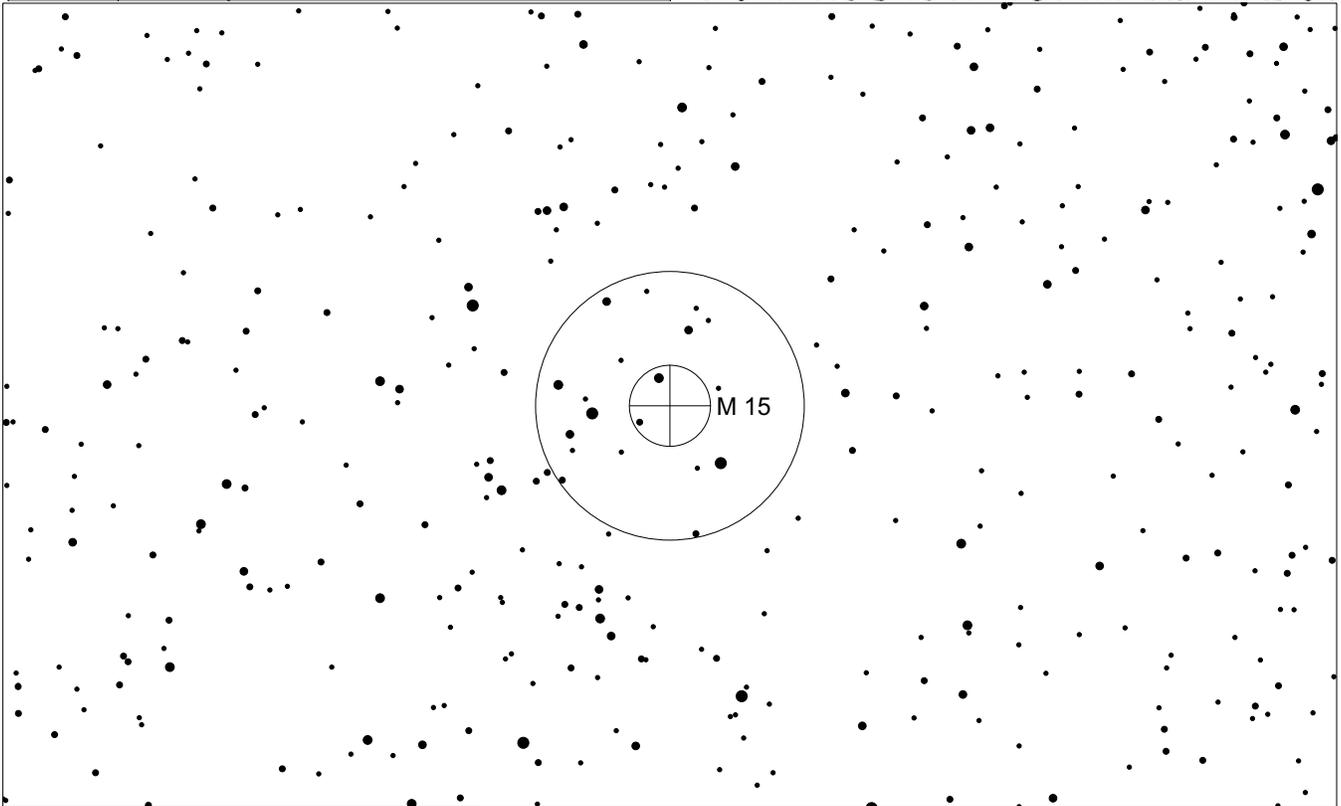
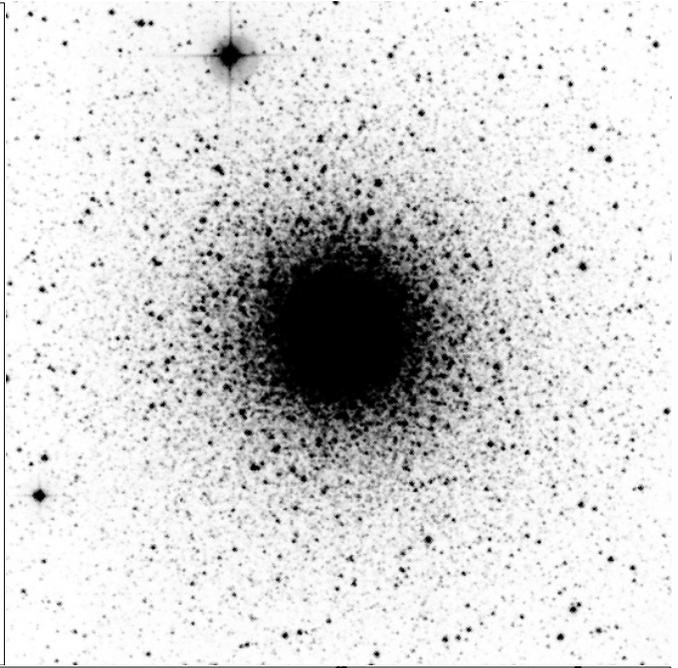
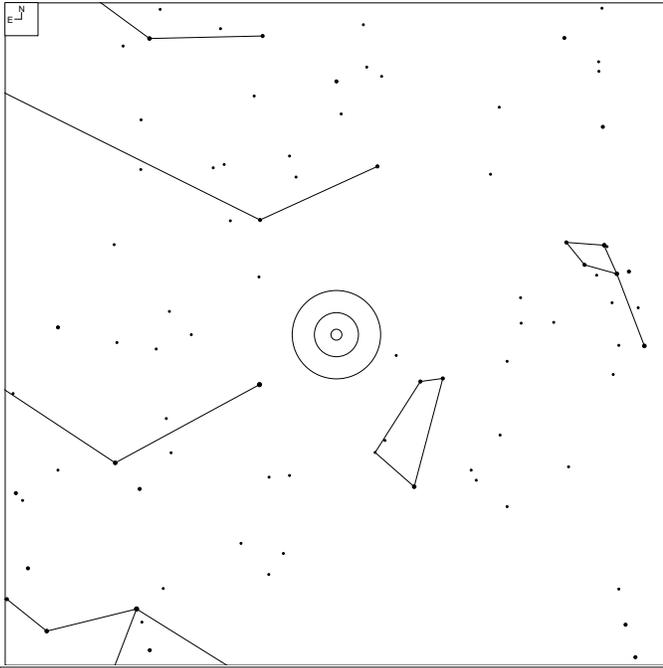
E ↙ N ↘

 ● ● ● ● ● ● ●
 6 7 8 9 10 11 12

 Galaxy Globular
 ⊖ ⊕

RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
23 08 26.7	-15 36 41	11.2	17.6	15.5	14.3	4.2'

M15 (Pegasus)

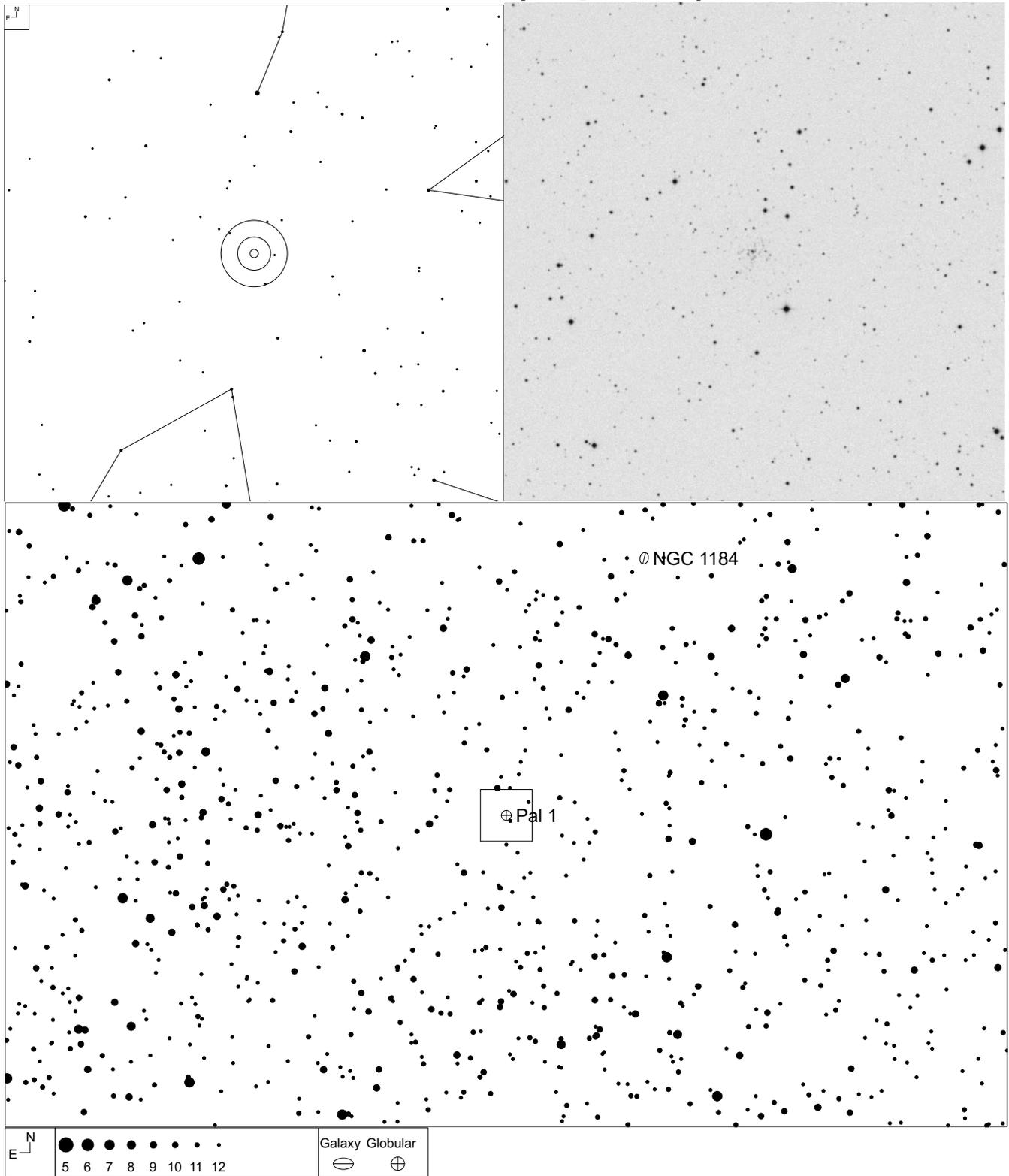


Look for Pease 1, a planetary nebula. See page 122.

RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
21 29 58.3	+12 10 01	6.3	15.9	12.6	12.6	18'

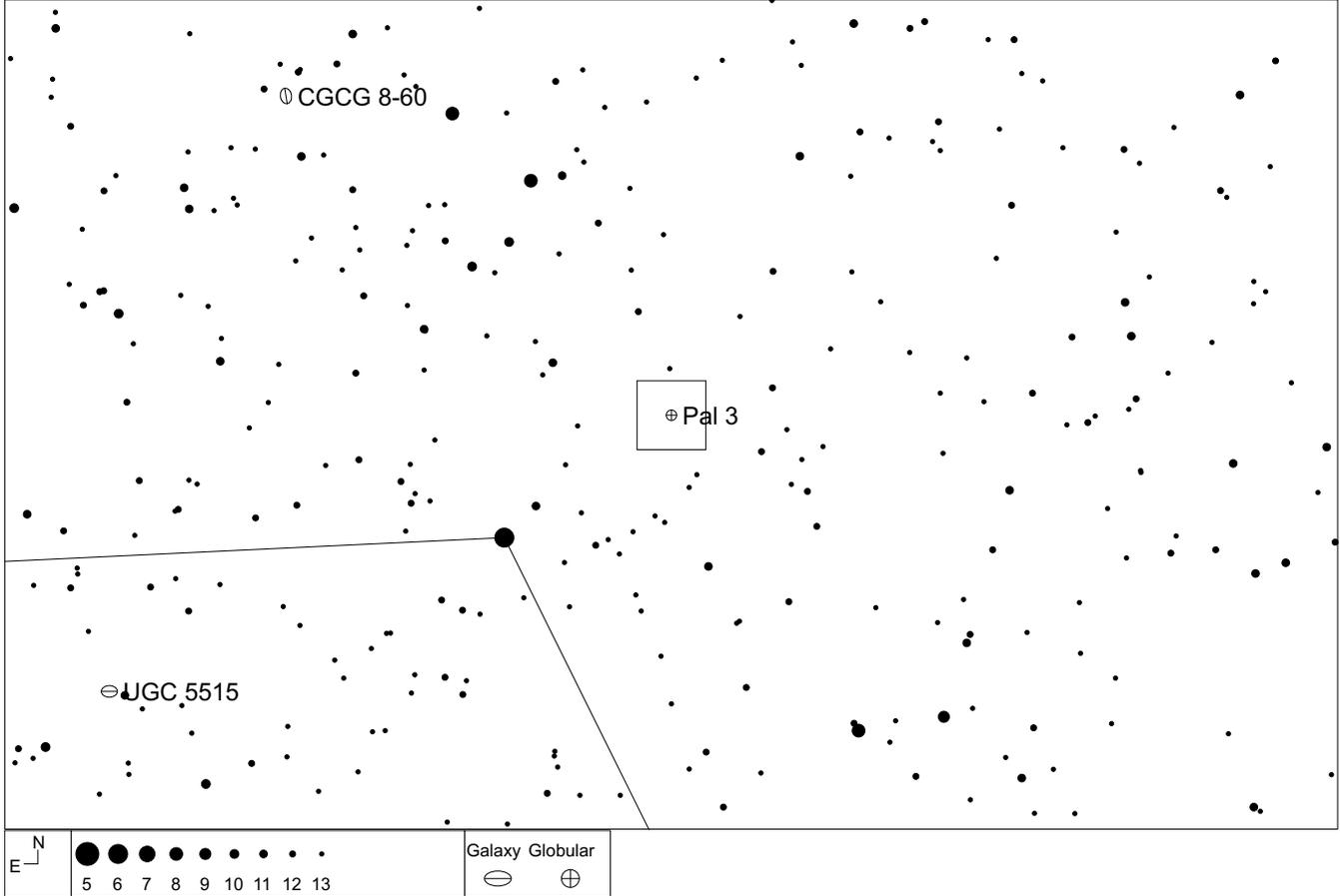
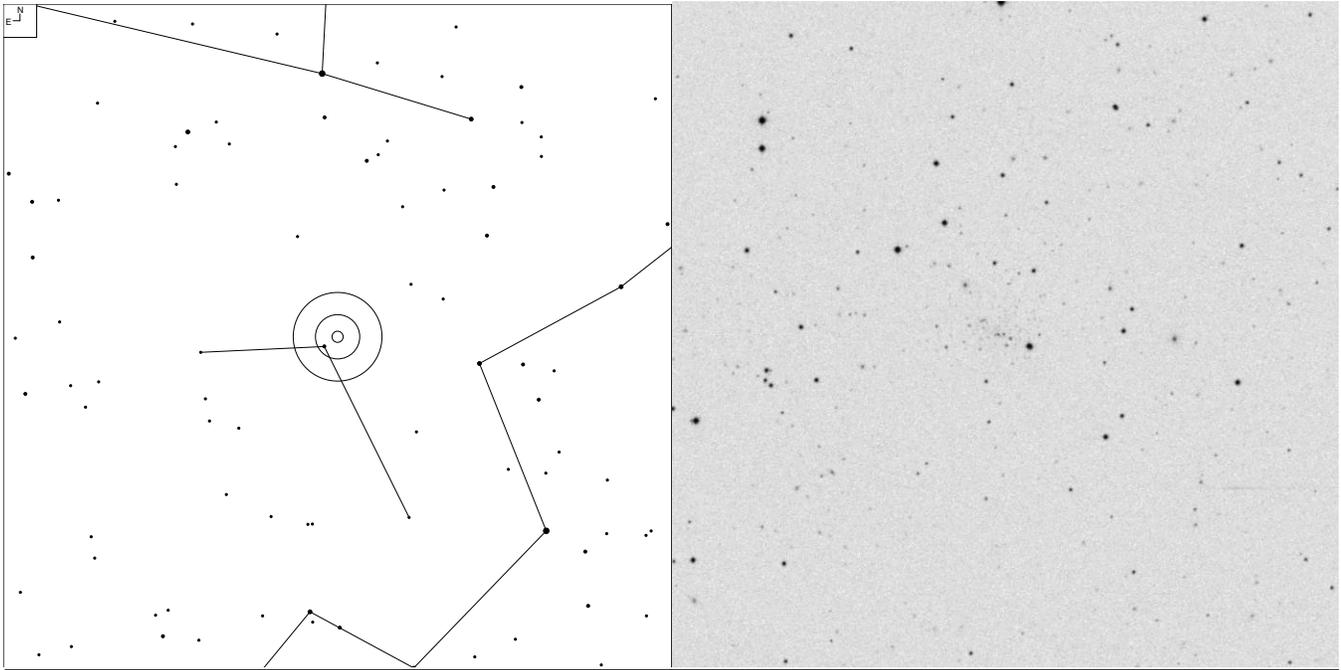
The Palomar Globular Clusters

Palomar 1 (Cepheus)



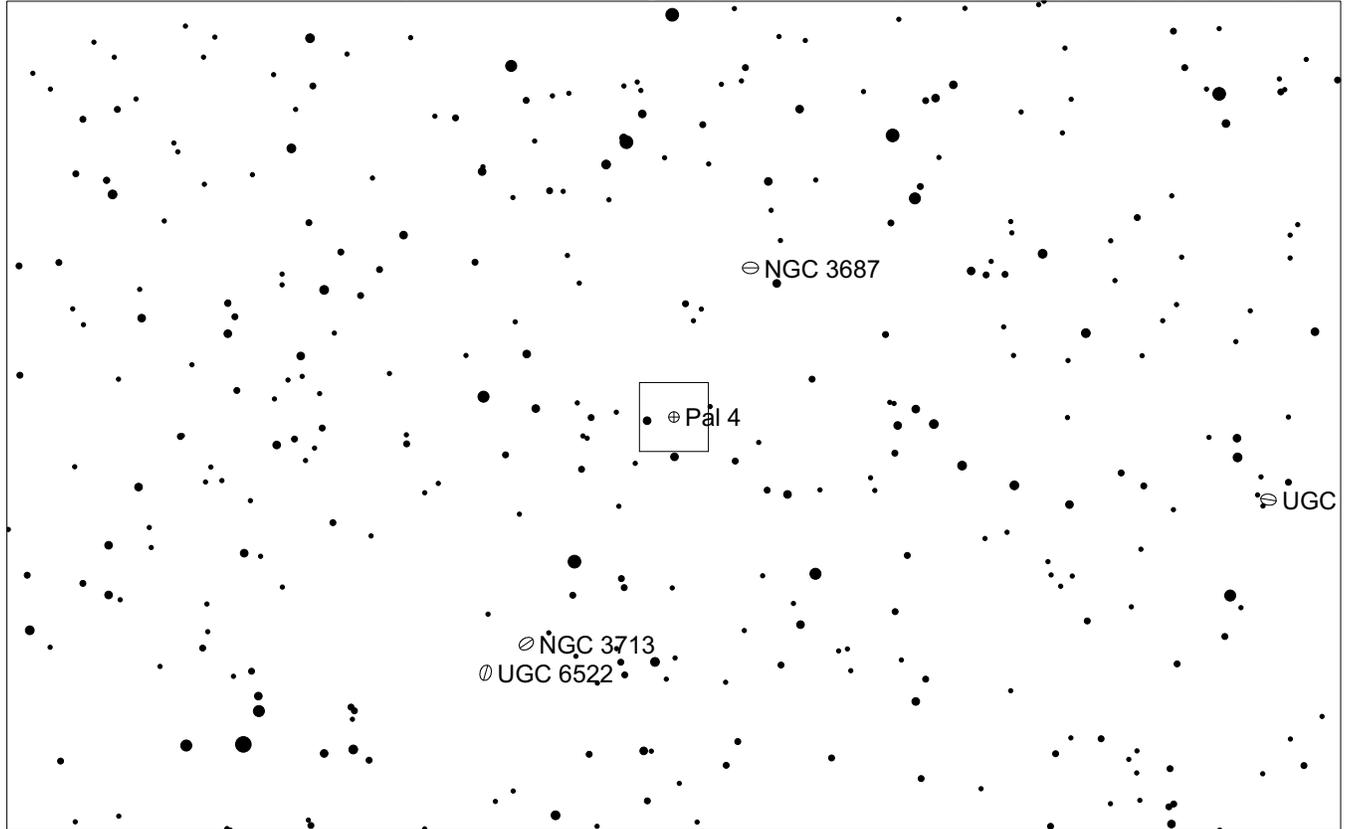
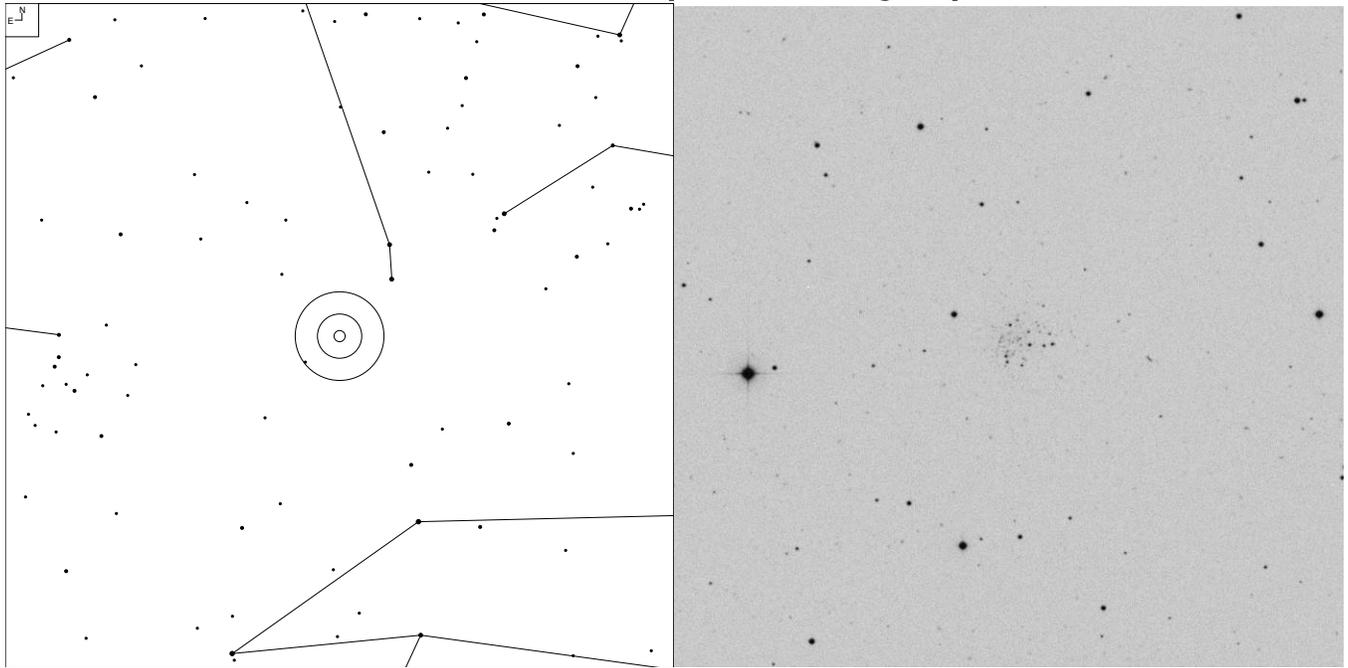
RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
03 33 20.8	+79 34 57	13.6	16.8	16.3	15.8	2.8'

Palomar 3 (Sextans)



RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
10 05 31.4	+00 04 17	13.9	20.5	18	14.9	1.6'

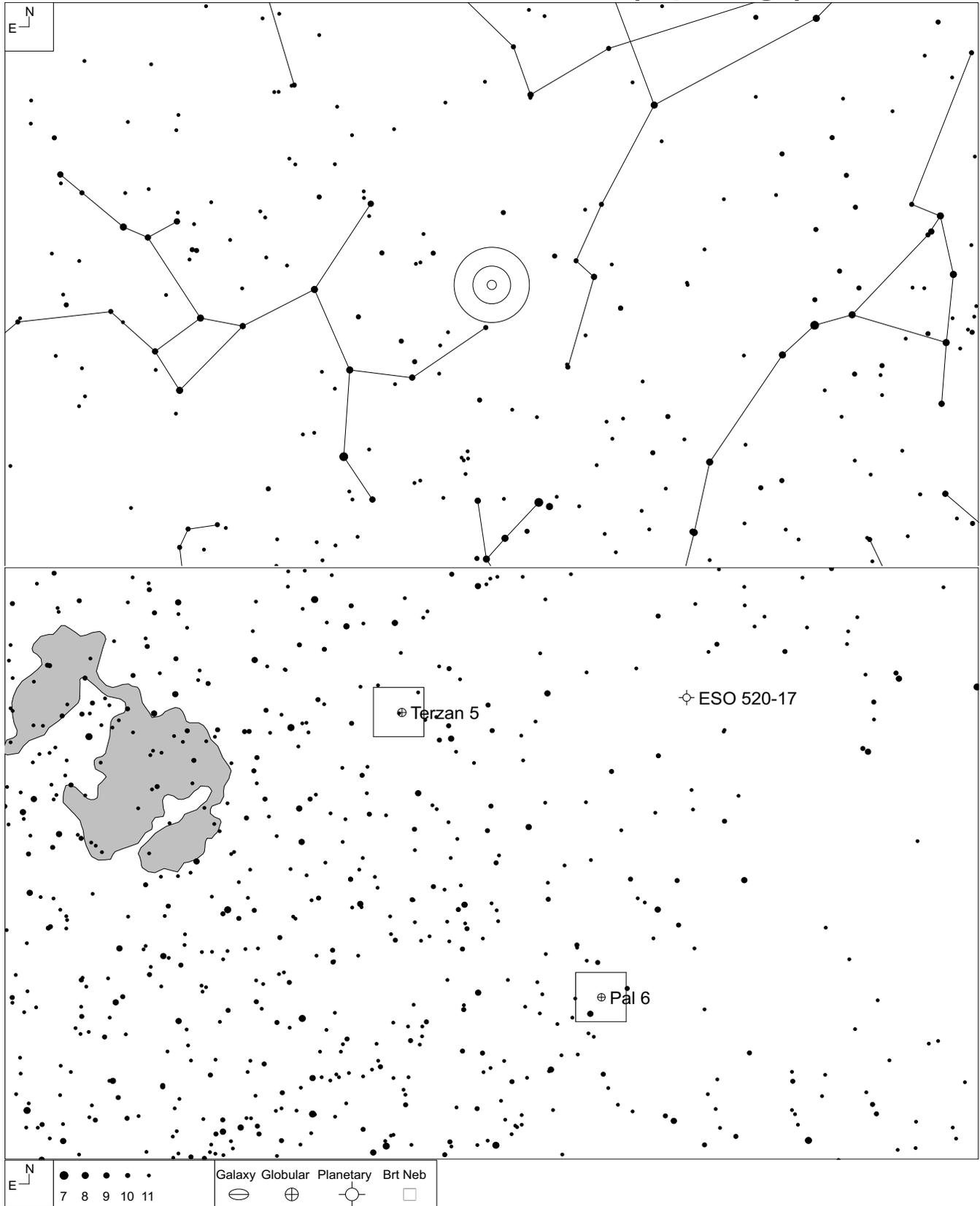
Palomar 4 (Ursa Major)



E ↙ N ↘	● ● ● ● ● ● ●	Galaxy	Globular
	6 7 8 9 10 11 12	⊖	⊕

RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
11 29 16.8	+28 58 25	14.2	20.8	18	14.8	1.3'

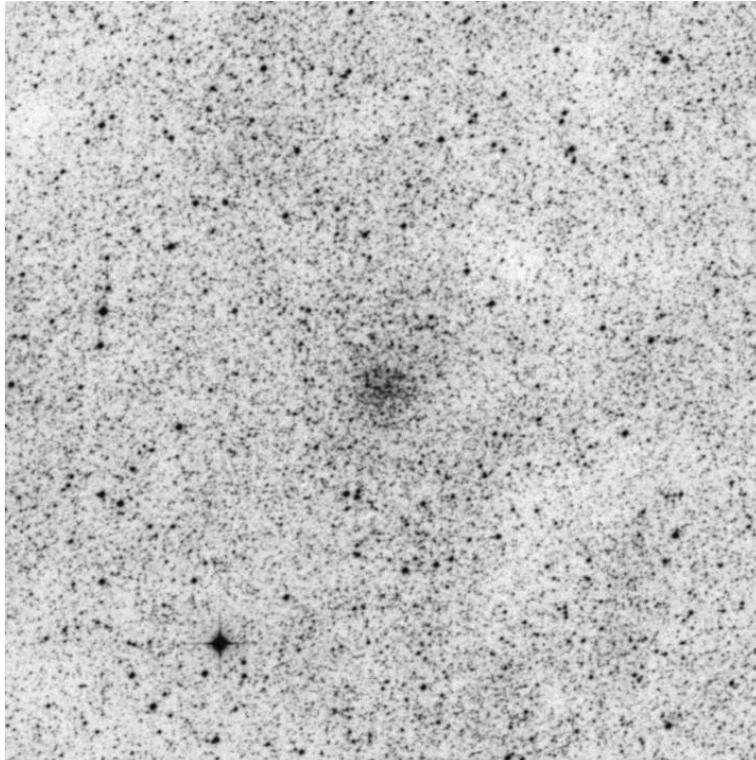
Palomar 6 and Terzan 5 (Oph/Sgr)



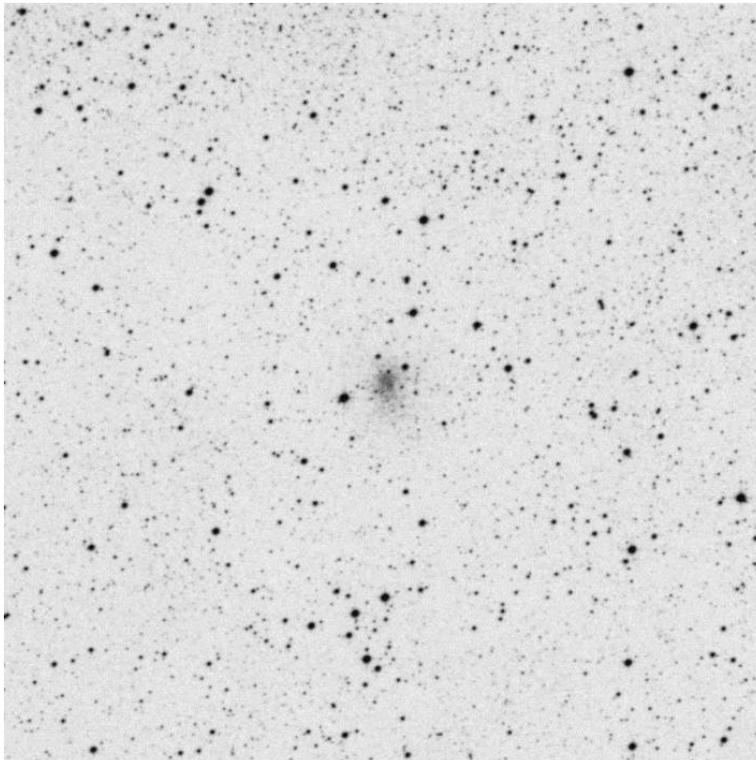
Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
Palomar 6	17 43 42.2	-26 13 21	11.6	19.1	-	12	1.2'
Terzan 5	17 48 04.9	-24 46 47	13.9	22.5	20.5	15.8	2.4'

Look for JaFu1, a planetary nebula, in Palomar 6. See page 124.

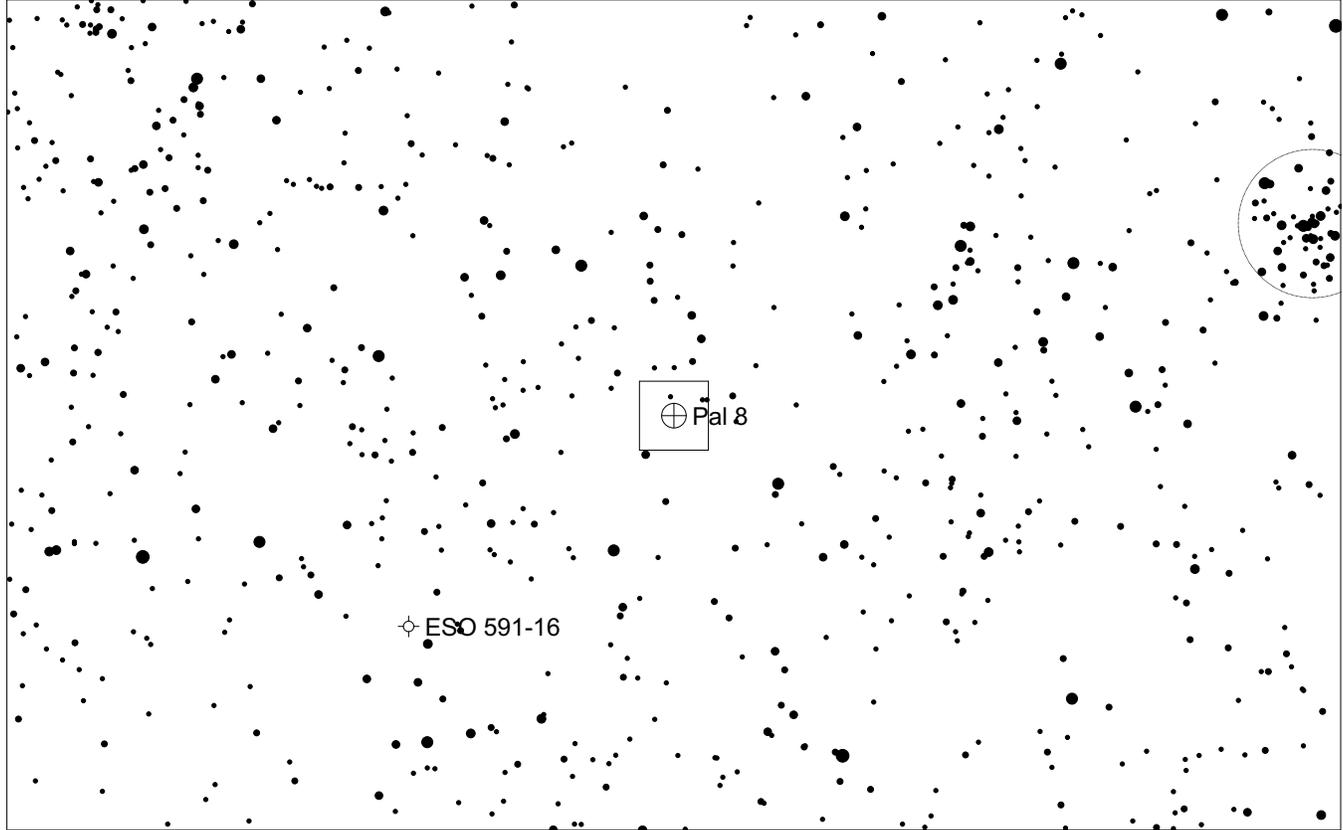
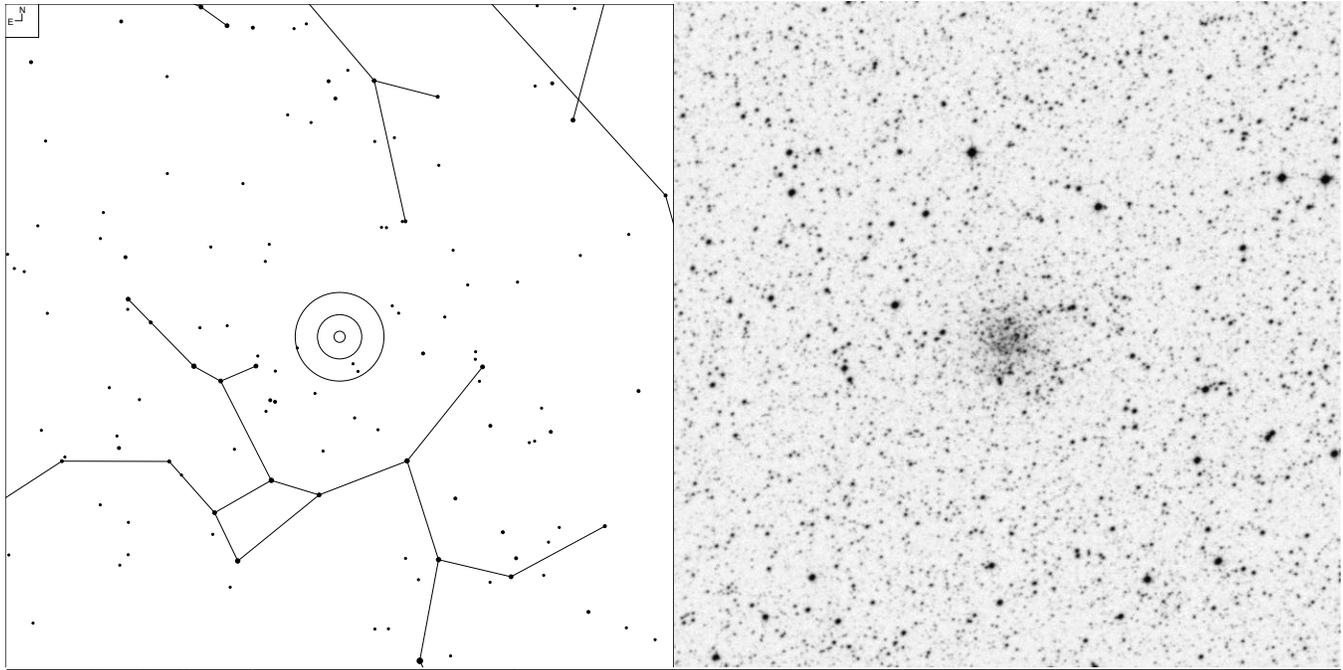
Palomar 6



Terzan 5



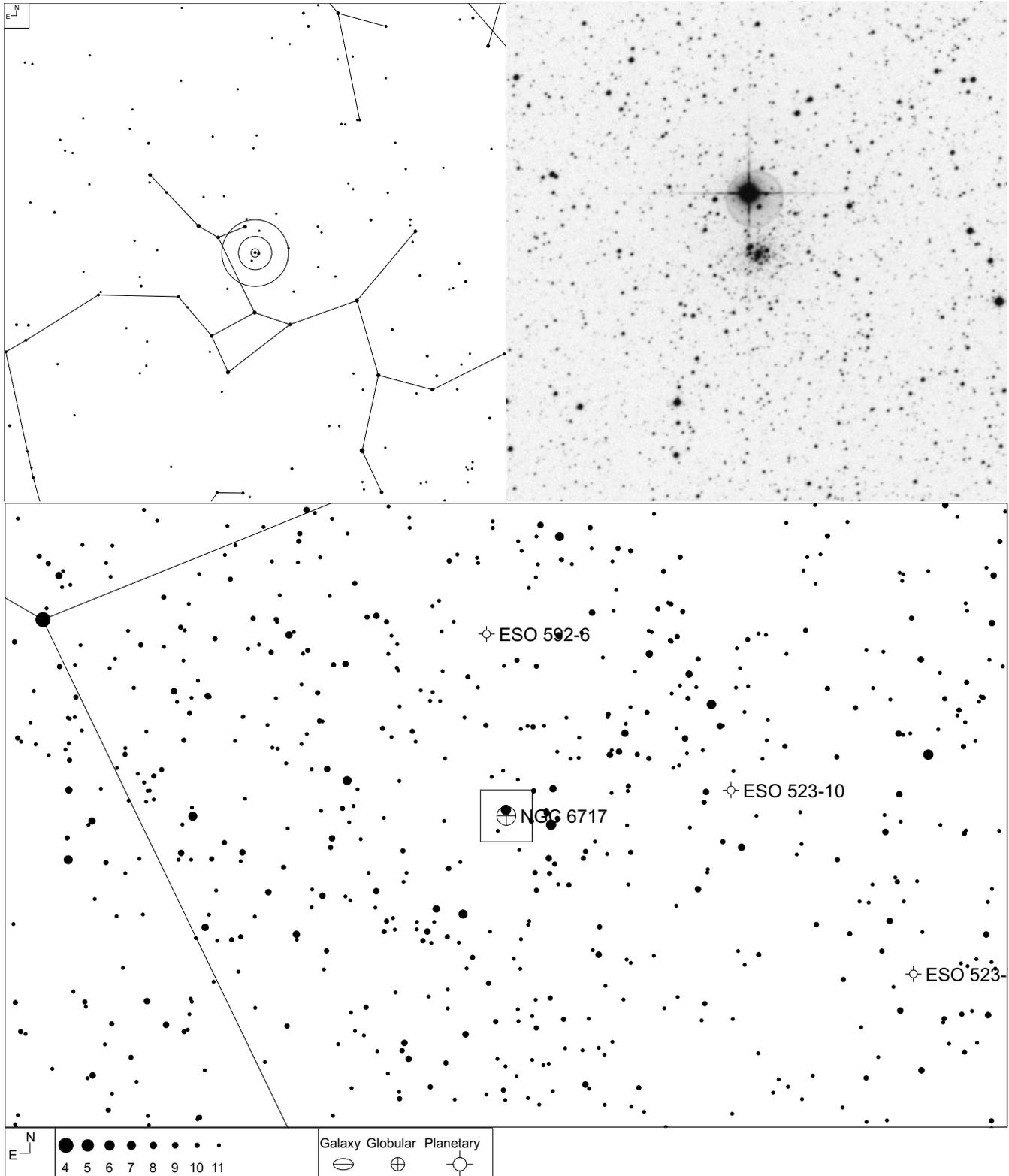
Palomar 8 (Sagittarius)



N E	● ● ● ● ● ●	Galaxy	Globular	Open Cl	Planetary
	5 6 7 8 9 10 11	☾	⊕	○	⊙

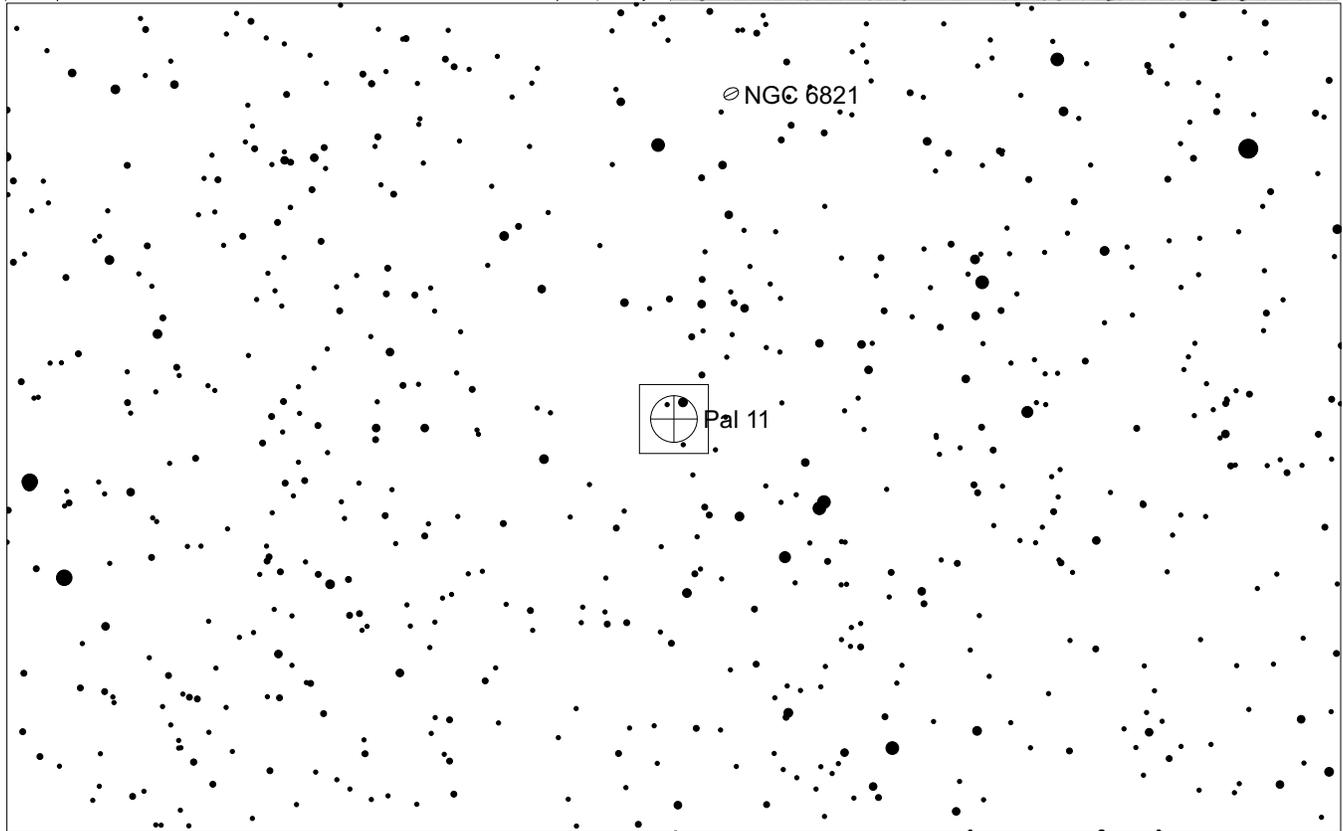
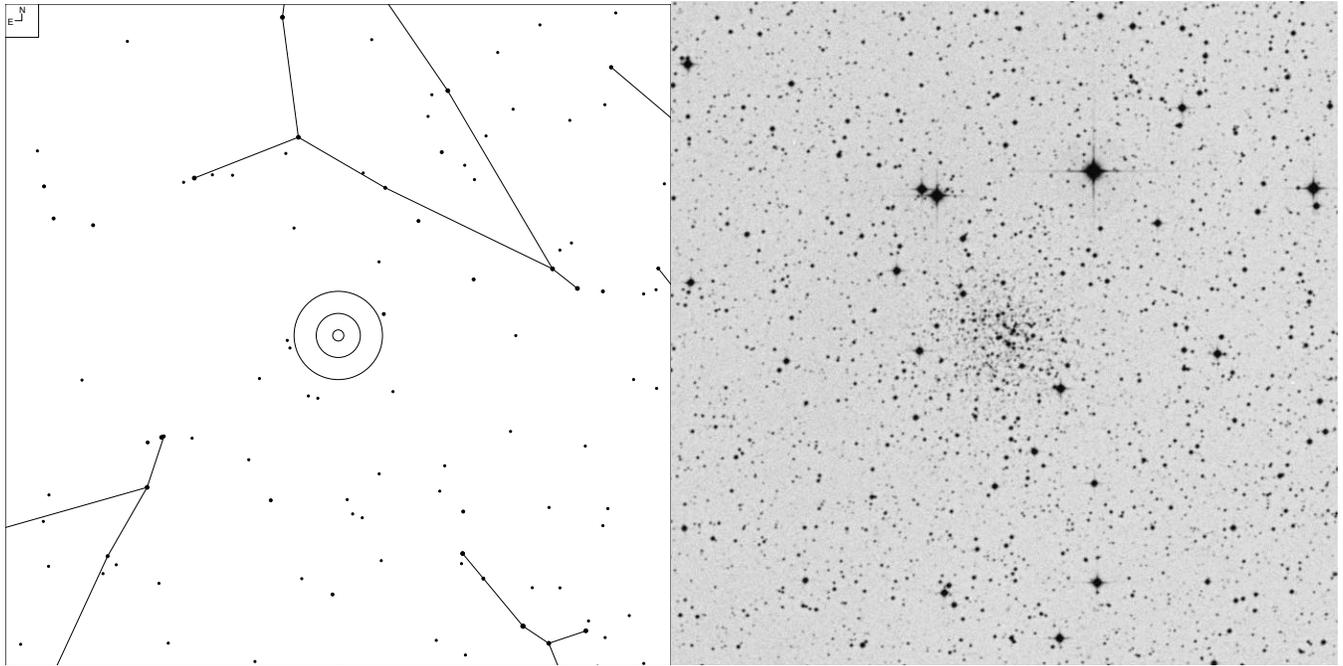
RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
18 41 29.9	-19 49 33	10.9	17.3	15.4	14.5	5.2'

Palomar 9 (NGC 6717) (Sagittarius)



RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
18 55 06.2	-22 42 03	8.4	15.6	14	12.1	5.4'

Palomar 11 (Aquila)



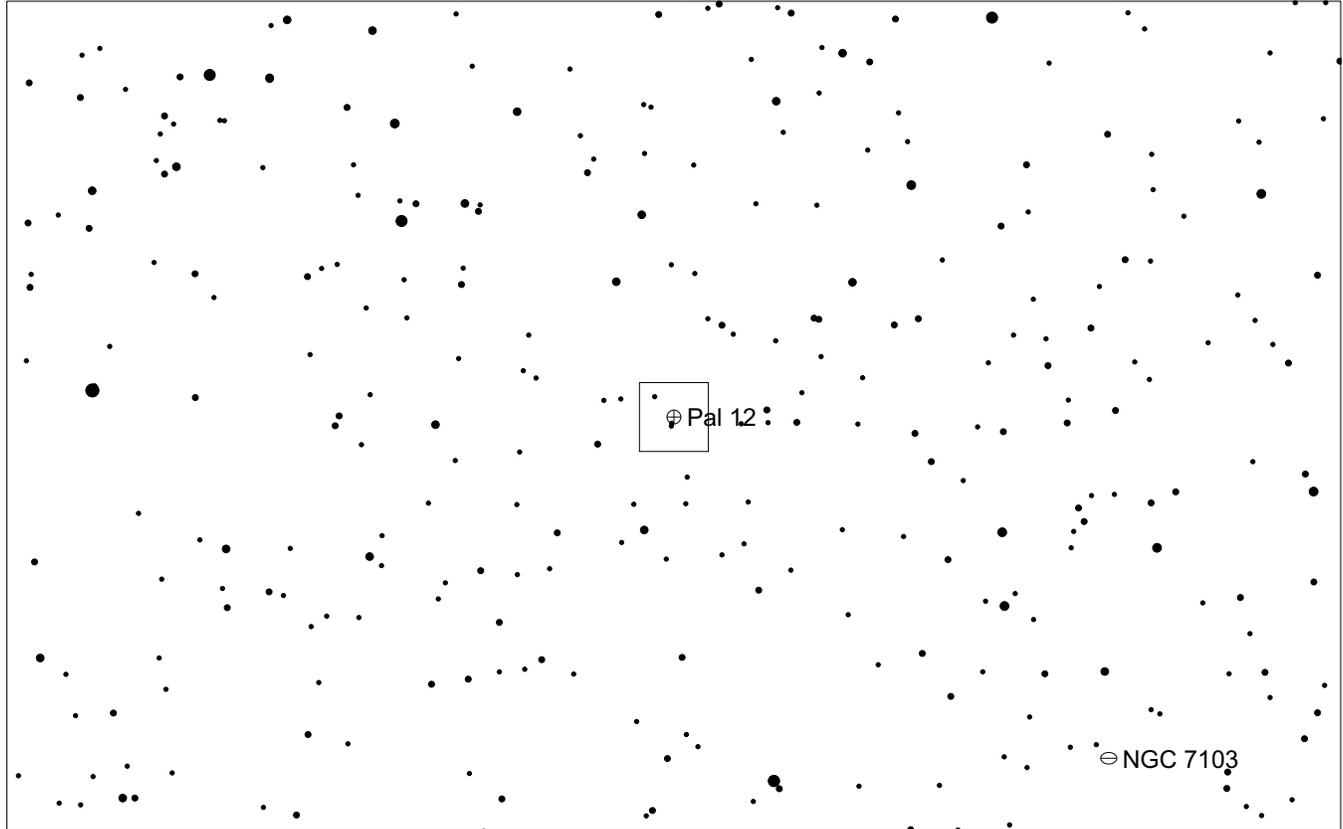
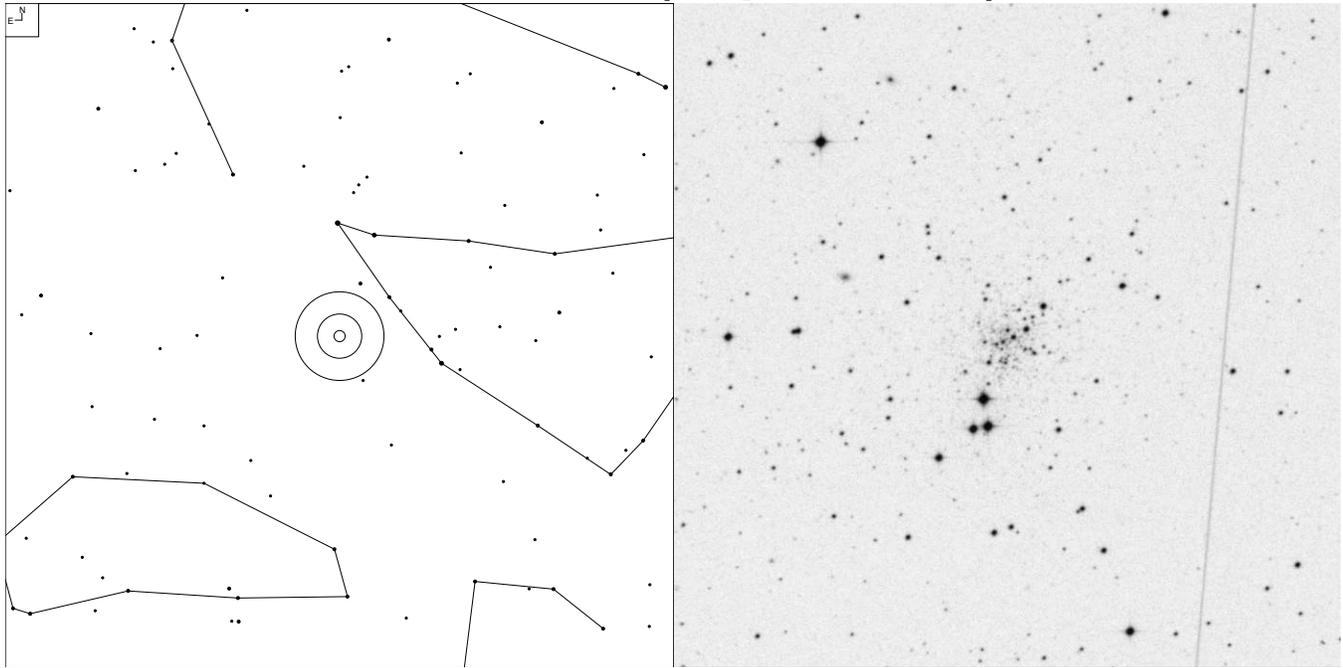
N
E

5 6 7 8 9 10 11 12

Galaxy Globular

RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
19 45 14.4	-08 00 26	9.8	17.4	15.5	14.8	10'

Palomar 12 (Capricornus)



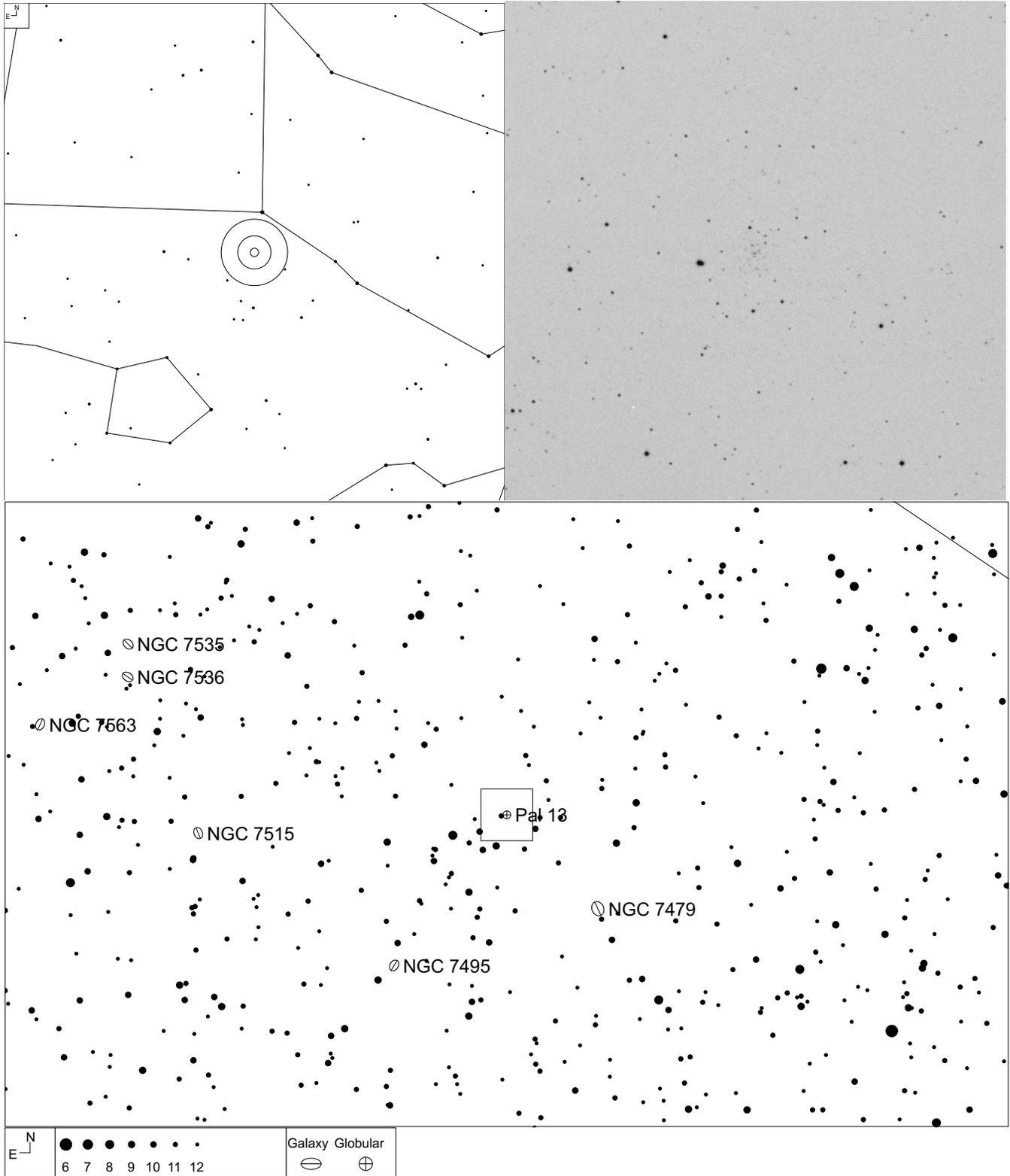
N
E

●	●	●	●	●	●
7	8	9	10	11	12

Galaxy	Globular
⊖	⊕

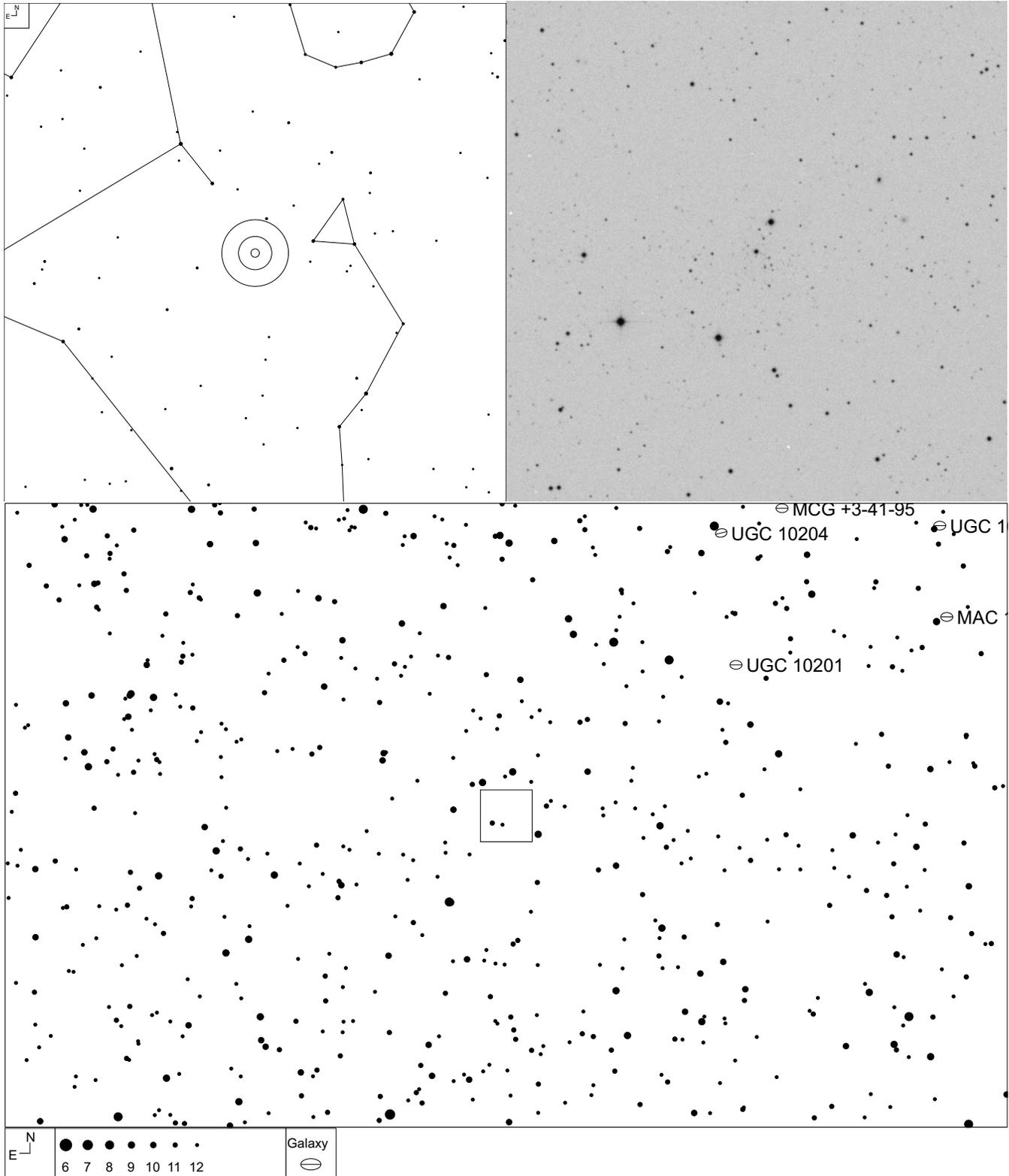
RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
21 46 38.8	-21 15 03	11.7	17.1	14.6	14	2.9'

Palomar 13 (Pegasus)



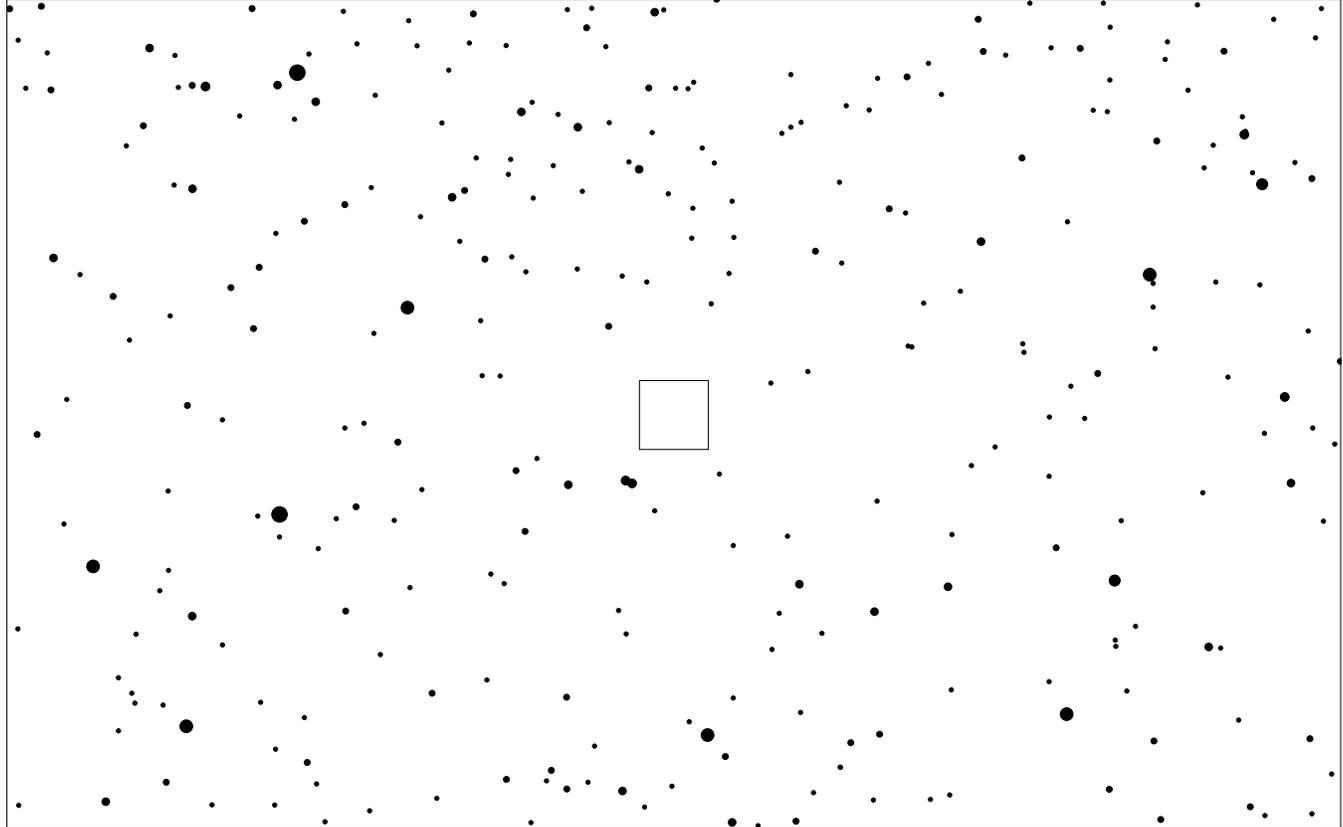
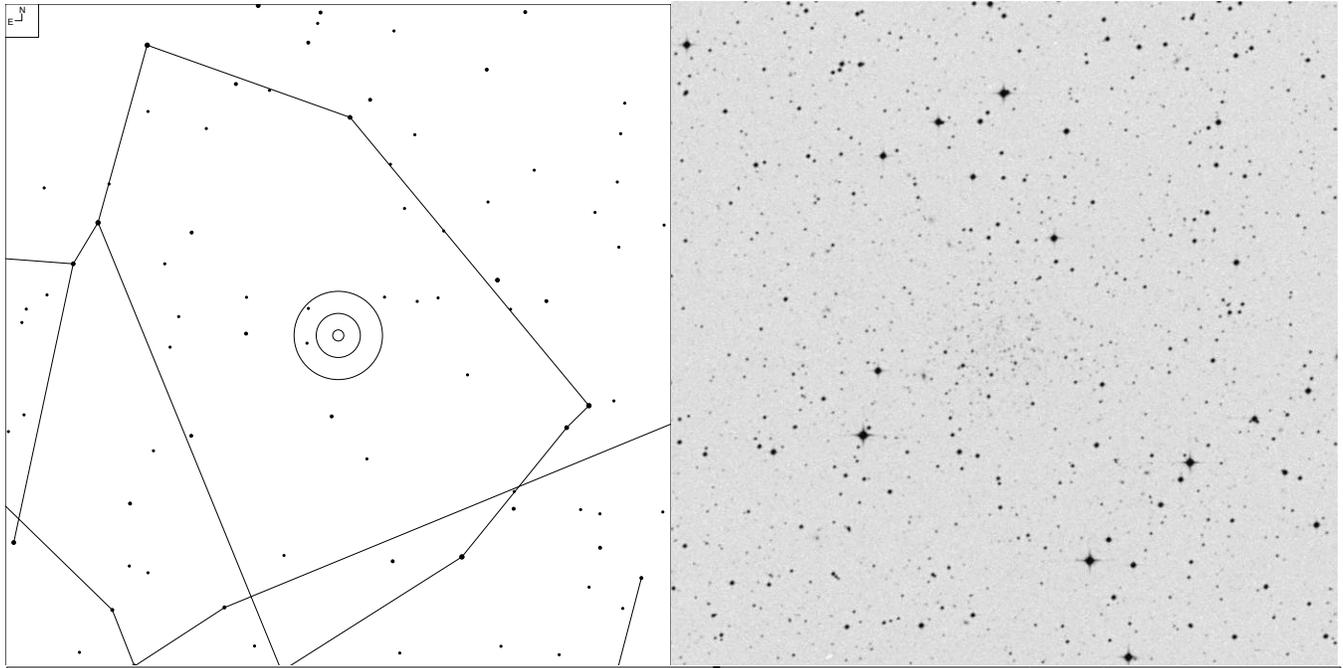
RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
23 06 44.4	+12 46 19	13.8	17.7	17	13	0.7'

Palomar 14 (Hercules)



RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
16 11 00.3	+14 57 49	14.7	20	17.6	16.7	2.5'

Palomar 15 (Ophiuchus)



N
E

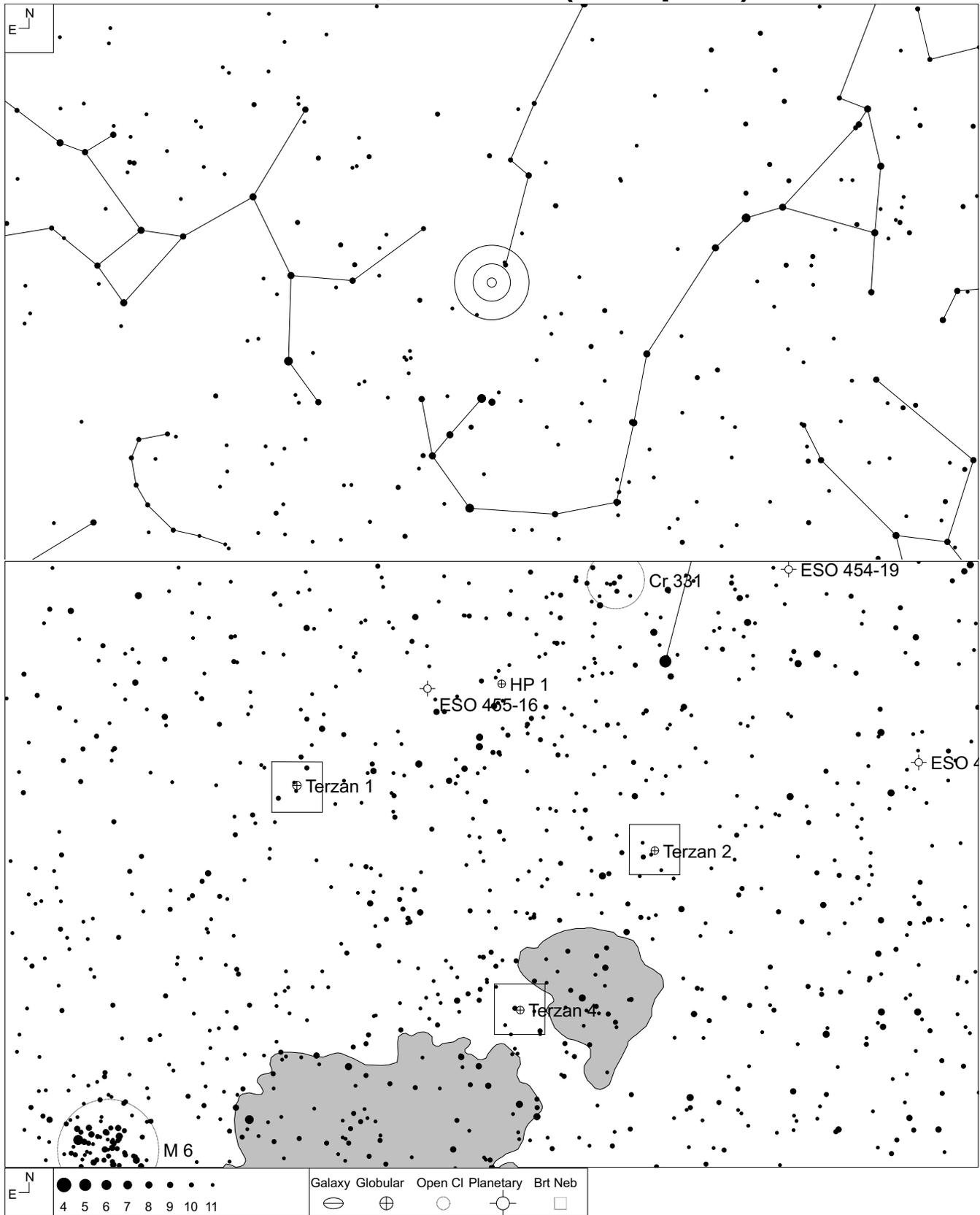
● ● ● ● ● ● ●
 6 7 8 9 10 11 12

Galaxy

RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
16 59 50.7	-00 31 59	14.2	19.9	17.1	-	3.0'

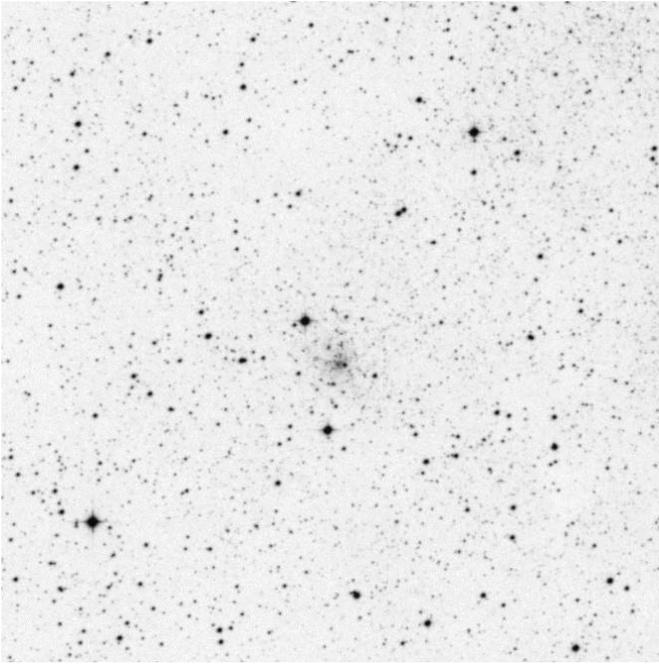
Terzan Globular Clusters

Terzan 1, 2 and 4 (Scorpius)

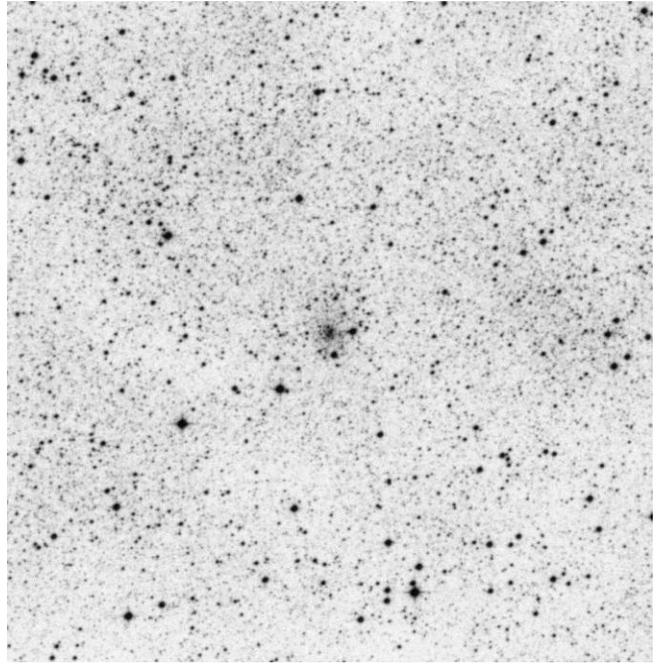


Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
Terzan 1	17 35 47.0	-30 28 46	15.9	21.4	18.5	-	2.4'
Terzan 2	17 27 33.4	-30 48 08	14.3	19.8	-	13.2	0.6'
Terzan 4	17 30 38.9	-31 35 44	16	21.6	-	-	0.7'

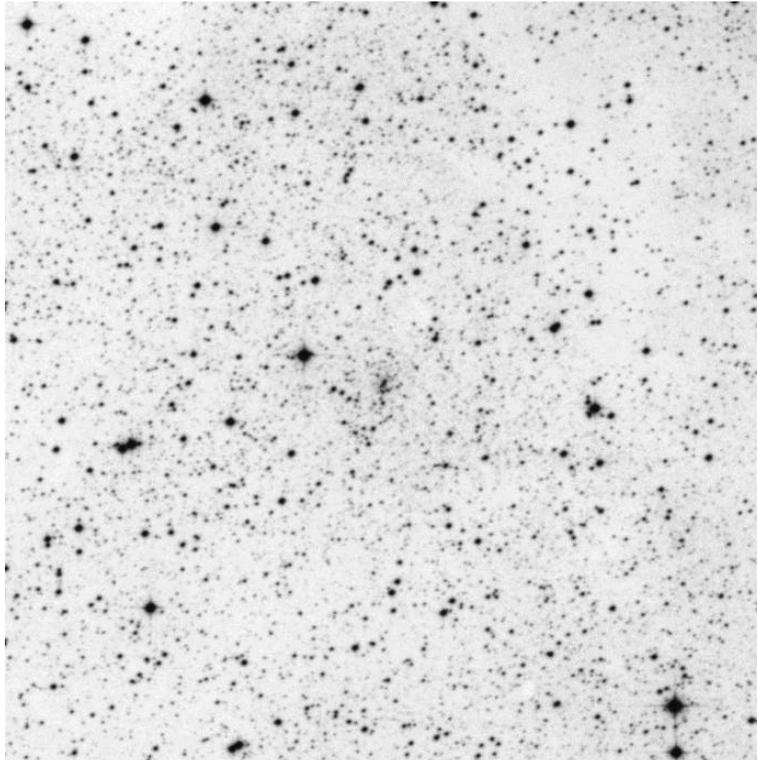
Terzan 1



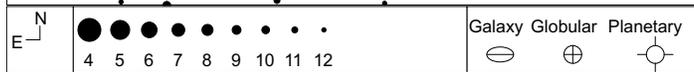
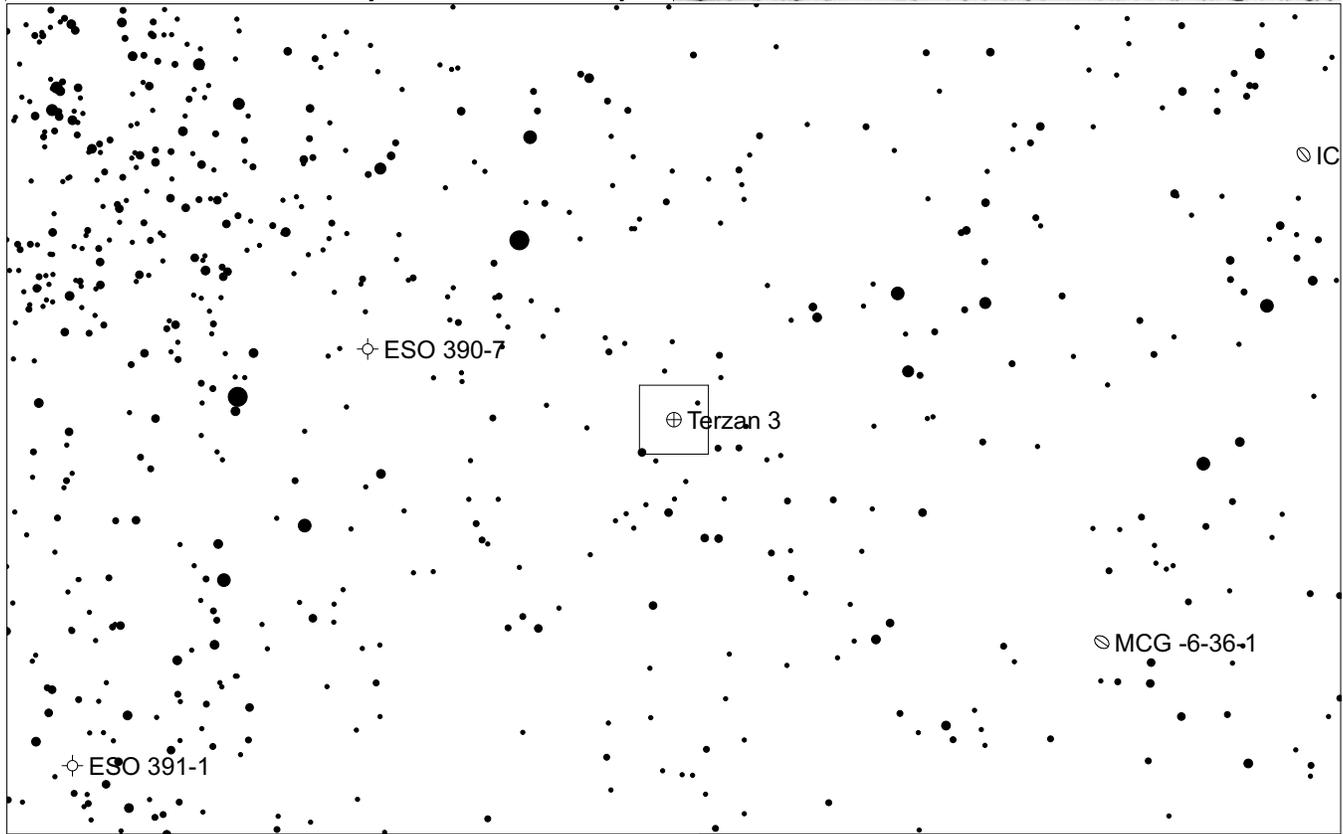
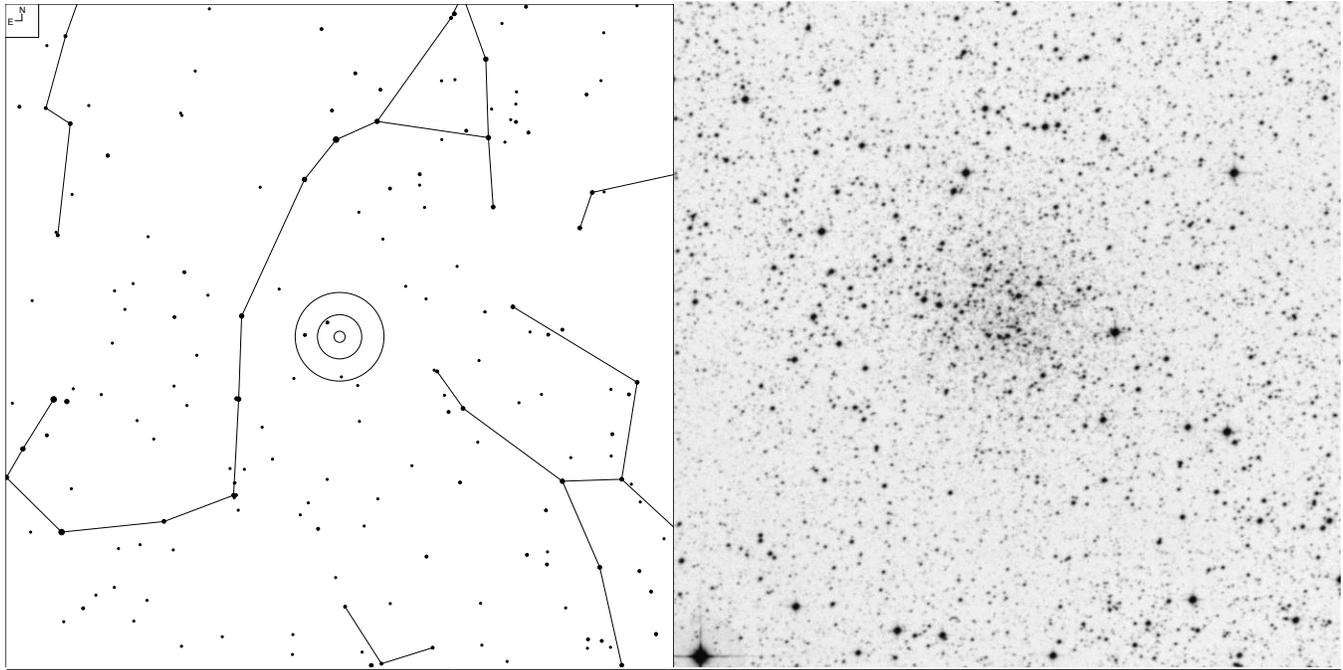
Terzan 2



Terzan 4

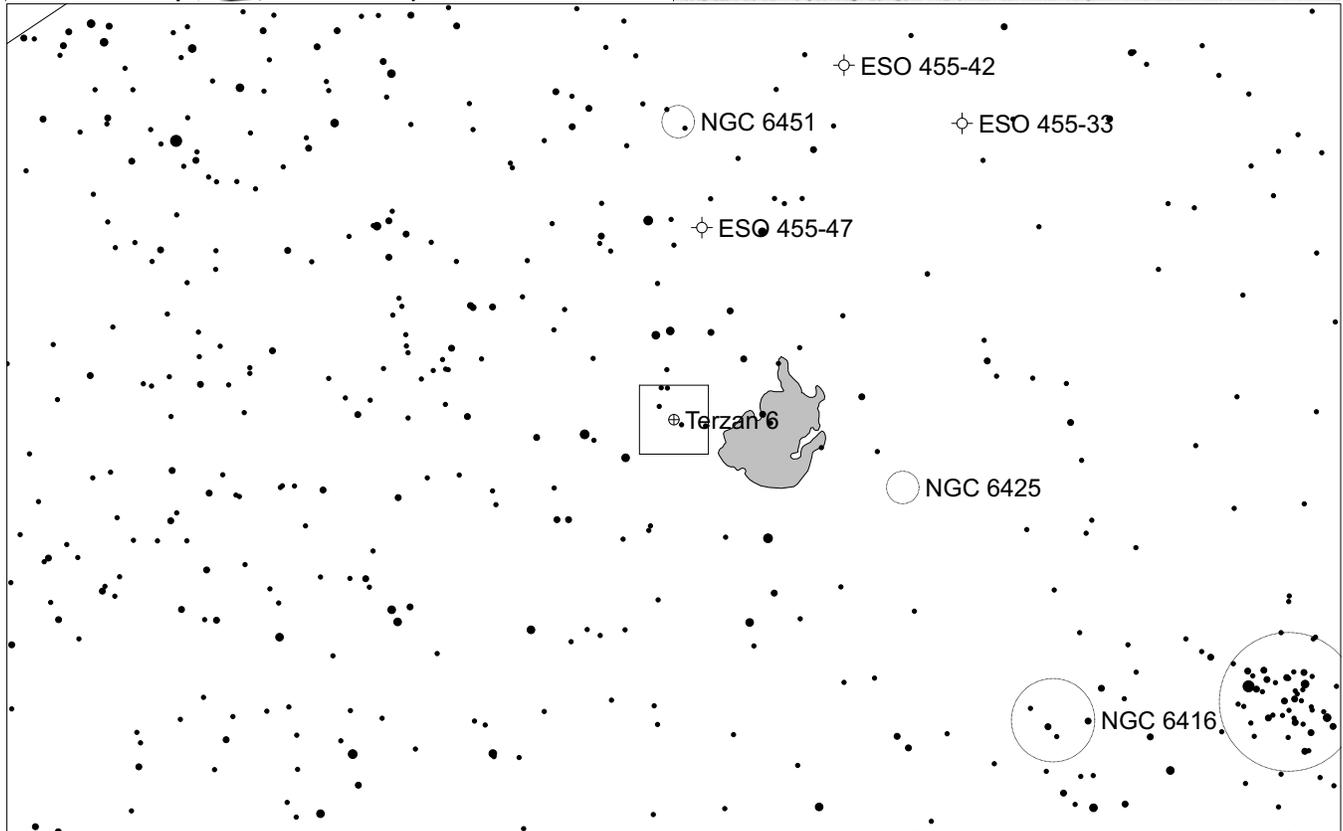
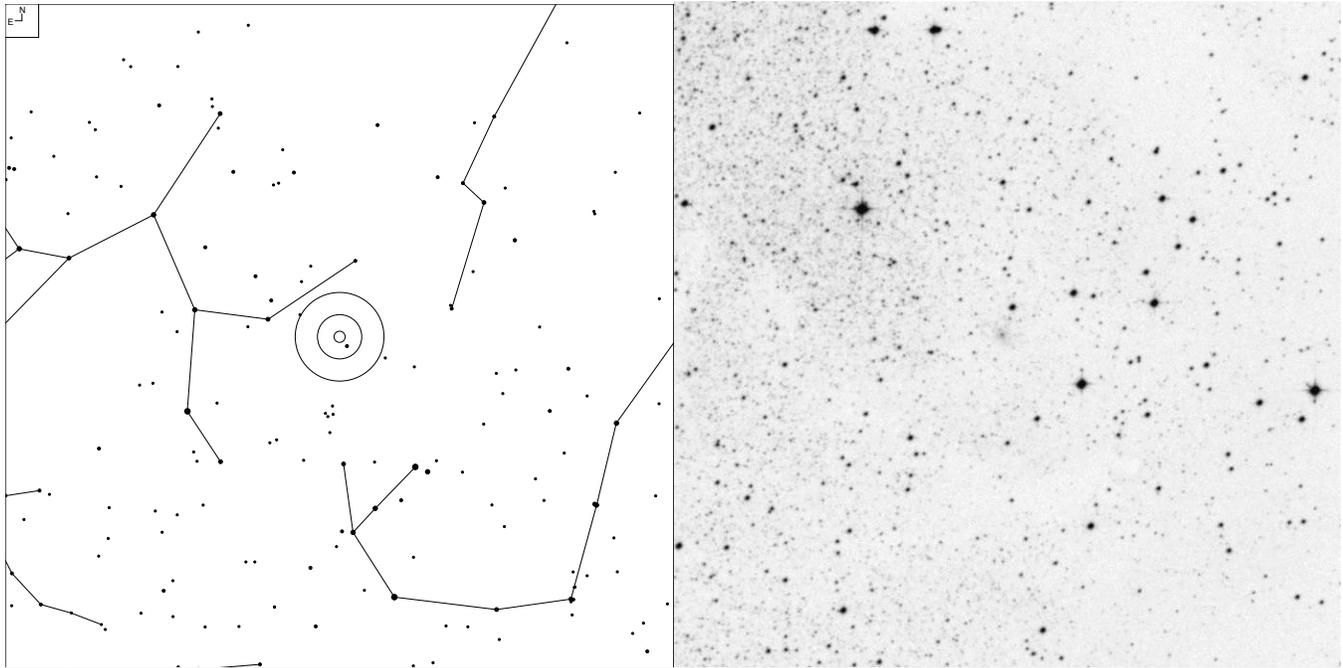


Terzan 3 (Scorpius)



RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
16 28 40.1	-35 21 13	12	17.3	15	-	3.0'

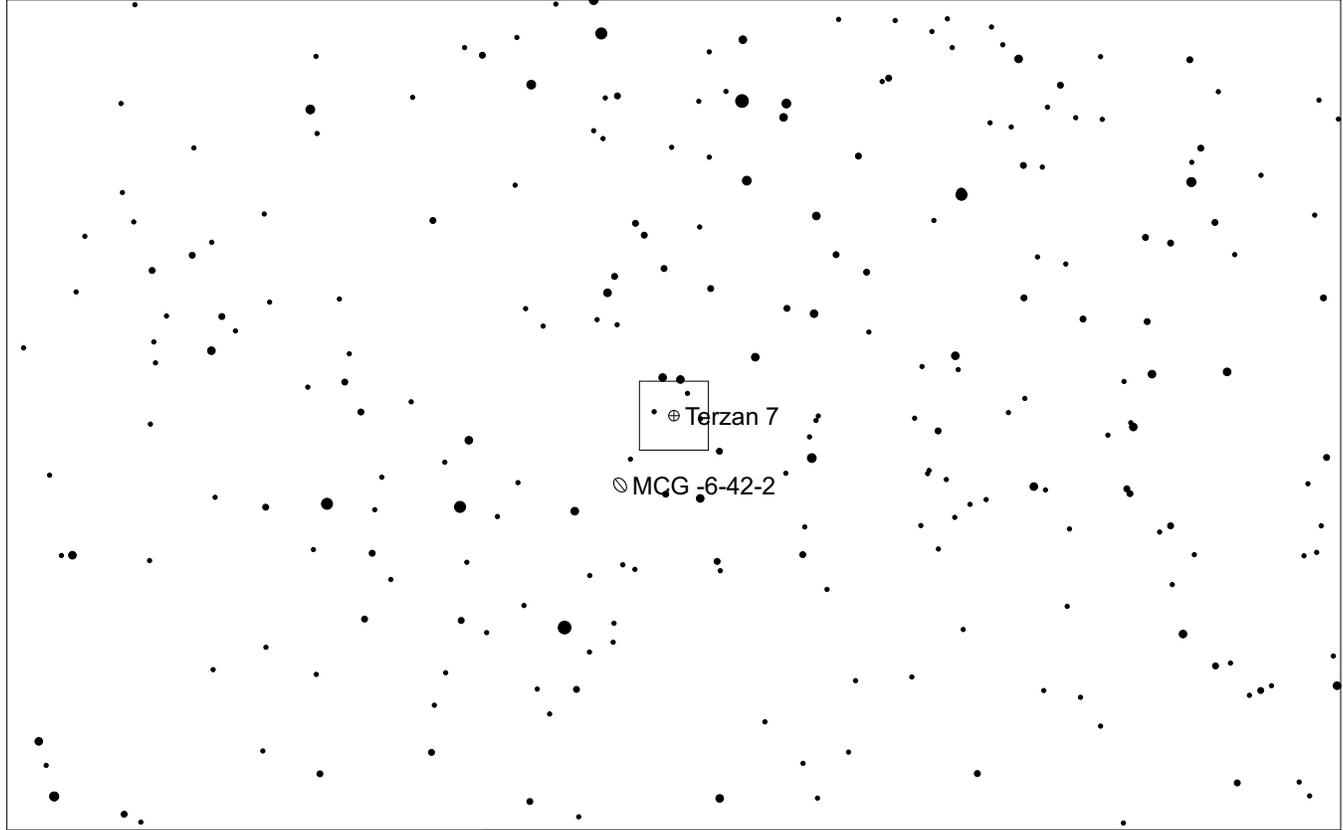
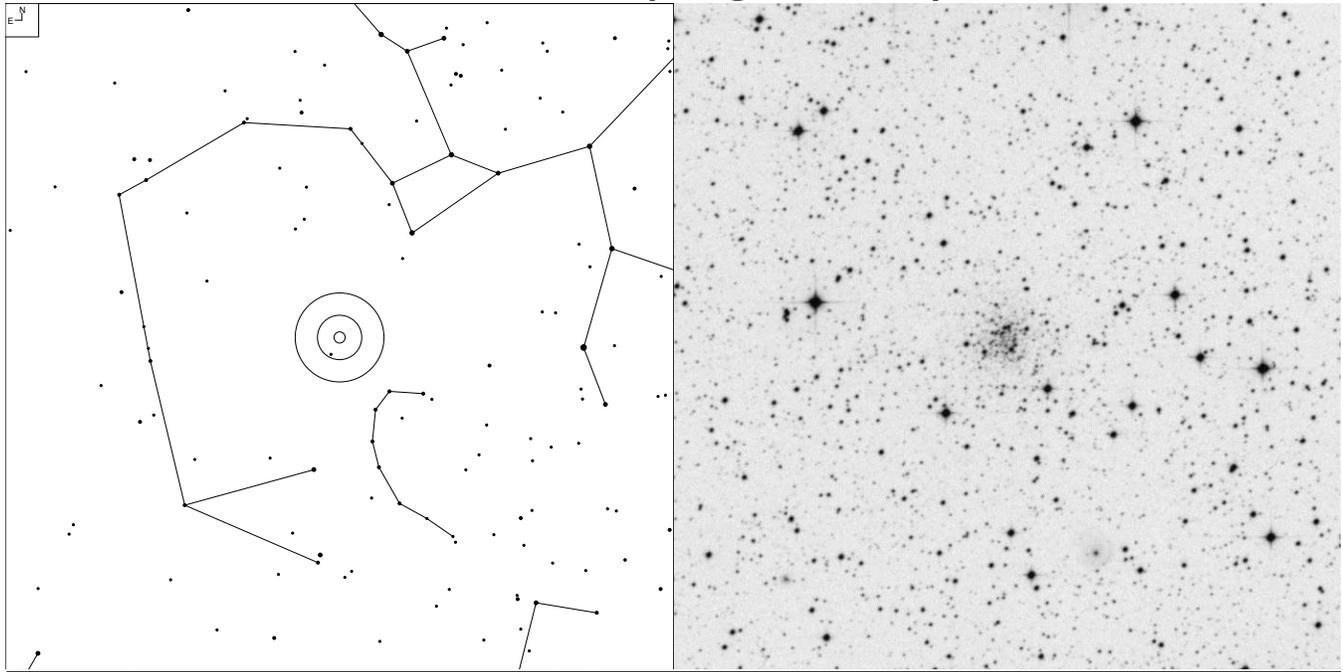
Terzan 6 (Sagittarius)



N E	● ● ● ● ● ●	Galaxy	Globular	Open Cl	Planetary	Brt Neb
	5 6 7 8 9 10	☾	⊕	○	⊙	□

RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
17 50 46.4	-31 16 31	13.9	22.3	20.5	14.6	1.4'

Terzan 7 (Sagittarius)

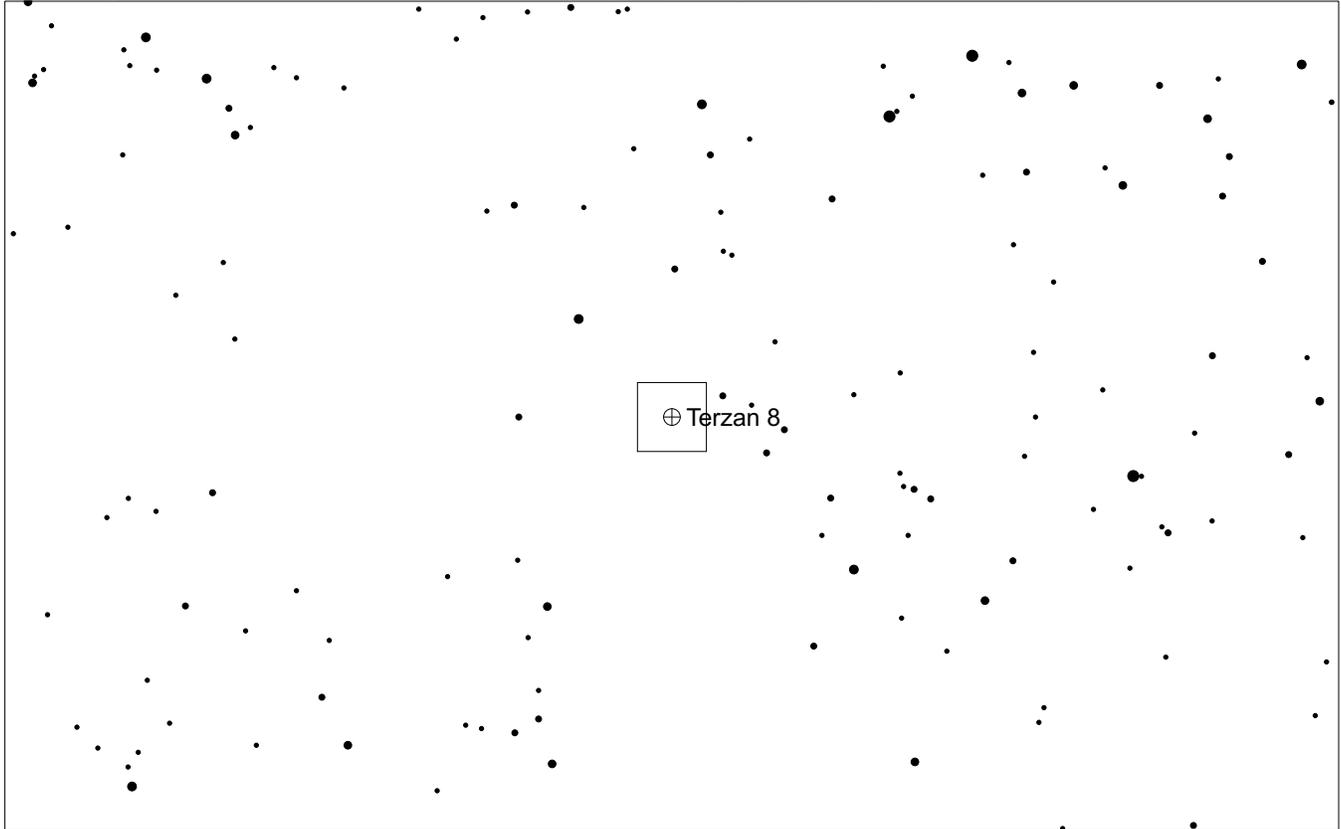
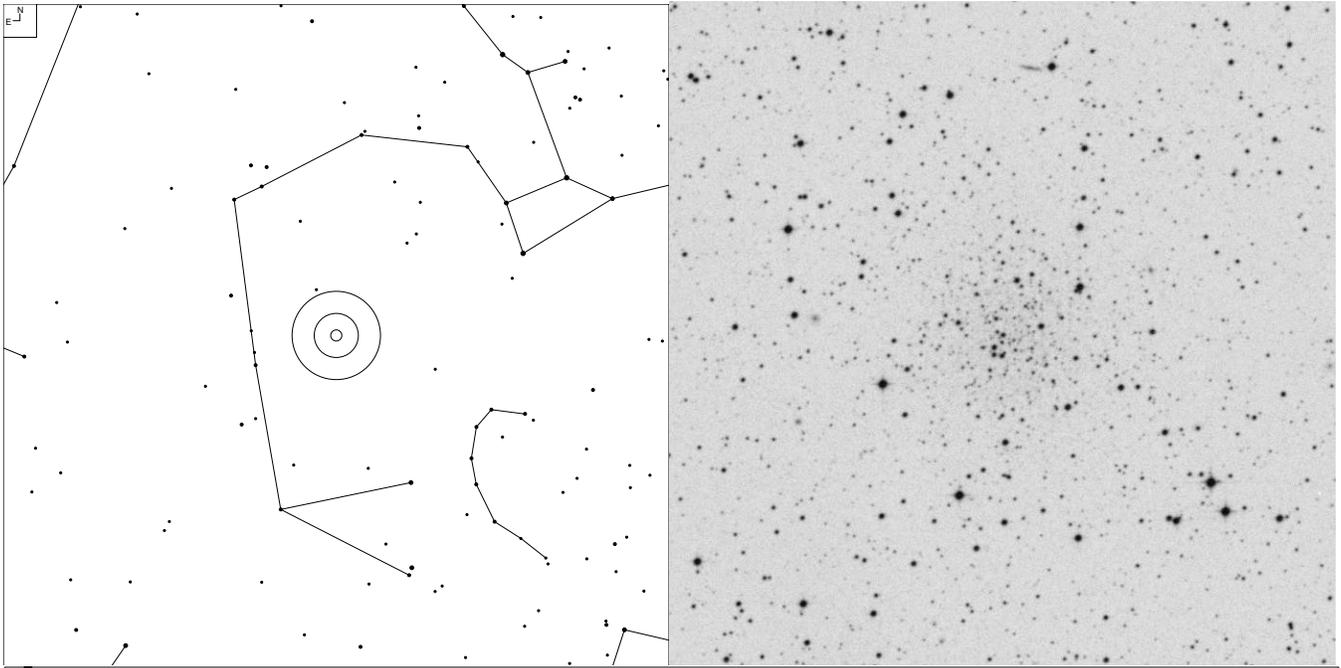


N
E

● ● ● ● ● ●	Galaxy	Globular
6 7 8 9 10 11	☉	⊕

RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
19 17 43.7	-34 39 27	12	17.9	15	-	1.2

Terzan 8 (Sagittarius)

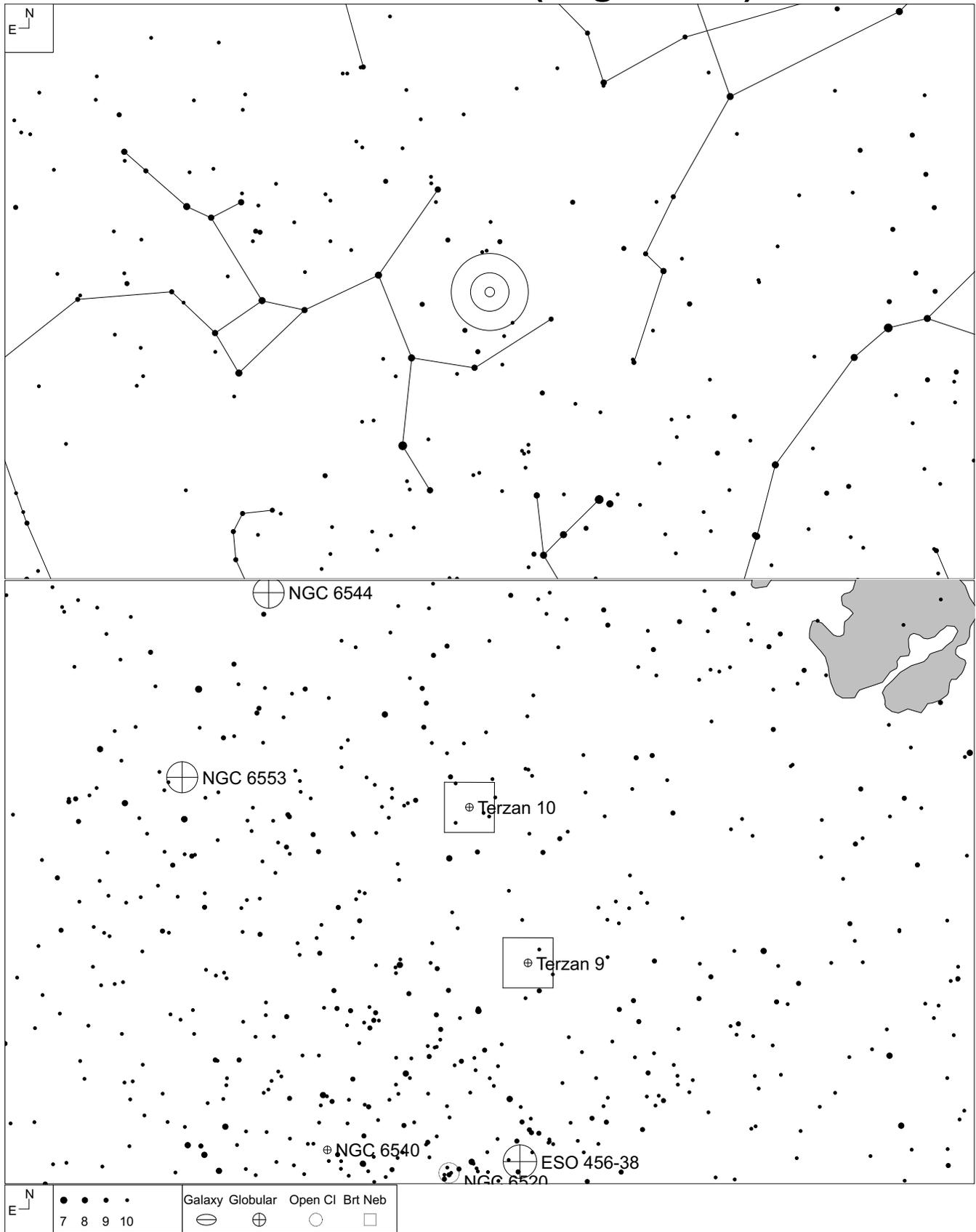


Galaxy
Globular

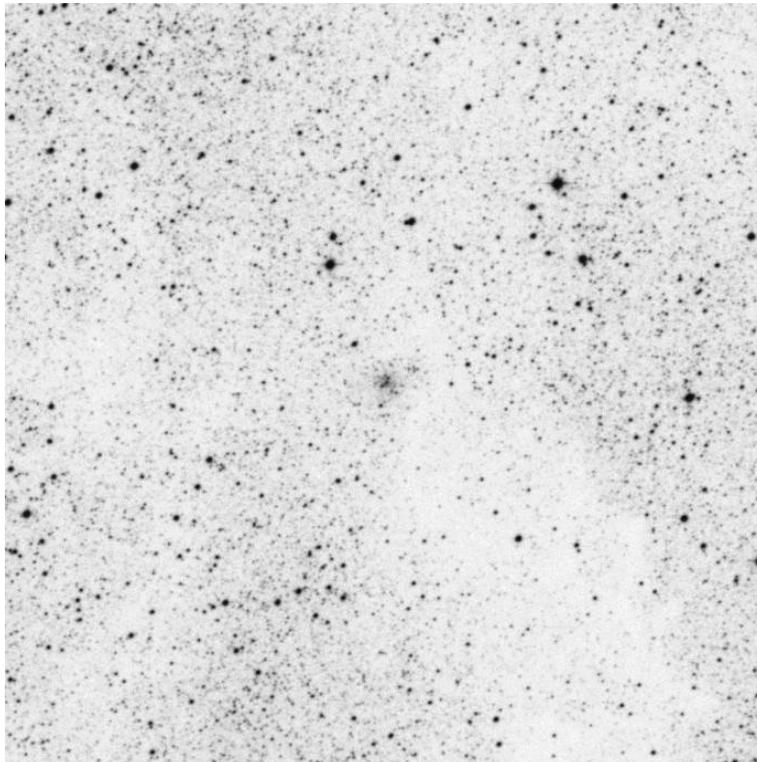
⊖
⊕

RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
19 41 45.0	-34 00 01	12.4	18	15	-	3.5

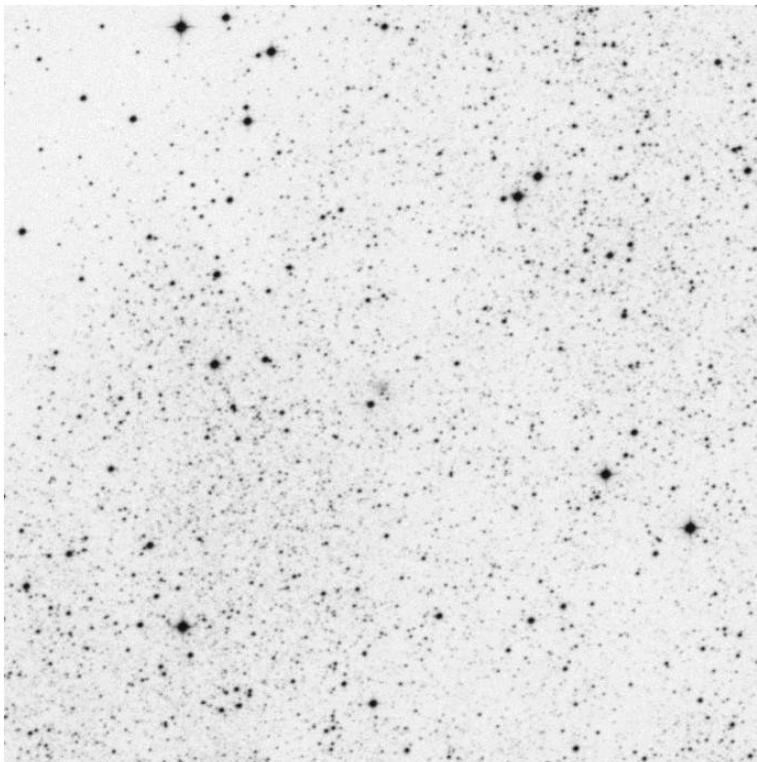
Terzan 9 and 10 (Sagittarius)



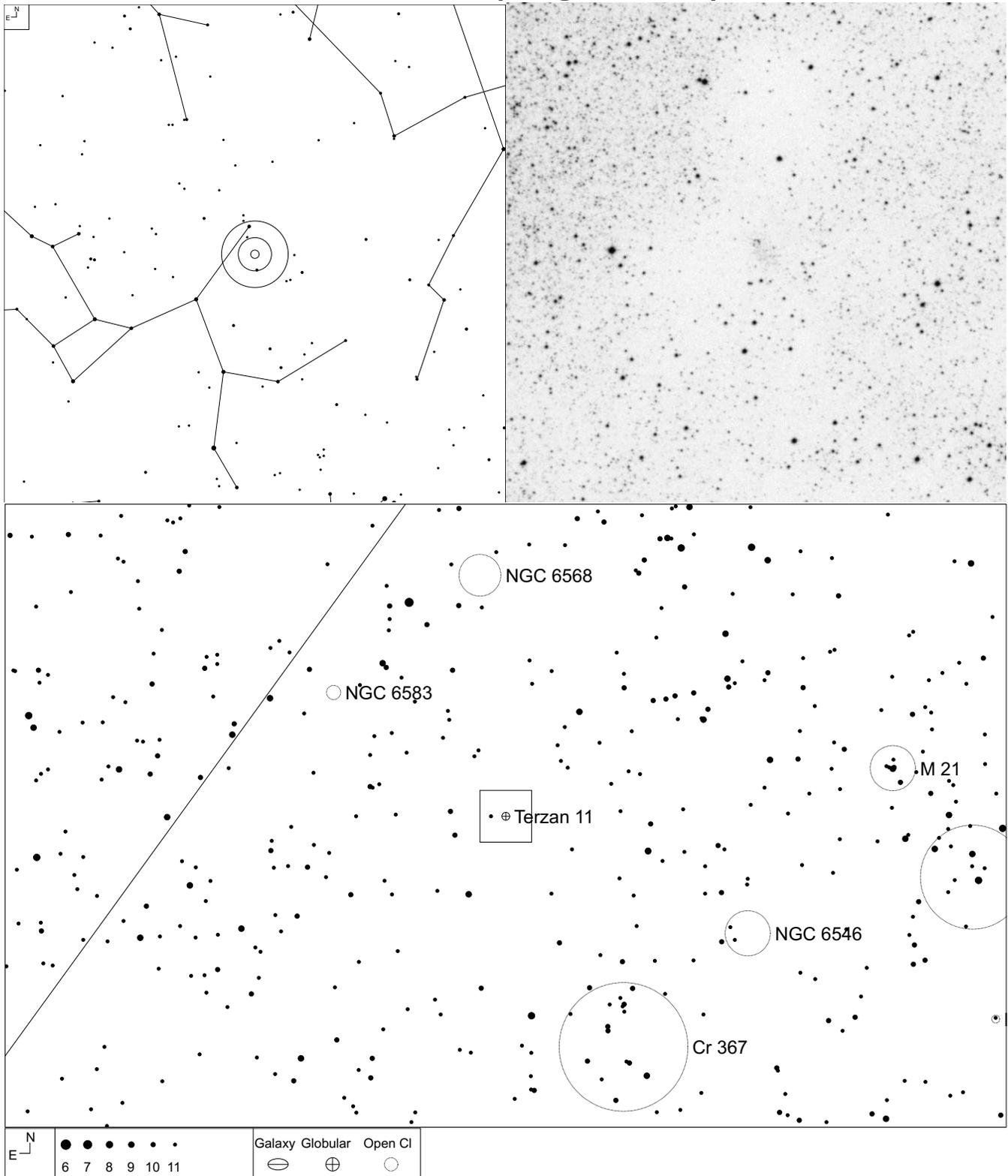
Terzan 9



Terzan 10



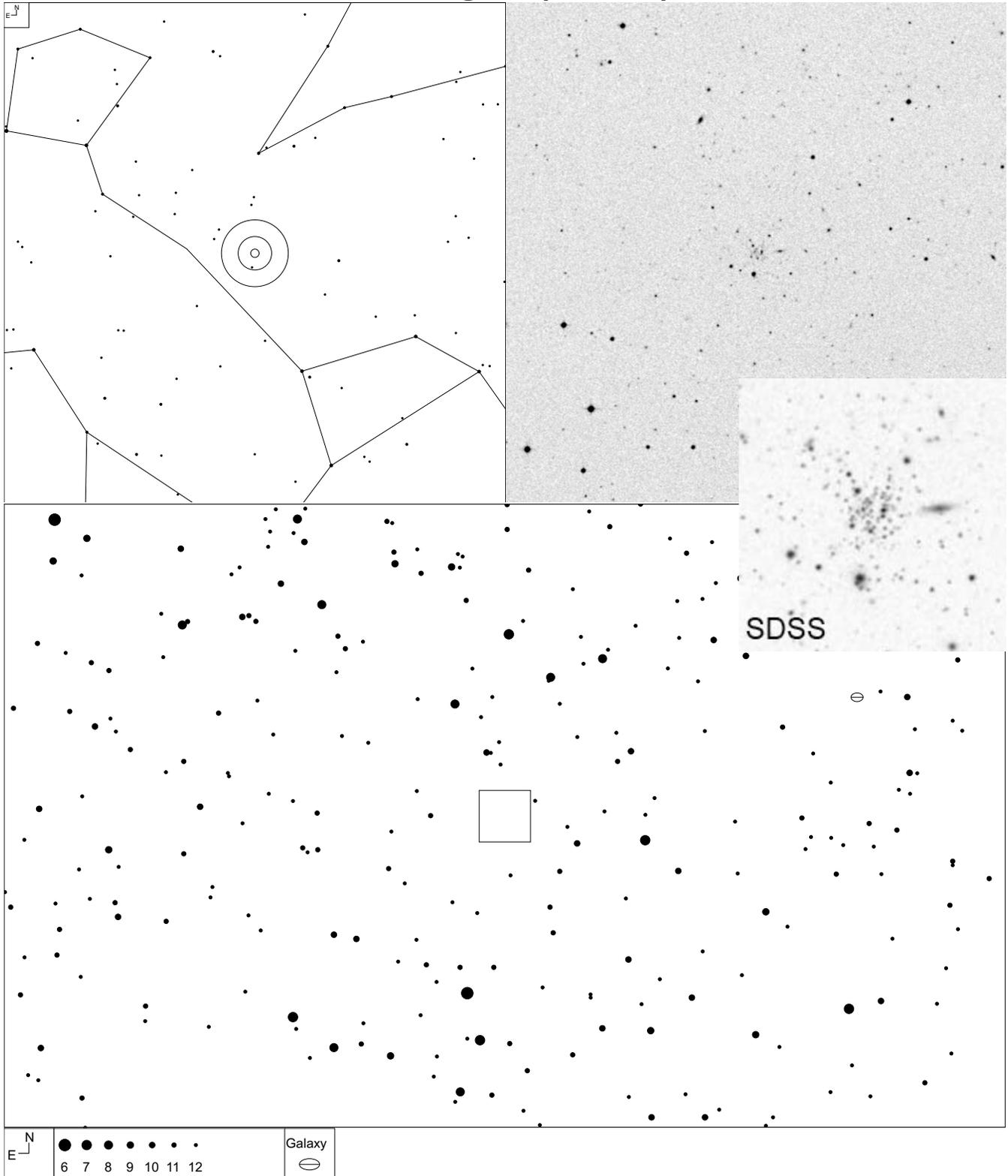
Terzan 11 (Sagittarius)



RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
18 12 15.8	-22 44 31	16.4	20.5	18.5	-	1.0'

Candidate Globular Clusters and Extremely Faint Globular Clusters

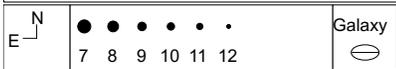
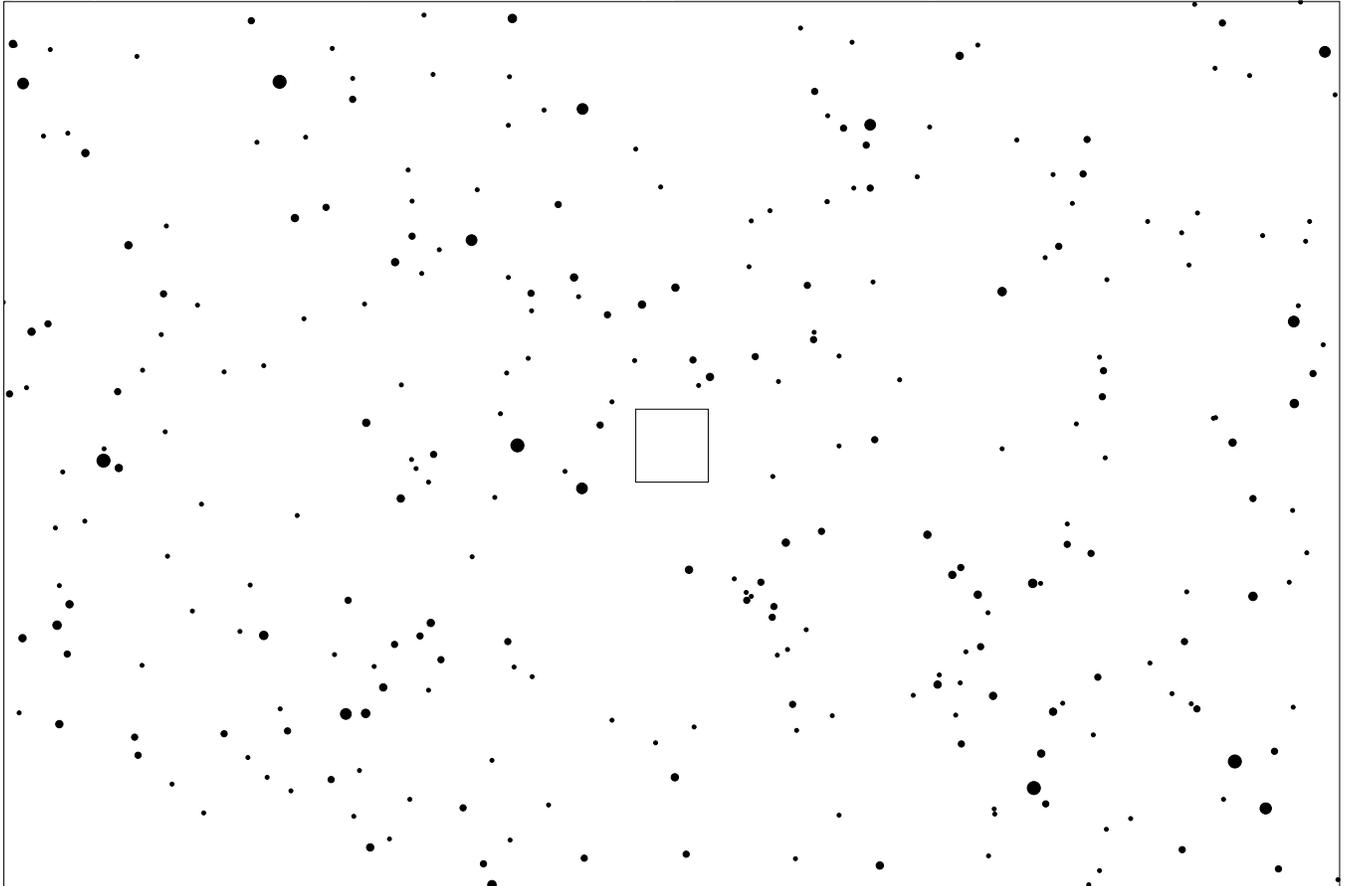
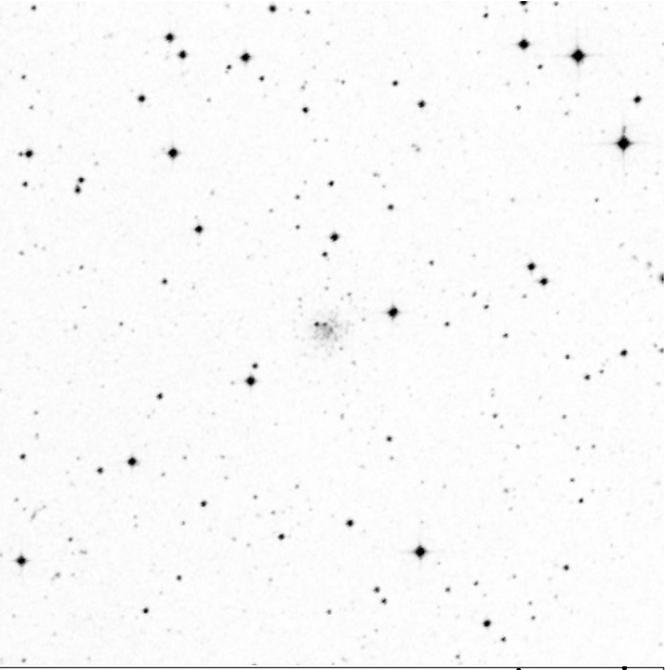
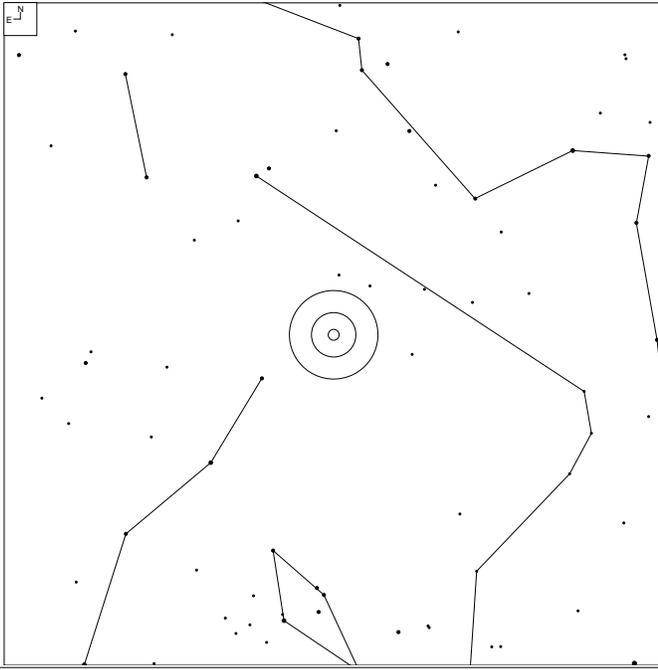
Whiting 1 (Cetus)



RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
02 02 57	-03 15 10	15.0	-	-	-	1.2'

Discovered in 2002 by Whiting, Hau, and Irwin, see Giovanni Carraro, "Whiting 1: A New Halo Young Globular Cluster," *The Astrophysical Journal* Vol 621 Iss 1 (Mar 2005): L61-L64

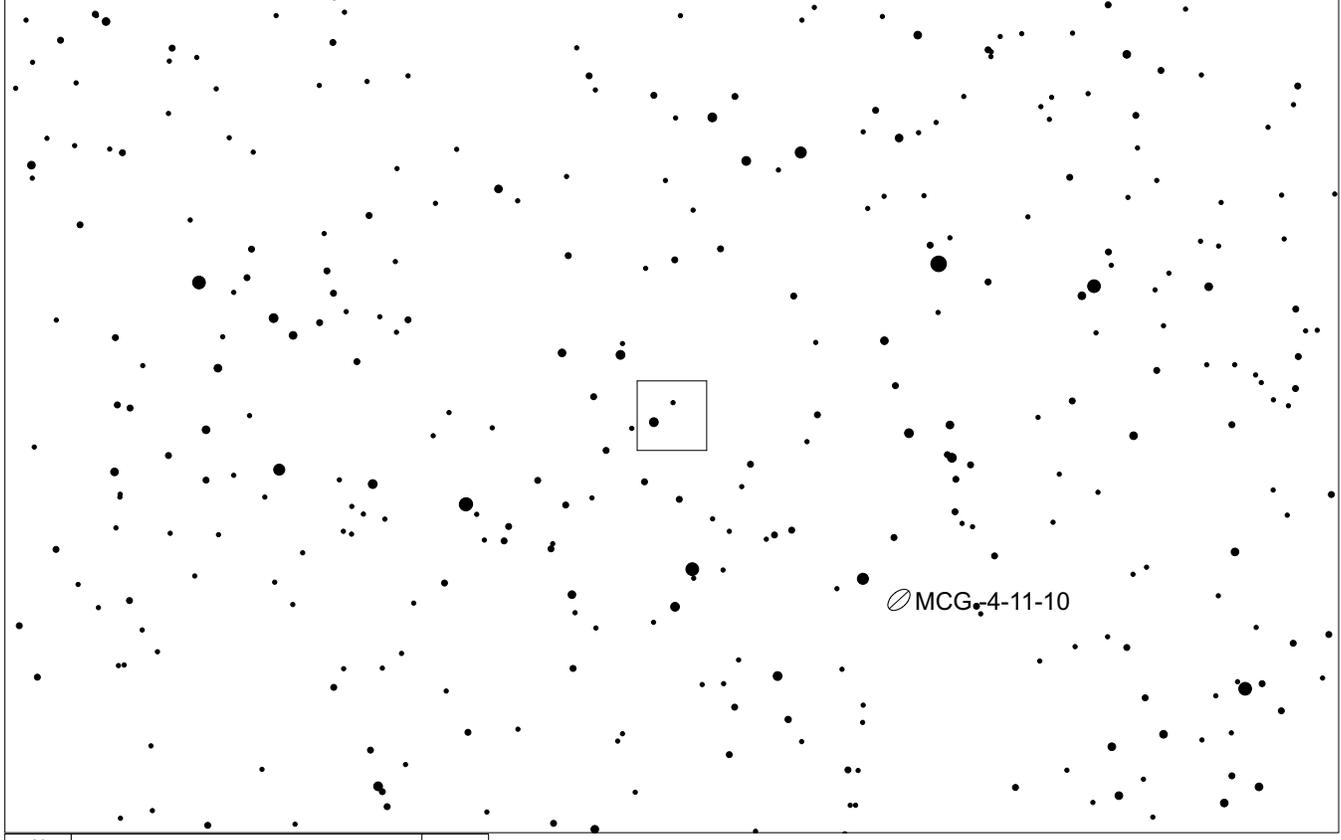
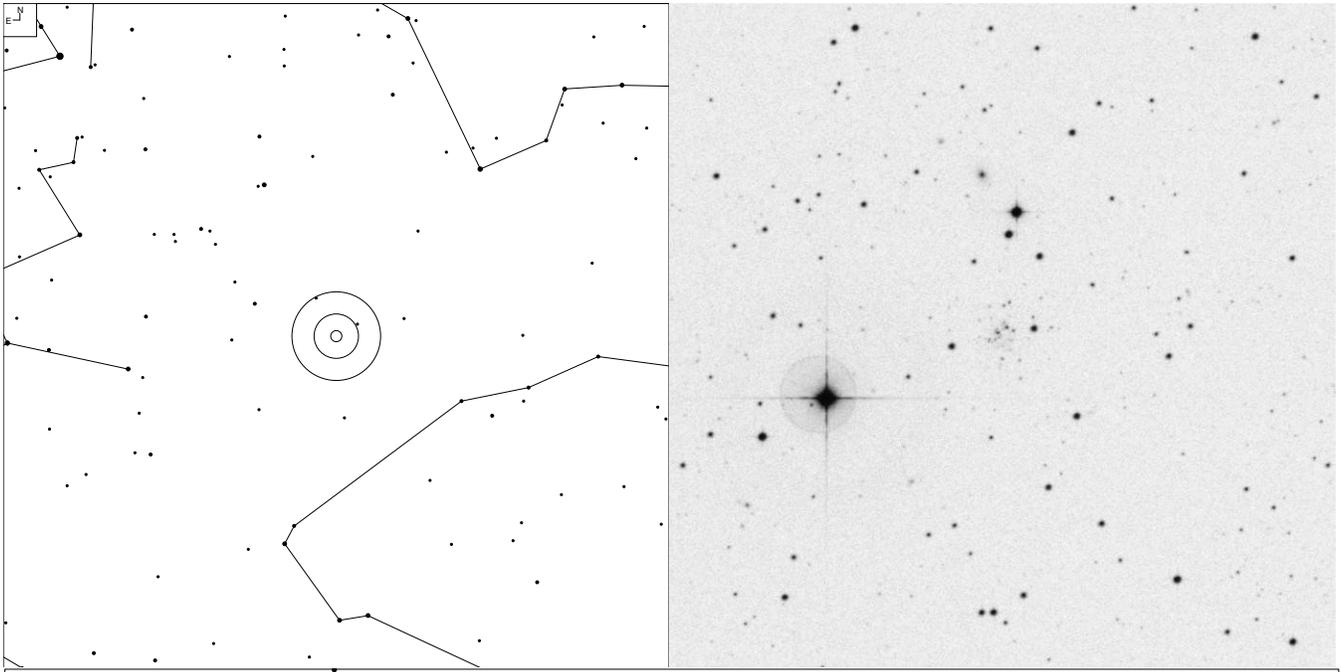
E1, AM1 (Horologium)



RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
03 55 02	-49 36 55	15.72	21.0	18.2	14.3	0.5

B.F. Madore, H.C. Arp, "Three New Faint Star Clusters," *Astrophysical Journal* Vol 227 (1979): L103-L104

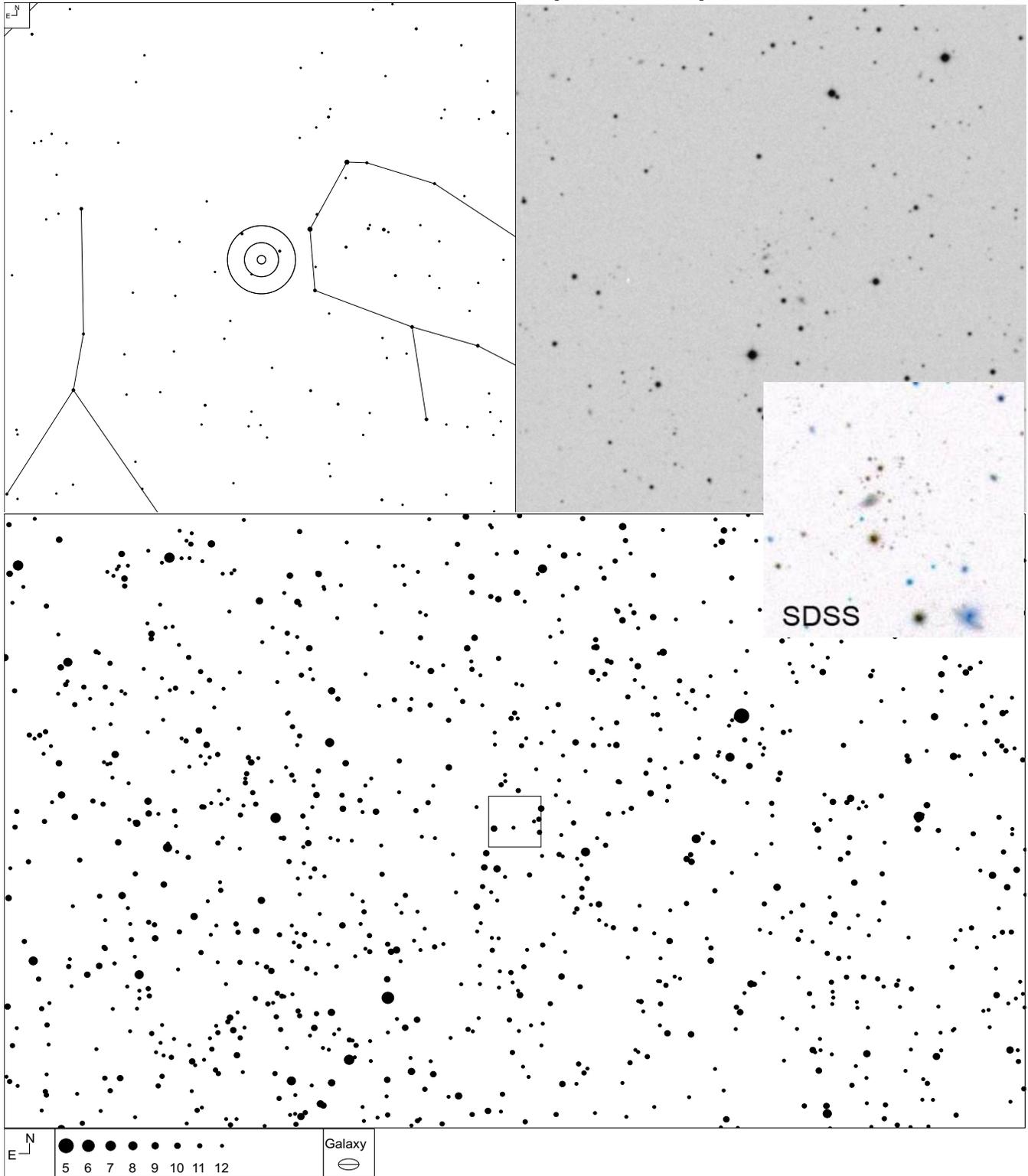
Eridanus Cluster



N E	●	●	●	●	●	●	●	Galaxy ○
	5	6	7	8	9	10	11	

RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
04 24 44.5	-21 11 13	14.7	20.4	17.6	-	-

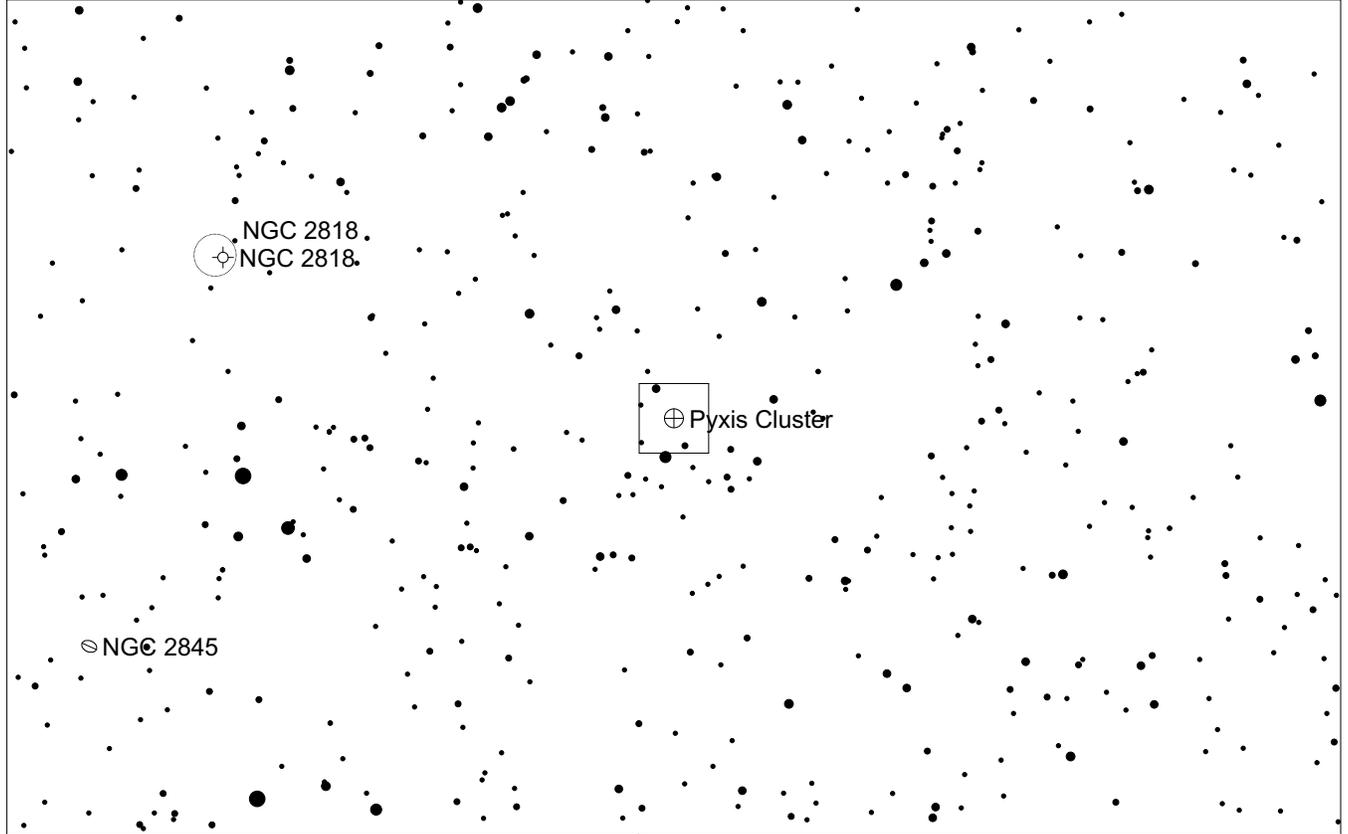
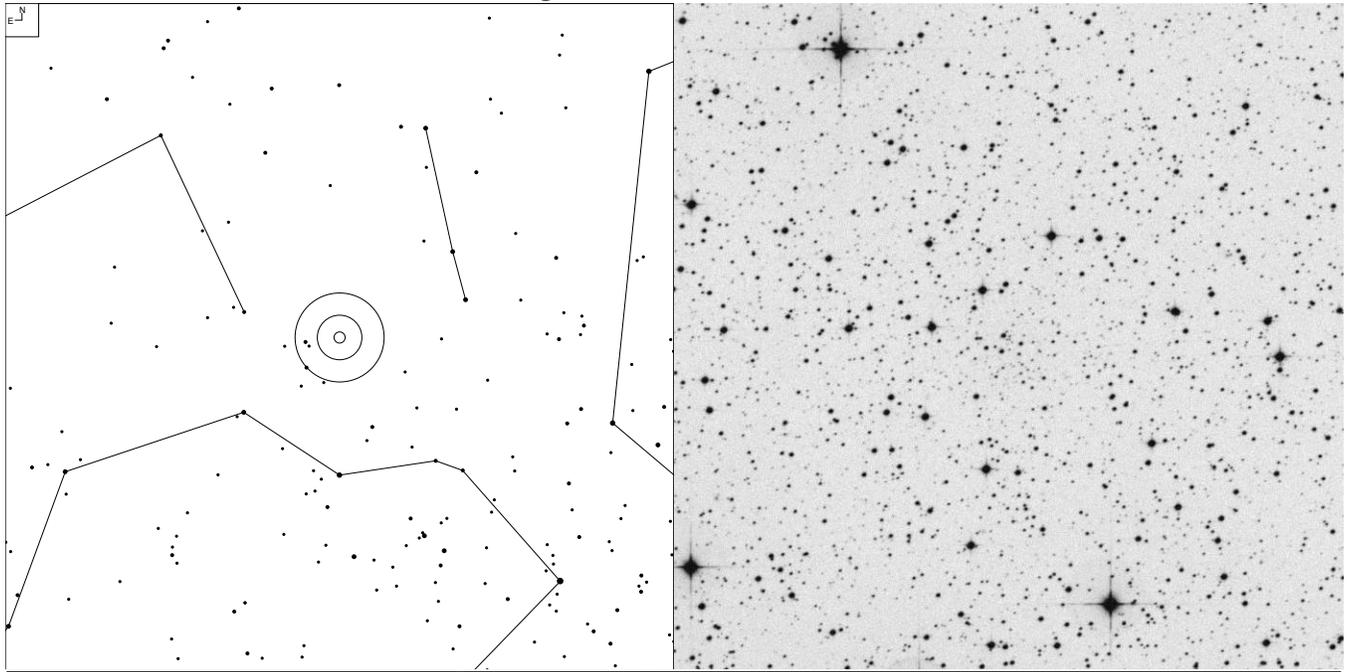
Koposov 2 (Gemini)



RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
07 58 17.0	+26 15 18	17.6	-	-	-	-

Discovered in 2007 by Koposov et al. S. Koposov, et al, "The Discovery of Two Extremely Low Luminosity Milky Way Globular Clusters," *The Astrophysical Journal* Vol 669 (2007): 337-342
 Recently observed by Jimi and me with his 48" telescope in April 2012. **48"** at **488x** - Very faint, small round, even surface brightness glow. Popped in and out, 75% of the time. About 0.3' across.

Pyxis Cluster

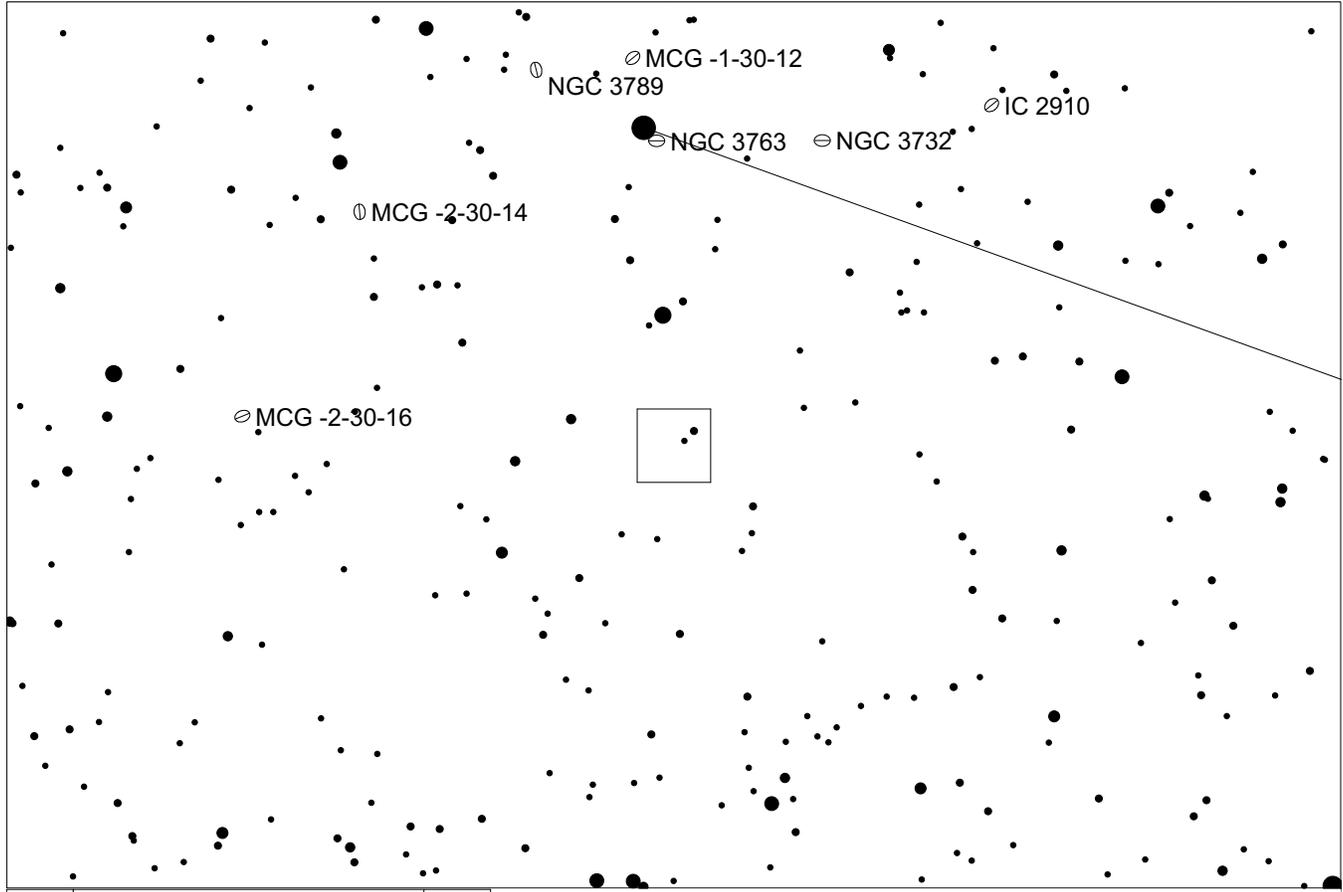
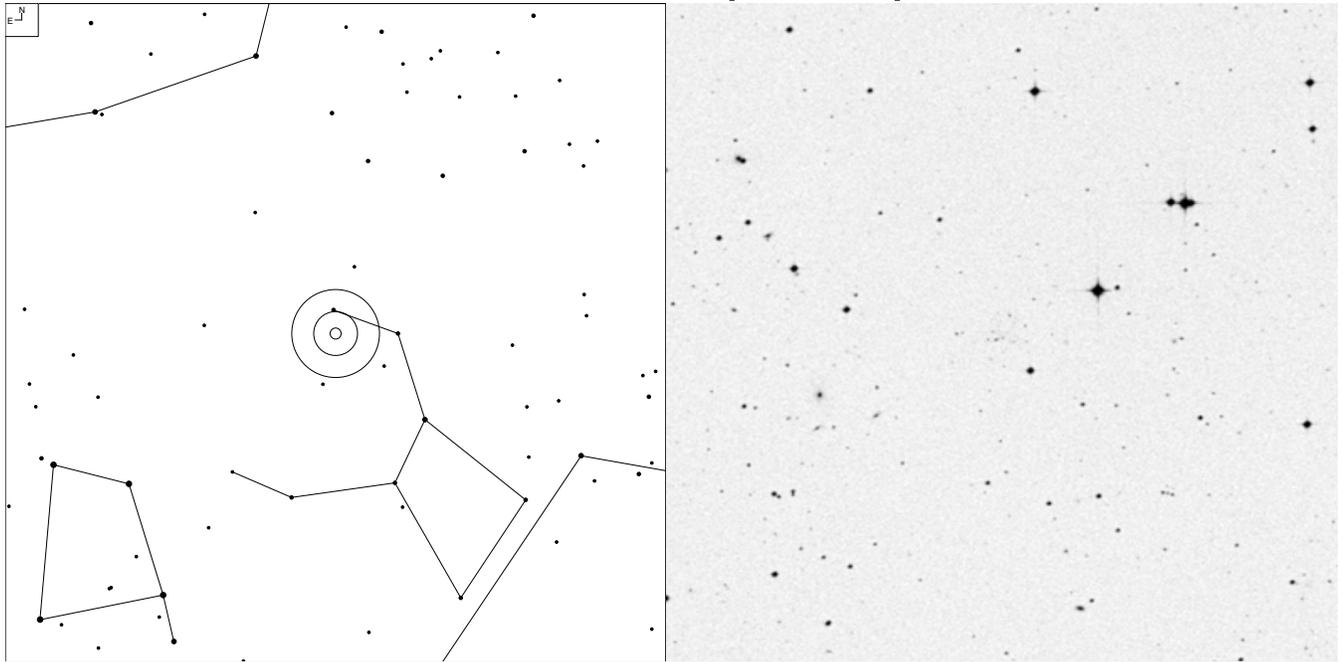


N E	● ● ● ● ● ●	Galaxy	Globular	Open Cl	Planetary
	5 6 7 8 9 10 11	☾	⊕	○	⊙

RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
09 07 57.8	-37 13 17	12.9	18.7	15.2	15.9	4'

M.J. Irwin, Serge Demers, and W.E. Kunkel, "The Pyxis Cluster: A Newly Identified Galactic Globular Cluster," *The Astrophysical Journal* Vol 453 (Nov 1995): L21-L24

Laevens 1 (Crater)

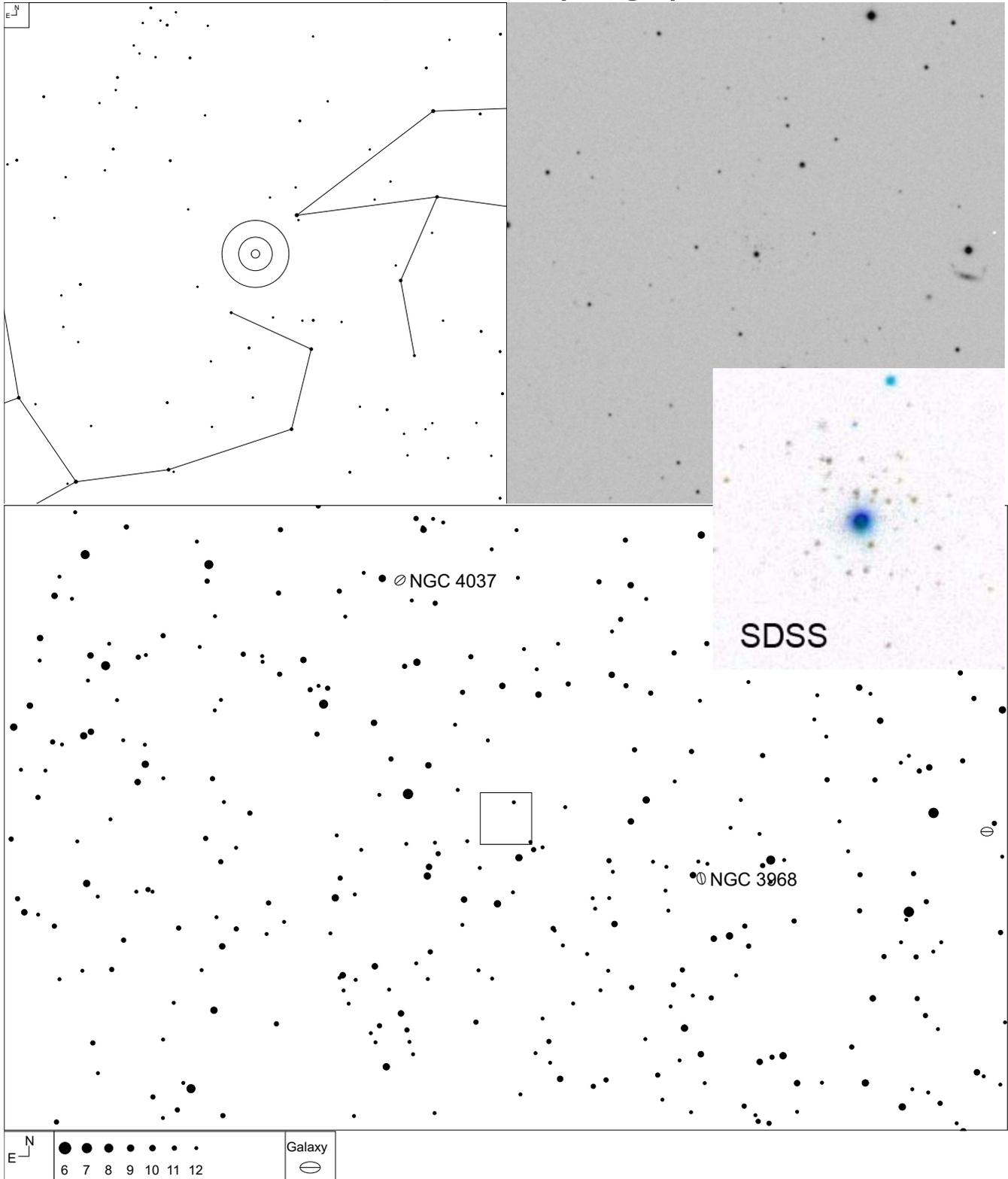


●●●●●●●●●●	Galaxy
5 6 7 8 9 10 11 12	☉

RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
11 36 16	-10 52 38	17.5	-	-	-	-

Discovery paper, see Benjamin P.M. Laevens, et al, "A new distant Milky Way globular cluster in the Pan-STARRS1 3π survey," *The Astrophysical Journal* Vol 786 (2014)

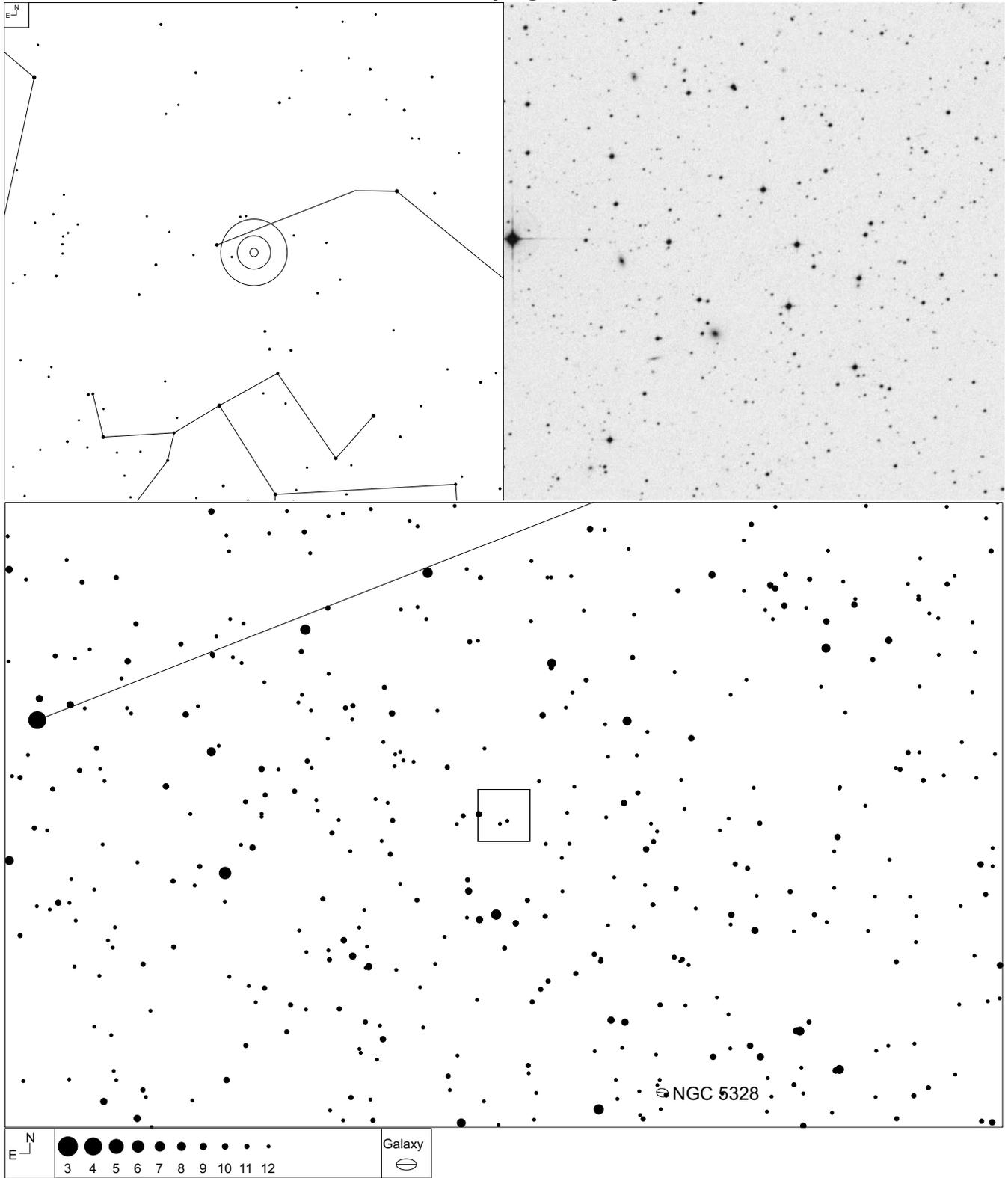
Koposov 1 (Virgo)



RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
11 59 18.4	+12 15 36	14.2	-	-	-	-

Discovered in 2007 by Koposov et al. S. Koposov, et al, "The Discovery of Two Extremely Low Luminosity Milky Way Globular Clusters," *The Astrophysical Journal* Vol 669 (2007): 337-342
 Recently observed by Jimi and me with his 48" telescope in April 2012 **48"** at **488x** - Some speckling was detected around a considerably bright, very small fuzzy star in the center.

AM 4 (Hydra)

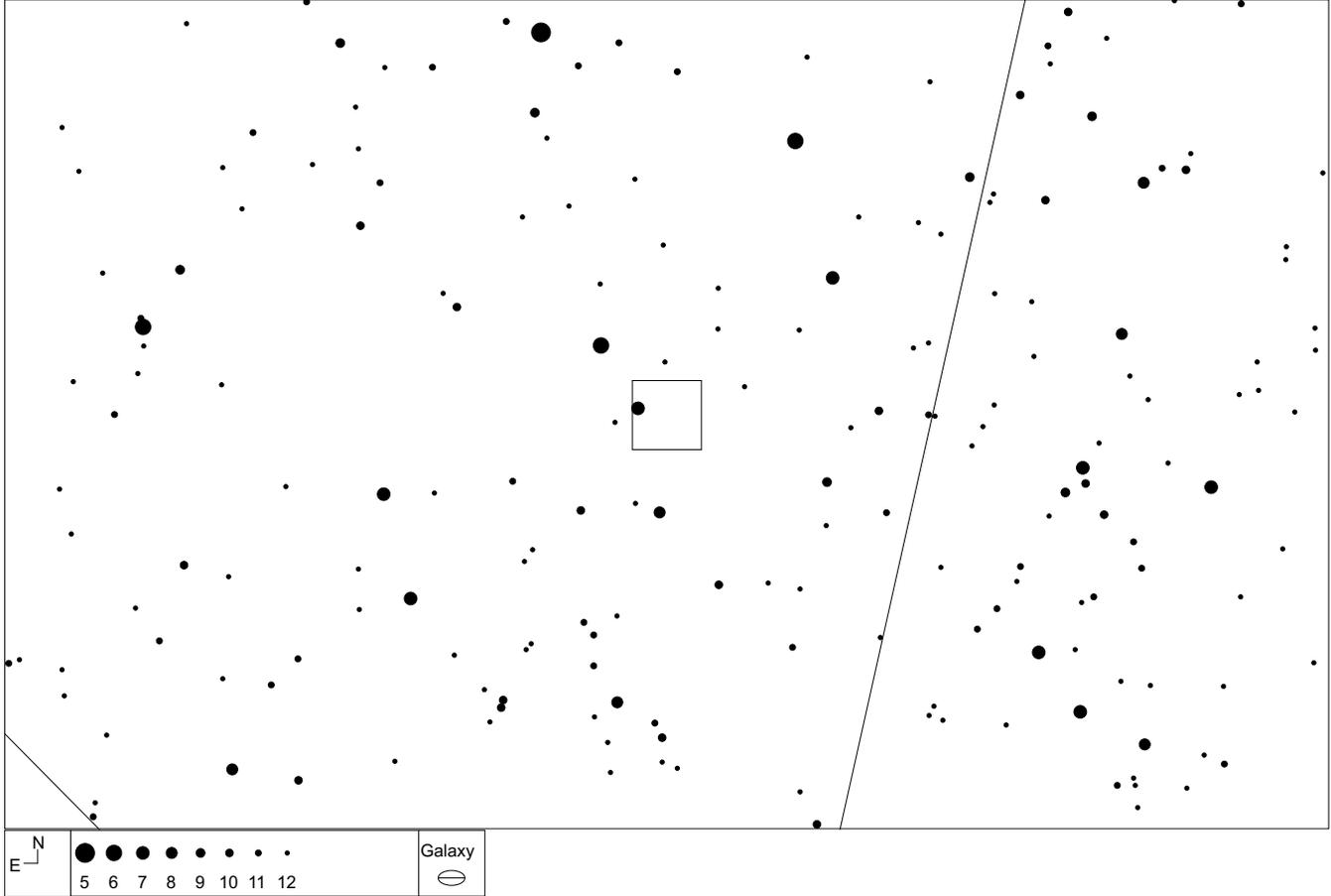
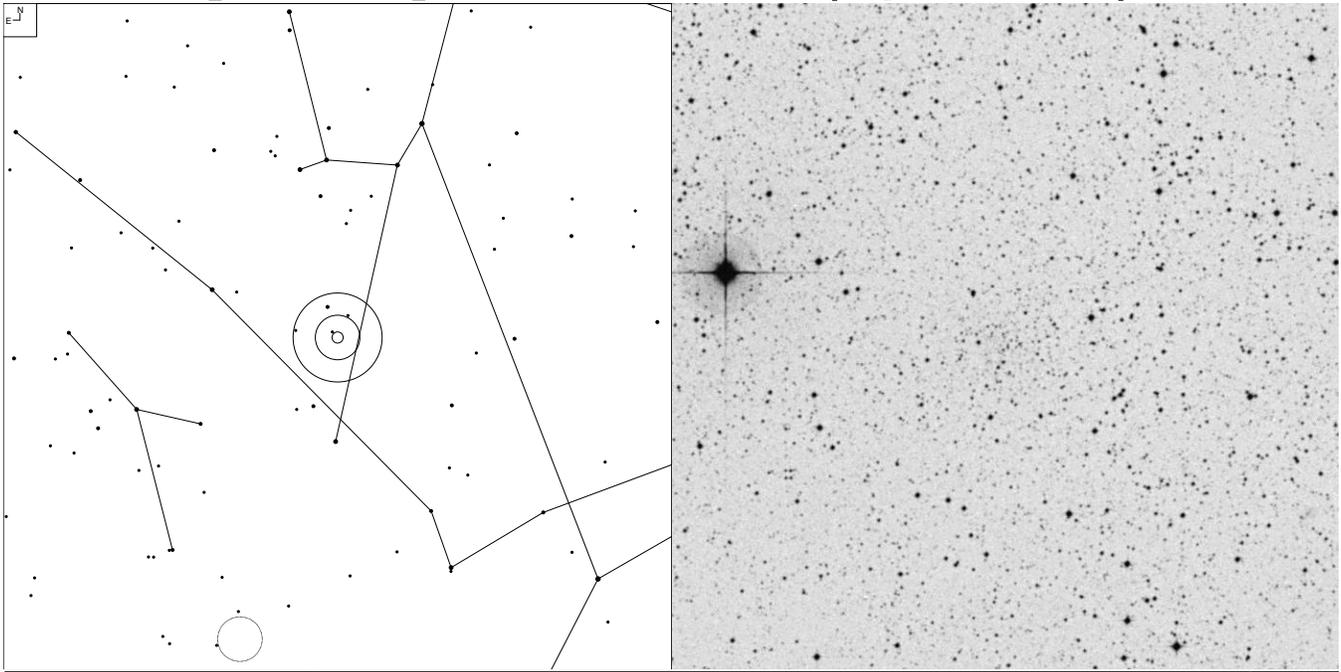


NGC 5328

RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
13 56 21.0	-27 09 42	15.9	21.6	20.5	18.3	3'

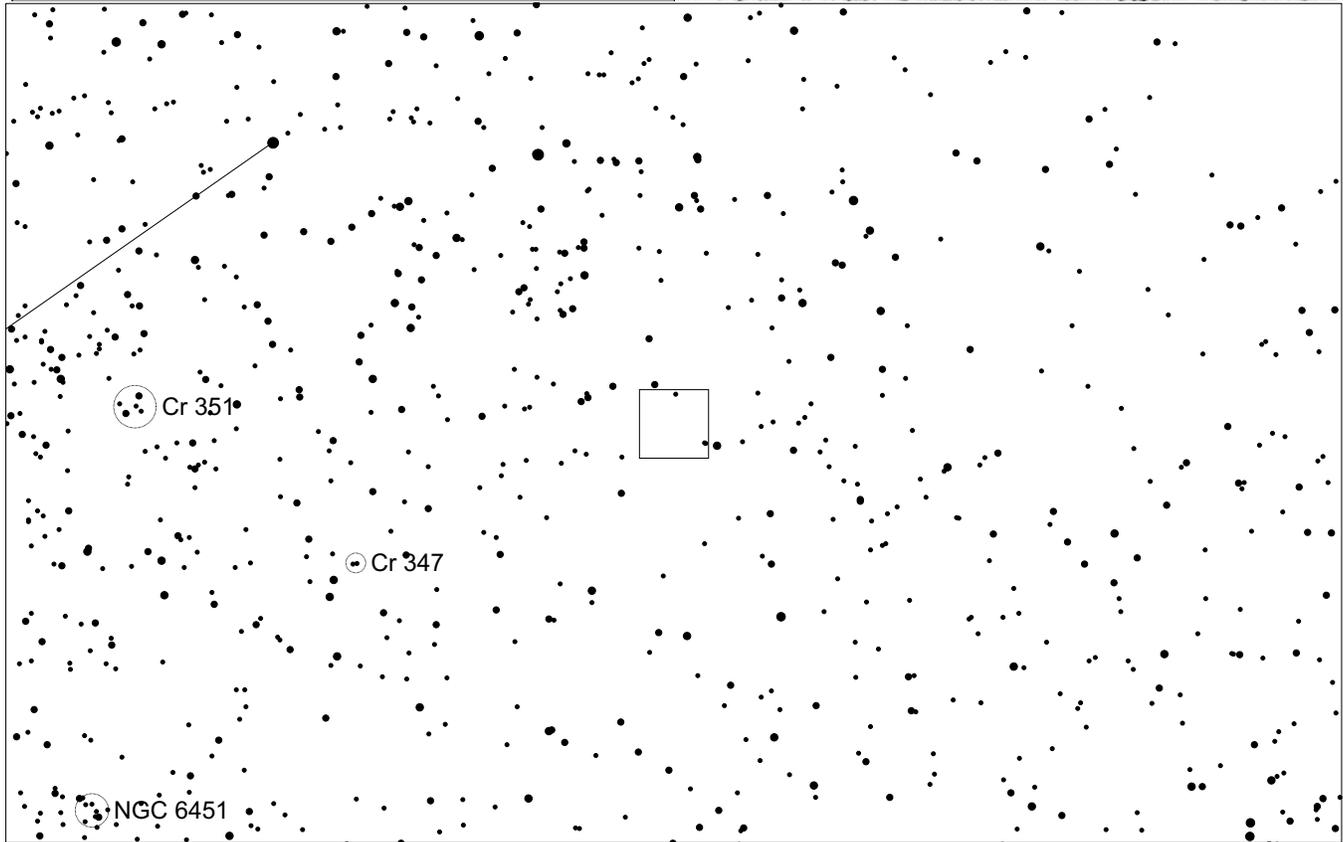
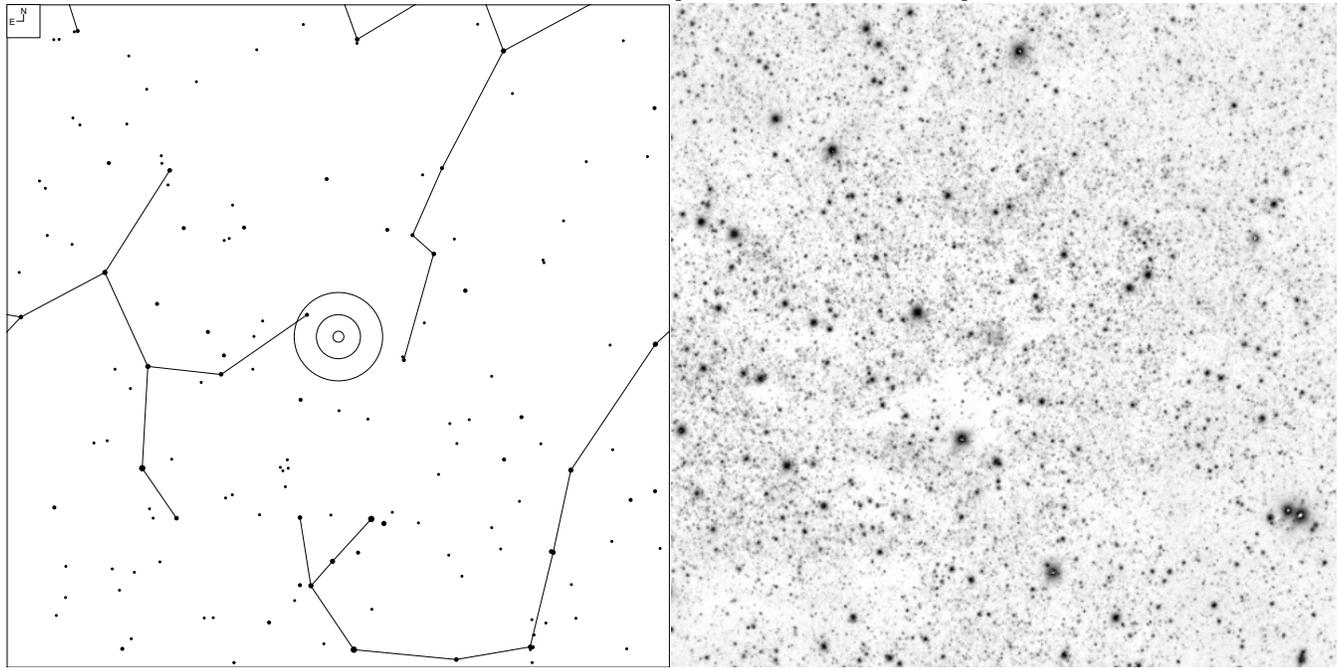
Discovered Arp and Madore in 1982, see Carraro Giovanni, "The Globular Cluster AM 4: Yet Another Young Globular Associated with the Sgr Dwarf Spheroidal Galaxy?," *The Astrophysical Journal* Vol 137 No 4 (2009)

[PWM78] 2, Pflleiderer 2 (Ophiuchus)



RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
17 58 39.4	-05 04 21	-	-	-	-	2'

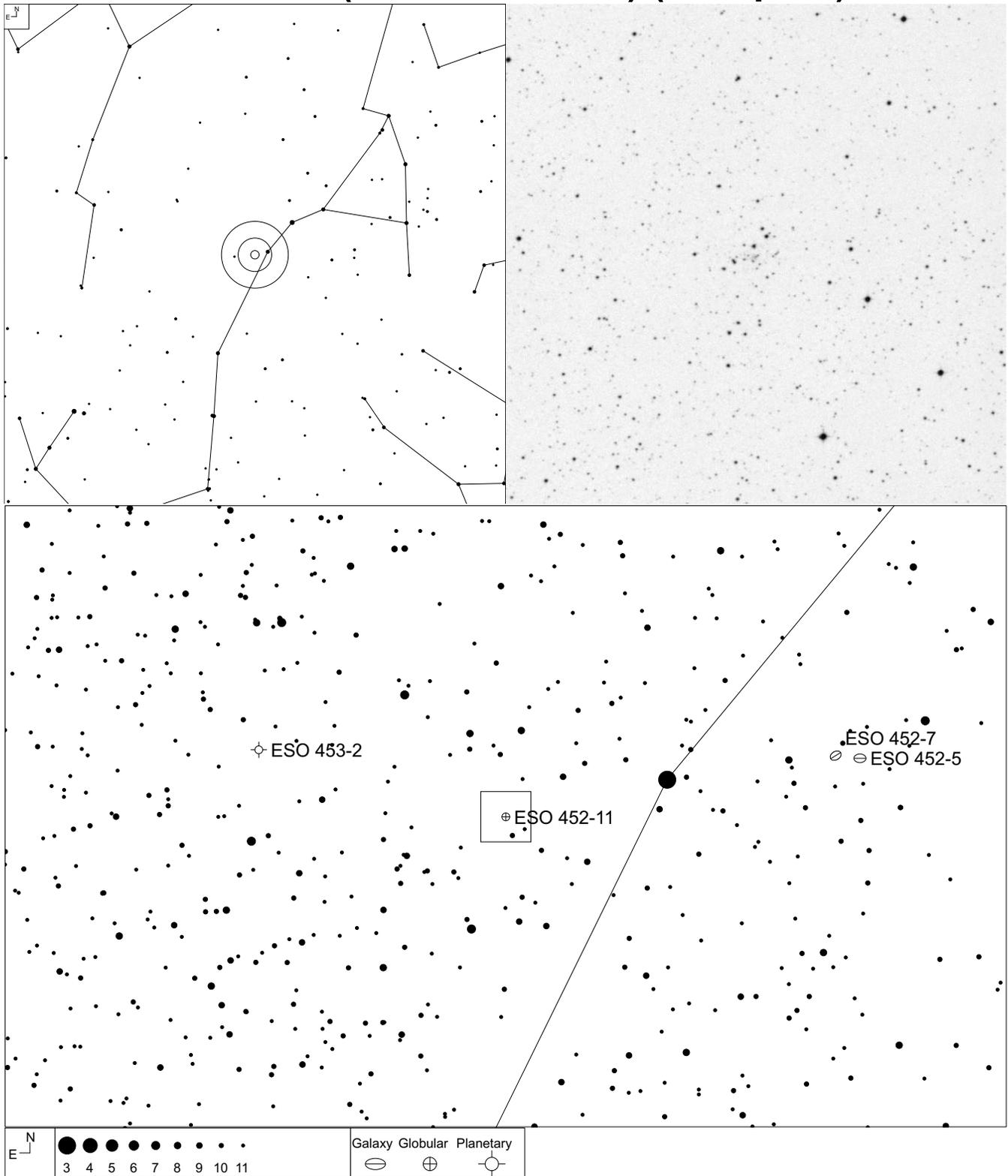
VVV CL001 (Ophiuchus)



RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
17 41 06	-28 50 42	-	-	-	-	-

For the discovery paper, see D. Minniti, et al, "Discovery of VVV CL001: A Low-mass Globular Cluster Next to UKS 1 in the Direction of the Galactic Bulge," *Astronomy and Astrophysics* Vol 527 (Mar 2011)

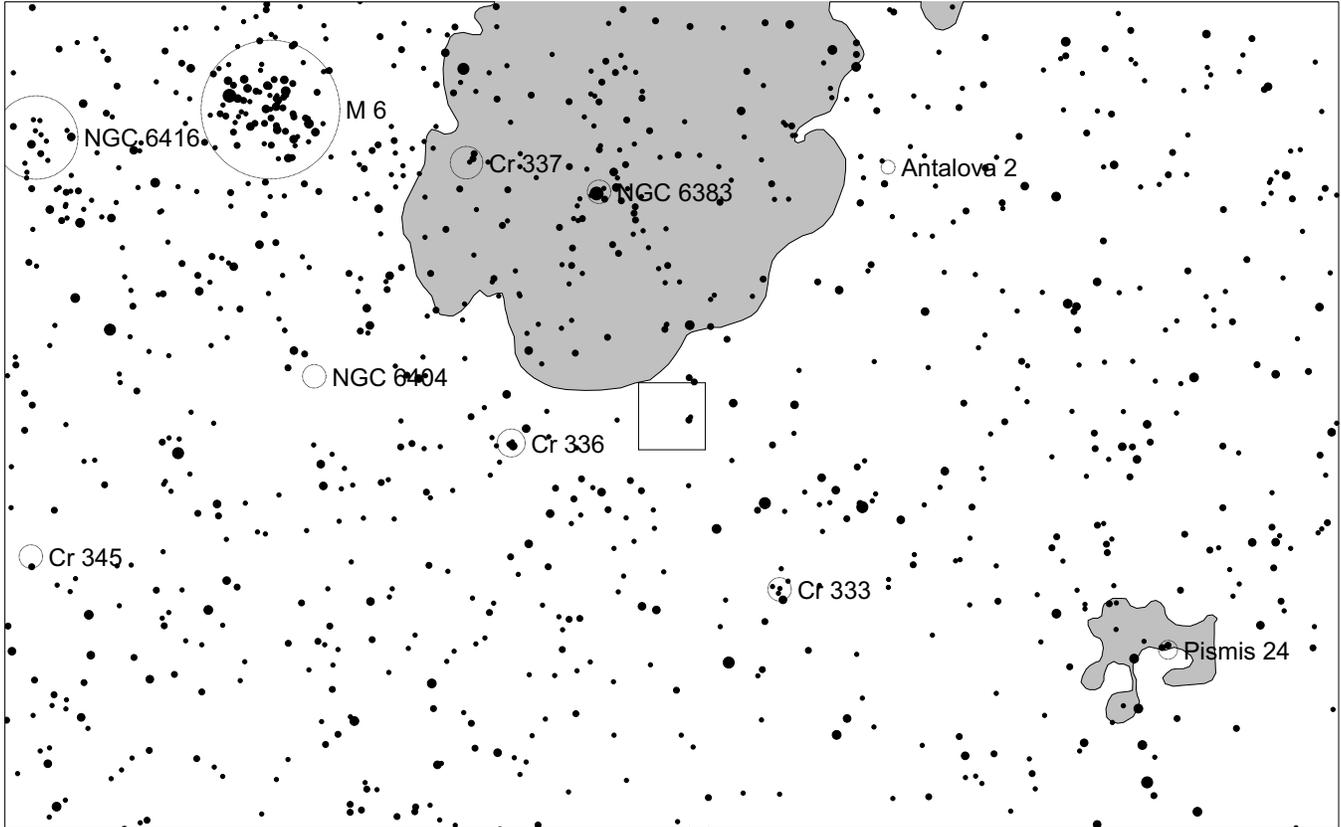
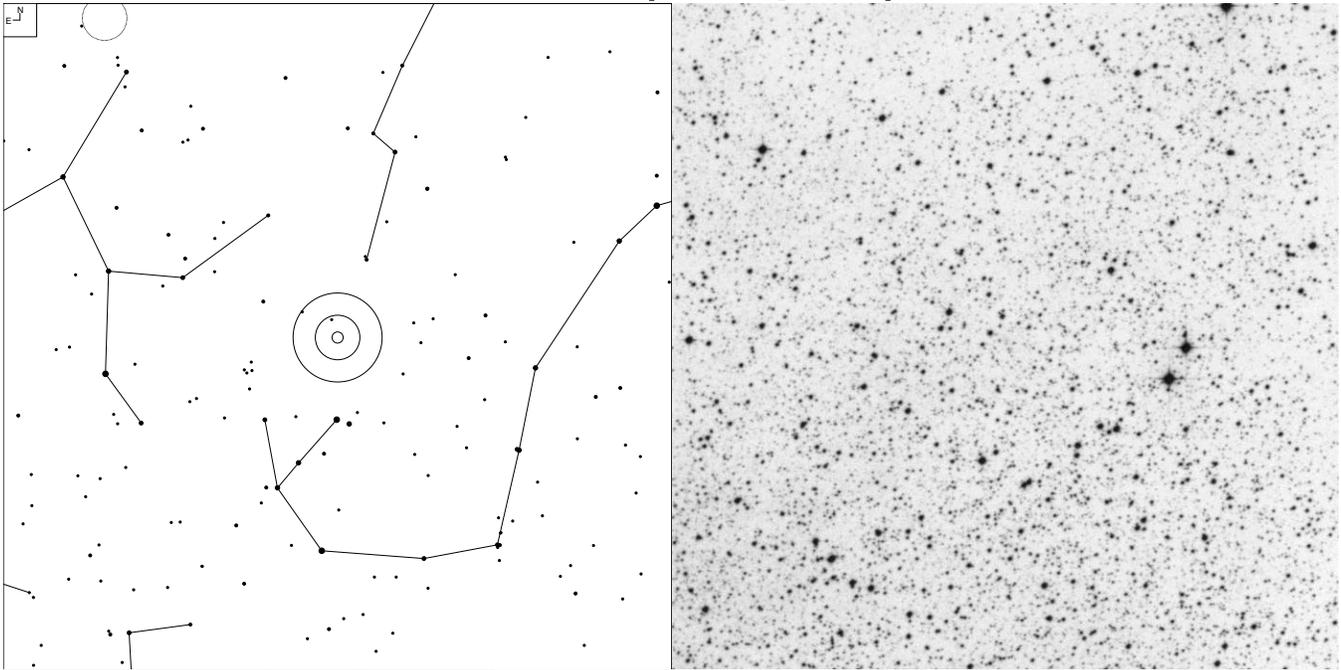
1636-283 (ESO 452-SC11) (Scorpius)



RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
16 39 25.0	-28 23 54	12	16.6	15.3	12.4	1.2'

E.B. Holmberg, A. Lauberts, et al, "The ESO/Uppsala survey of the ESO(B) atlas of the southern ESO/Uppsala survey of the ESO(B) atlas of the southern," *Astronomy and Astrophysics, Supplemental Series* Vol 31 (1978): 15-54

Liller 1 (Scorpius)



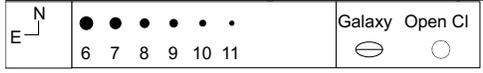
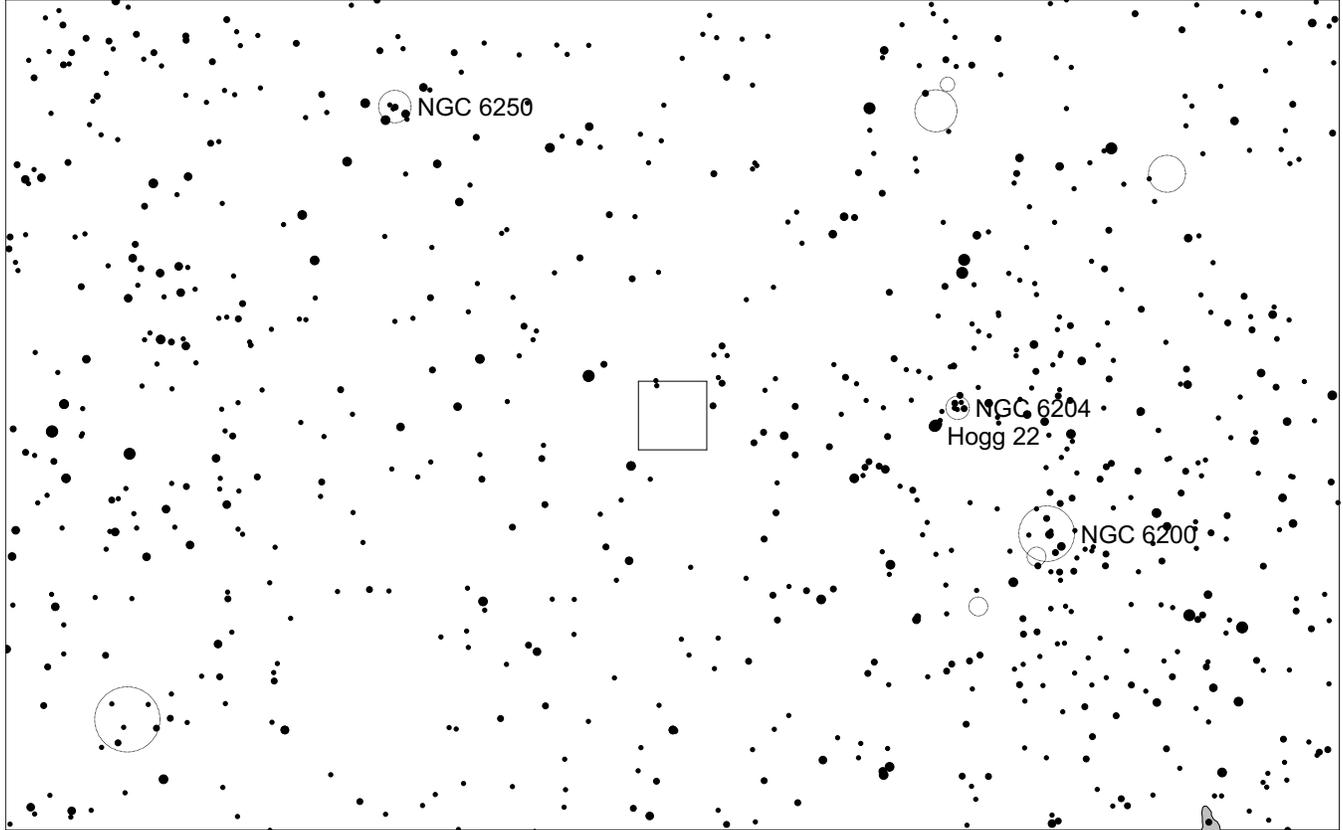
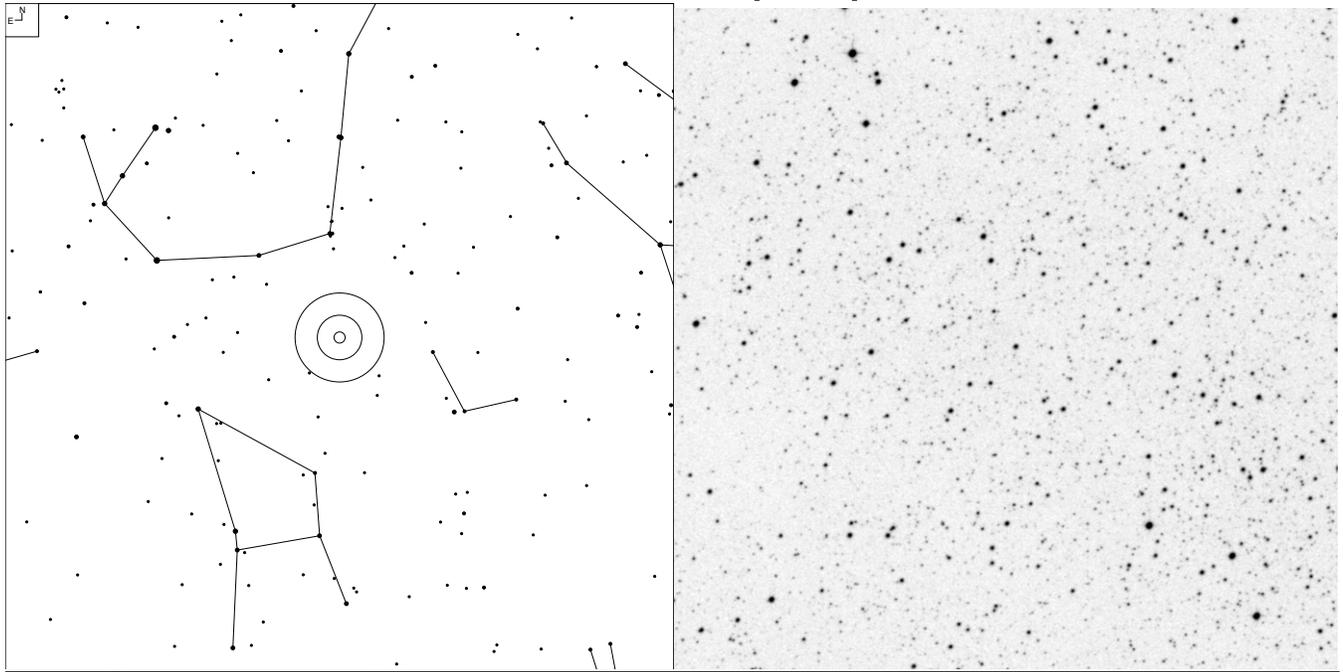
● ● ● ● ● ● ● ● ● ●
 6 7 8 9 10 11

Galaxy Open Cl Brt Neb

RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
17 33 24.5	-33 23 24	15.8	24.4	20.5	13.2	0.3'

Discovered in 1977 by Liller.

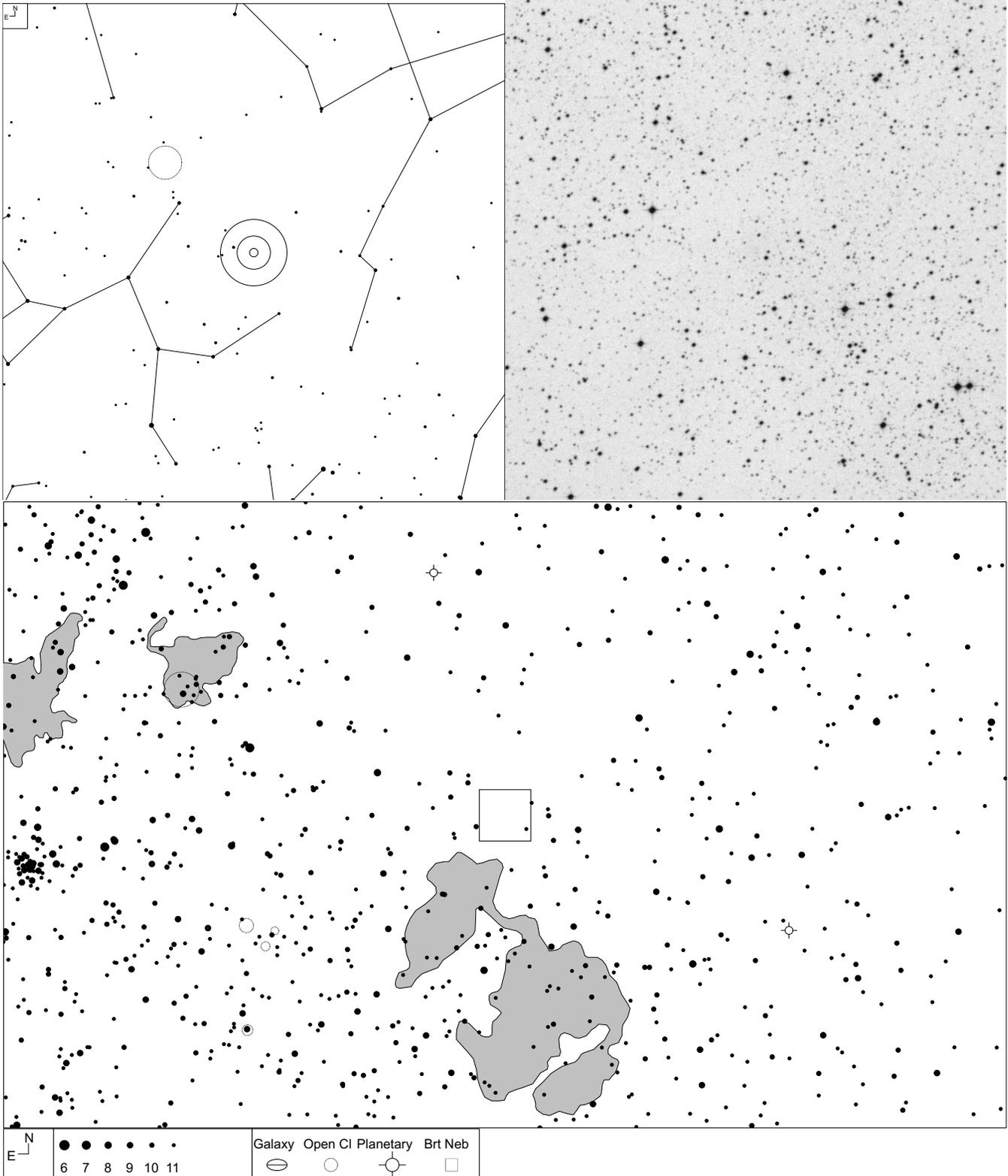
FSR 1735 (Ara)



RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
16 52 10.6	-47 03 29	12.9	-	-	-	0.8'

Discovered in 2006 using the 2MASS IR telescope. See D. Froebrich, H. Meusinger, and A. Scholz, "FSR 1735 – A New Globular Cluster Candidate in the Inner Galaxy," Monthly Notices of the Royal Astronomical Society: Letters Vol 377 Iss 1 (May 2007): L54-L58

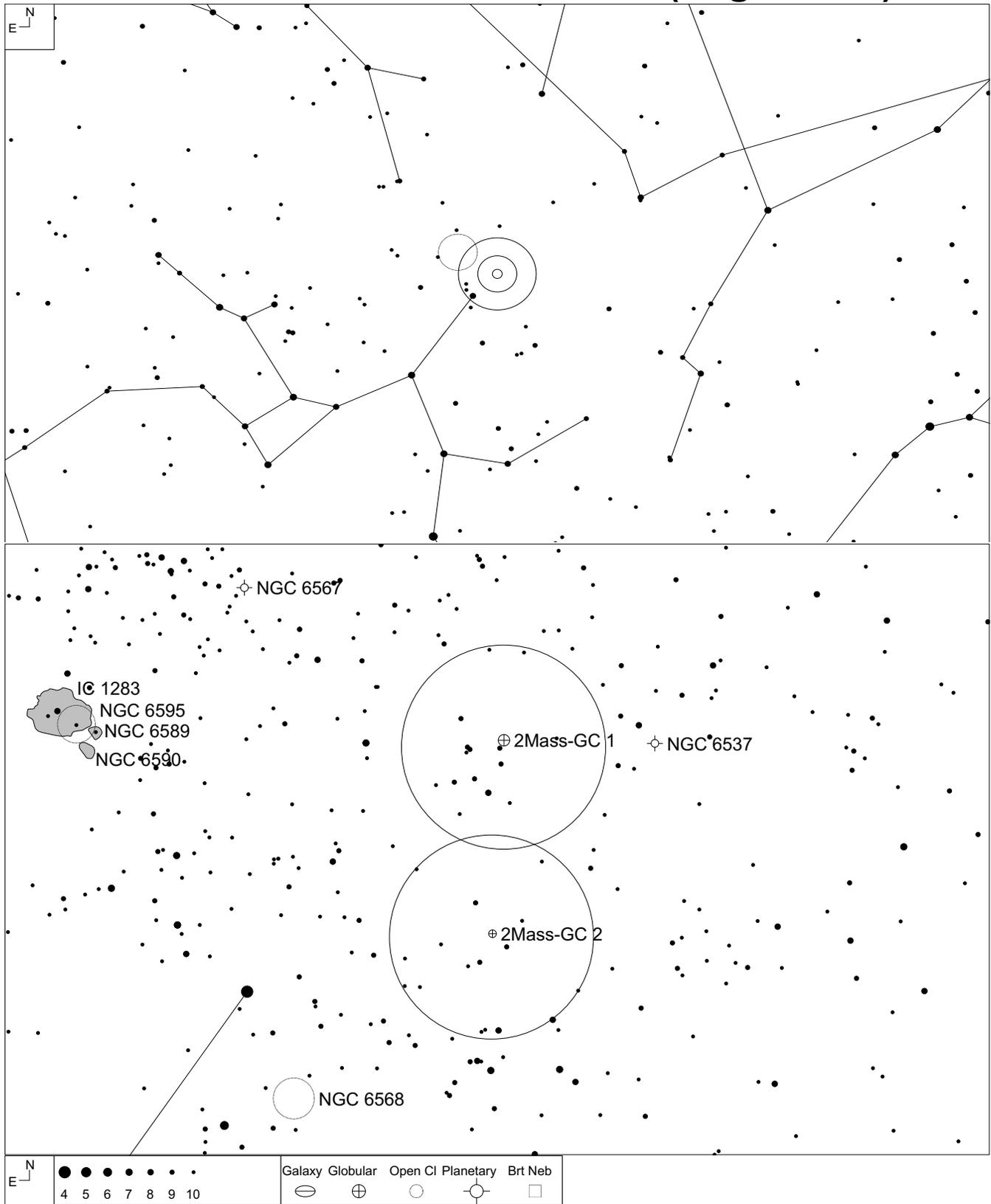
UKS 1 (Sagittarius)



RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
17 54 27.2	-24 08 43	17.3	25.5	22	18.8	2'

Discovered in 1980 by Malkan, Kleinmann and Apt. This was one of the very toughest globular clusters to be observed visually. Barbara Wilson is probably the first one to see it with her 20" reflector.

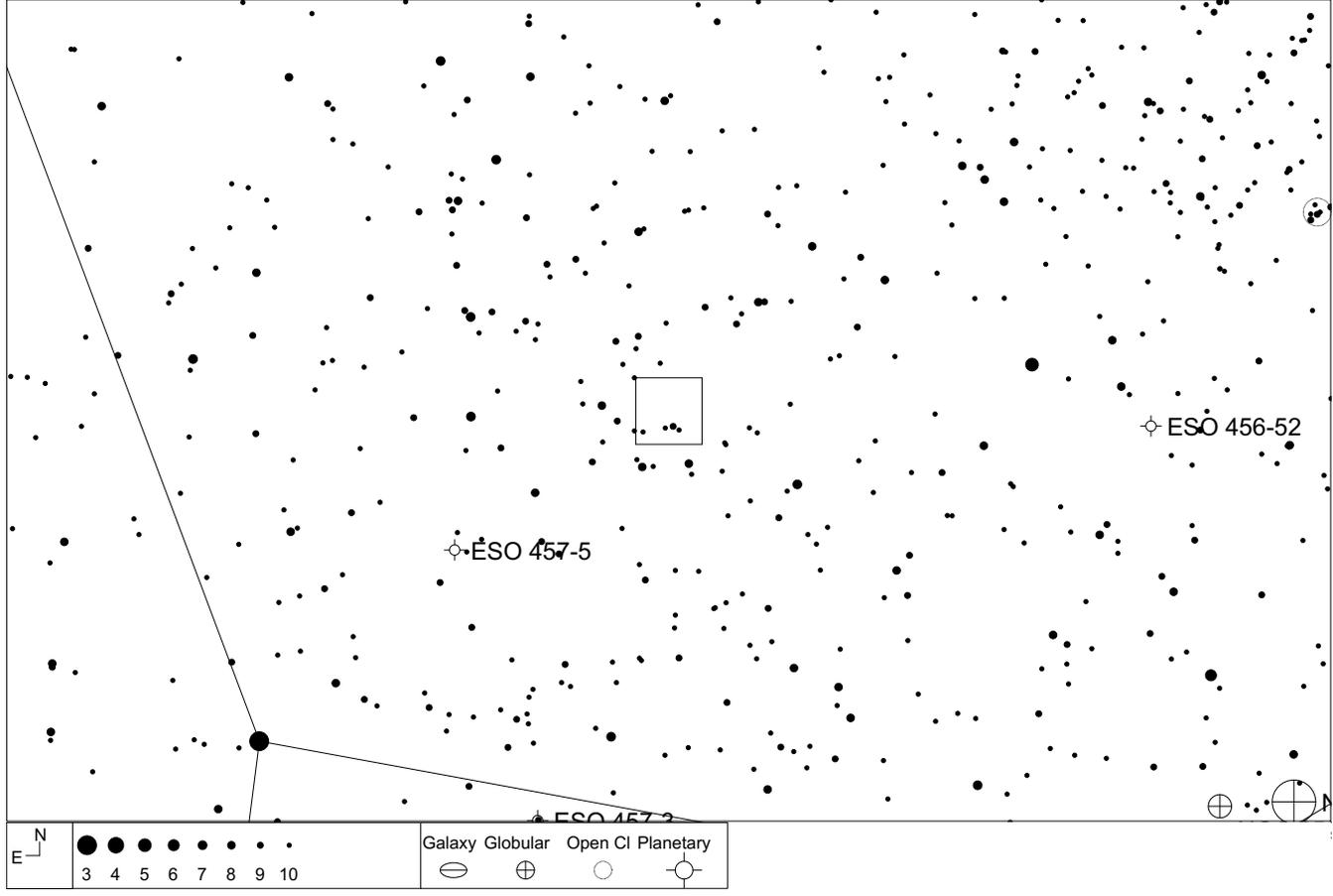
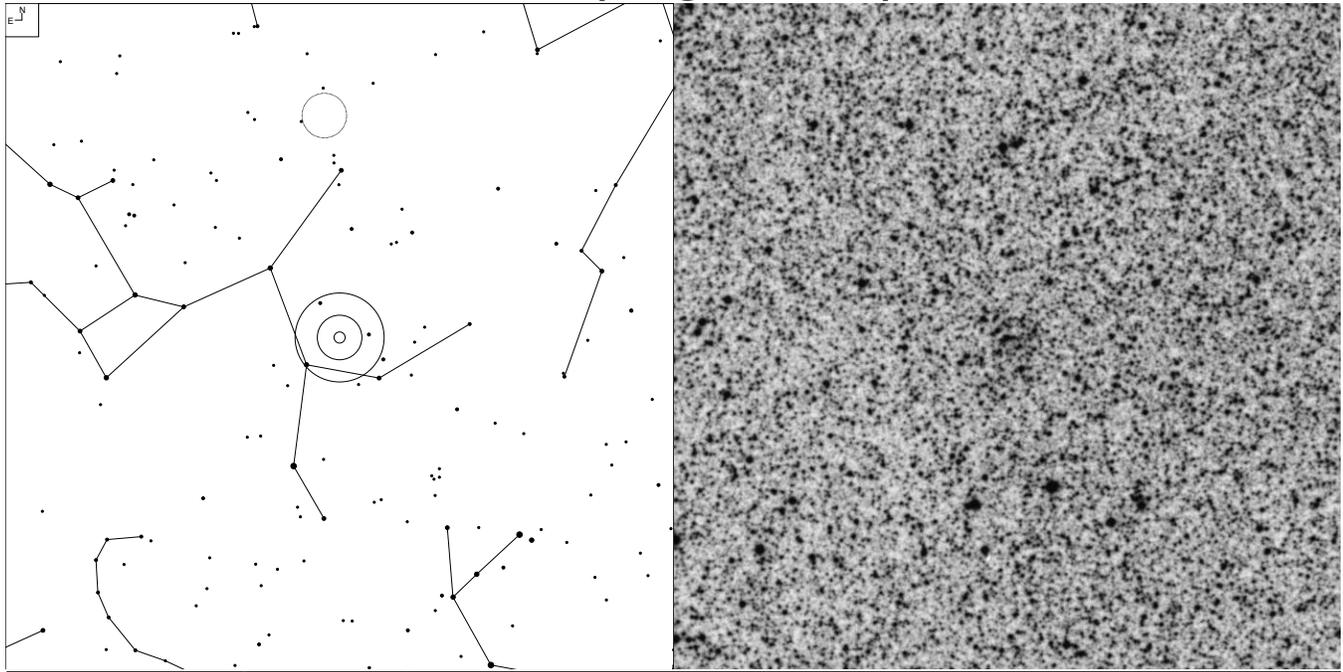
2MASS-GC1 and 2MASS-GC2 (Sagittarius)



Object	RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
GC1	18 08 21.8	-19 49 47	27.7v	-	-	-	3.3'
GC2	18 08 36.5	-20 46 44	24.6v	-	-	-	1.9'

Both of these were discovered using the 2MASS IR telescope; it is most likely not observable visually. We tried it with a 48" reflector with no success

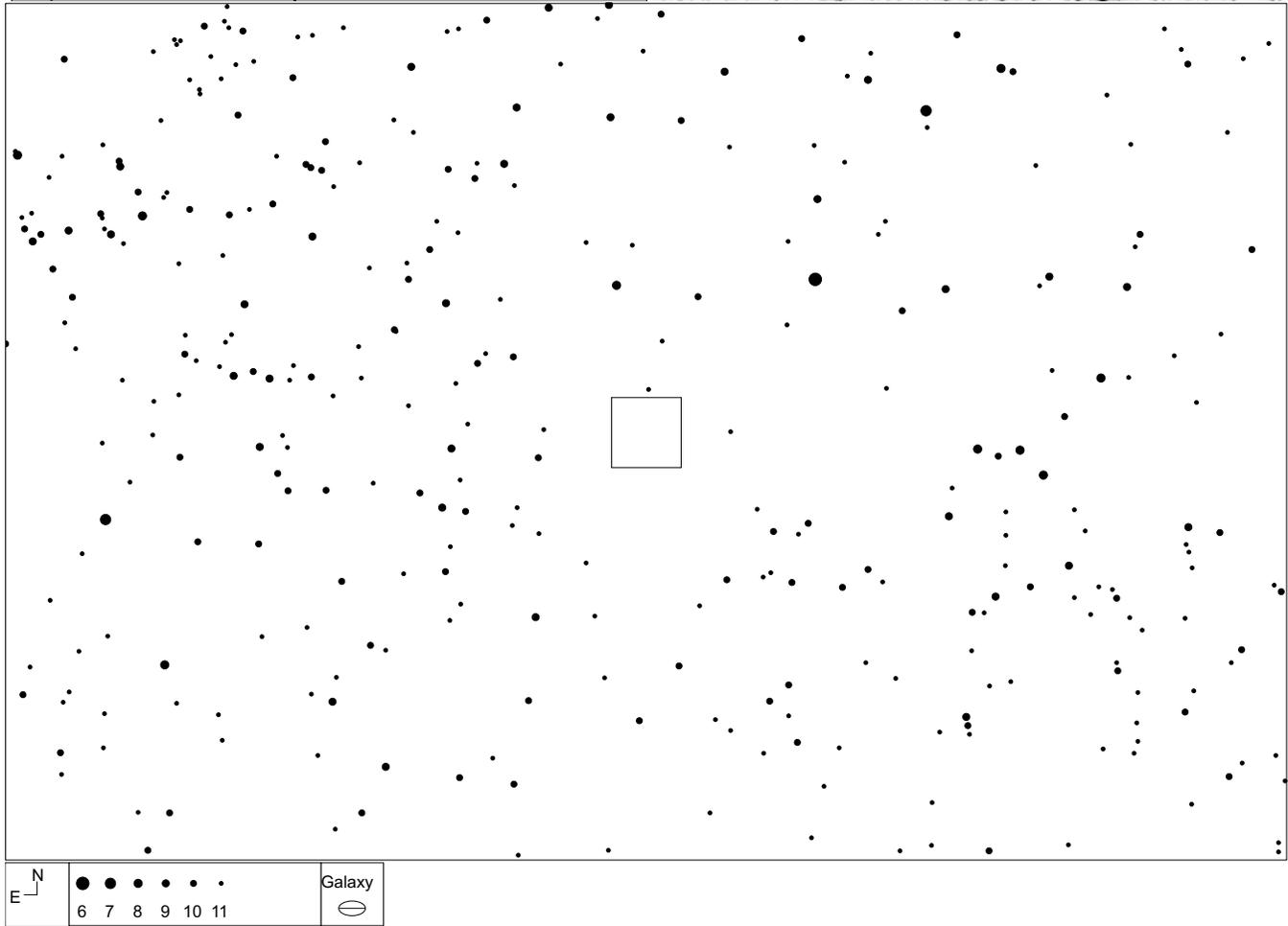
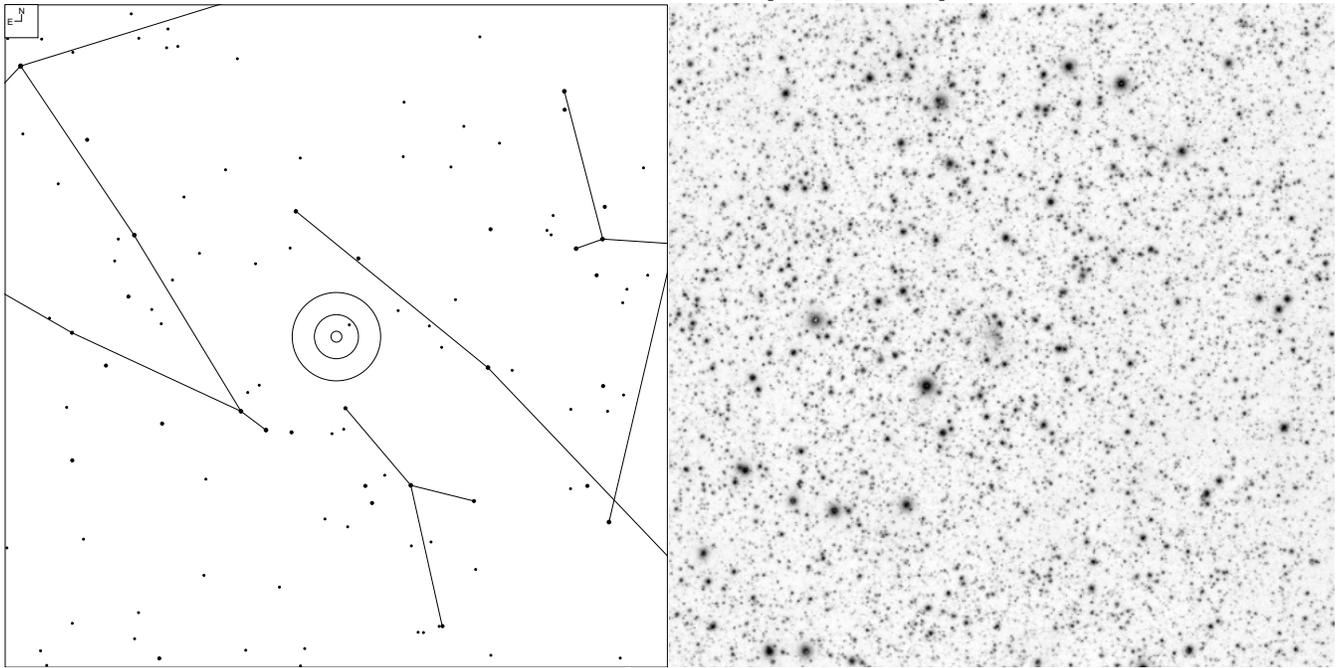
AL 3 (Sagittarius)



RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
18 14 06.6	-28 38 06	14.0	-	-	-	1.3'

Discovered in 1967 by Andrews and Lindsay and identified as a globular cluster by Ortolani, Bica and Batbuy in 2005.

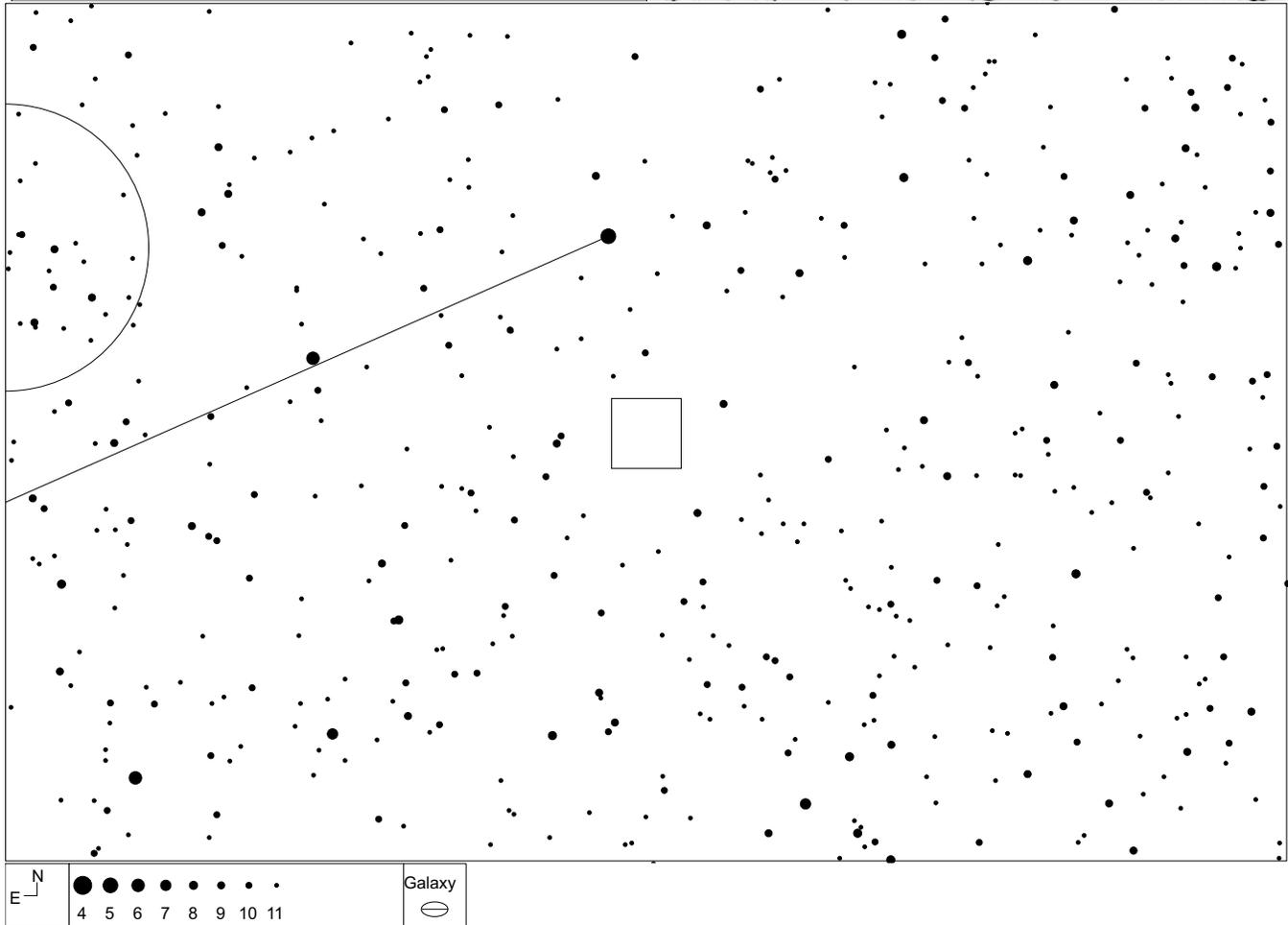
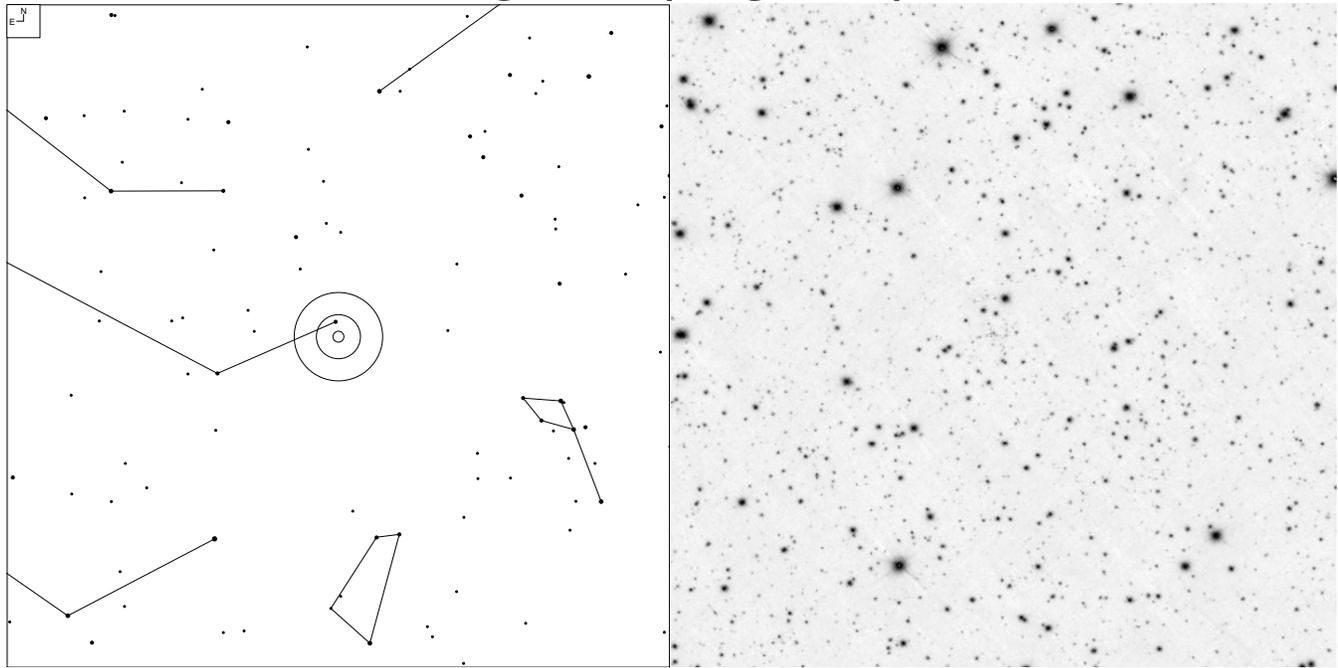
GLIMPSE-C01 (Aquila)



RA	Dec	V _{mag}	HB _{Mag}	0	SB	Size
18 48 50	-01 29 50	-	-	-	-	-

Henry A. Kobulnicky, A.J. Monson, et al, "Discovery of a New Low-Latitude Milky Way Globular Cluster Using GLIMPSE," The Astronomical Journal Vol 129 Iss 1 (Jan 2005): 239-250

Segue 3 (Pegasus)

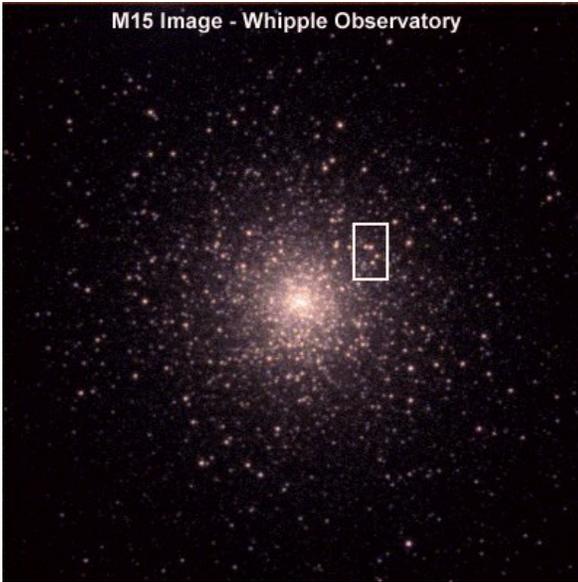


RA	Dec	V _{mag}	HB _{Mag}	Bt* _{Mag}	SB	Size
21 21 31	+19 07 02	14.9	-	-	-	1.3

Ross Fadely, Beth Willman, et al, "Segue 3: An Old, Extremely Low Luminosity Star Cluster in the Milky Way's Halo," *The Astronomical Journal* Vol 142 (Sep 2011)

Planetary Nebulae Within Globular Clusters

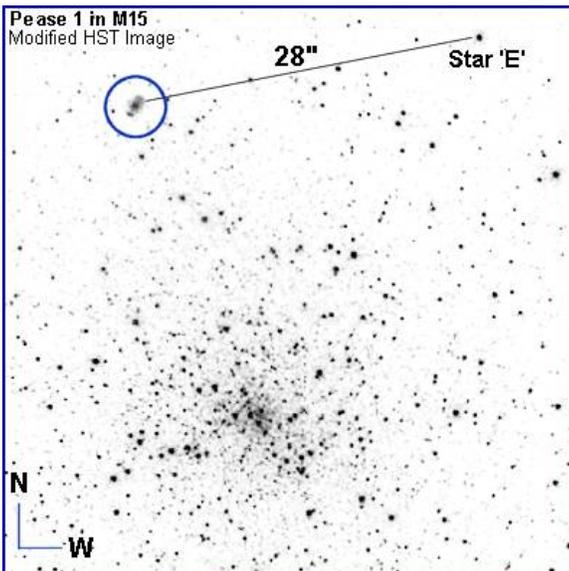
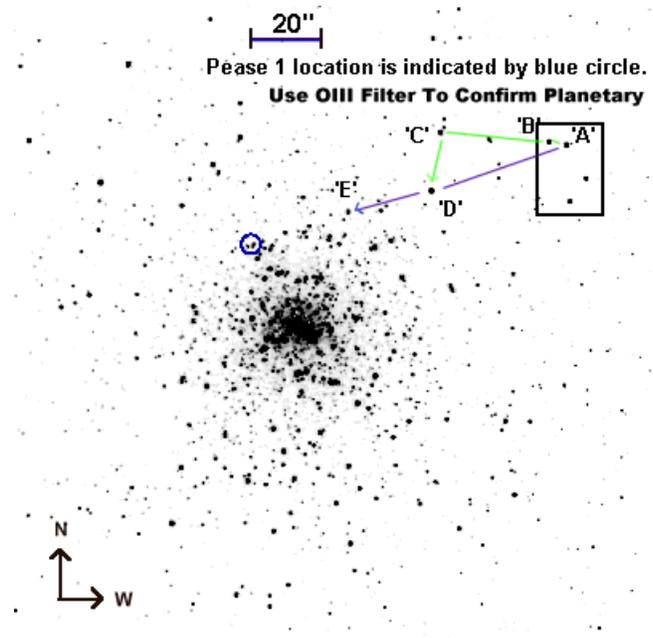
Pease 1 (M15)



Find the 4 trapezium stars inside the 'box', then proceed to the next finder chart. These stars are only the start of a grand star-hoppin' adventure. In these images, North is up, and West is to the right.

Use the 4 trapezium stars in the 'box' as starters; first you want to locate star 'D' by star-hopping from 'A' to 'B' to 'C' and then to 'D' (green lines). Stars A, B, C, and D have similar magnitudes, although B and C are slightly fainter. Once you have located 'D', then draw an imaginary line between stars 'A' and 'D'. Continue this line through to where star 'E' is (about 20 arc seconds SE). When you have located star 'E', then use Finder Chart 3 which is a modified Hubble image.

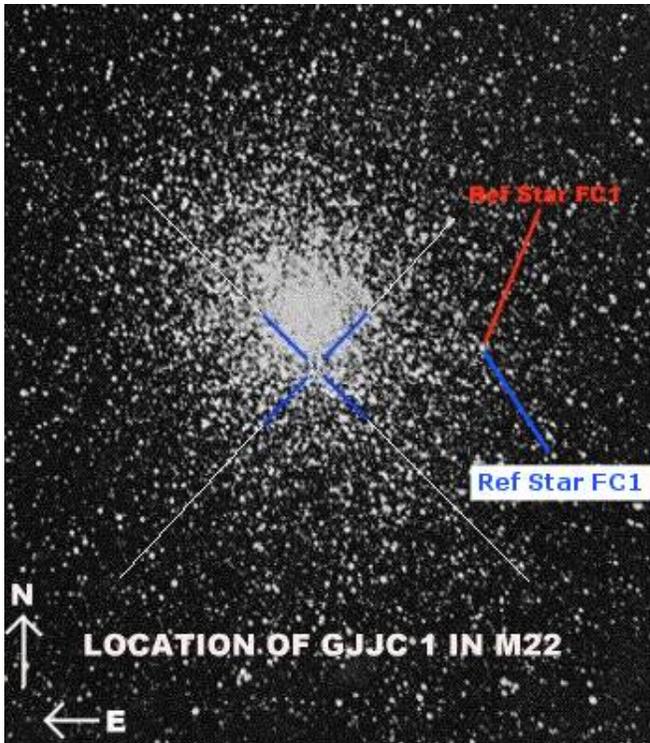
Use the



From star 'E' continue the line SE not quite half an arc minute until you can observe a small clump of stars. (*I know, everything in the field is a clump of stars!*) Notice that of the three stars circled, the PN is the object just slightly to the northwest. PNe Mag. = 14.9, Surface Brightness = 6, and the angular size of the PN = 1" (arc second).

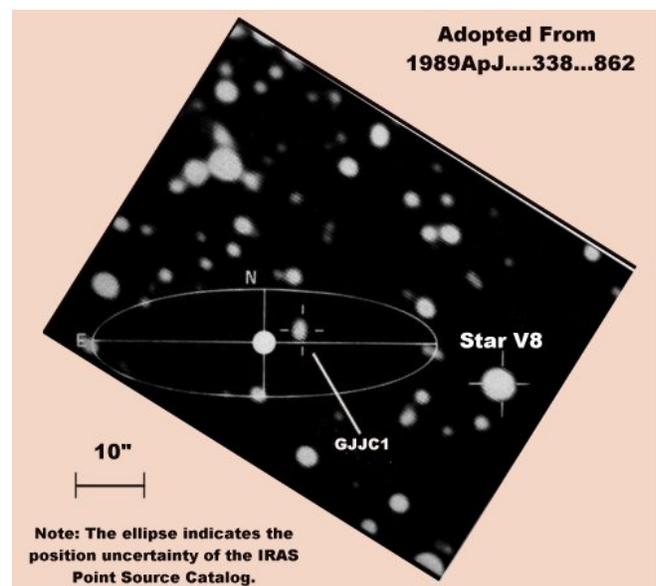
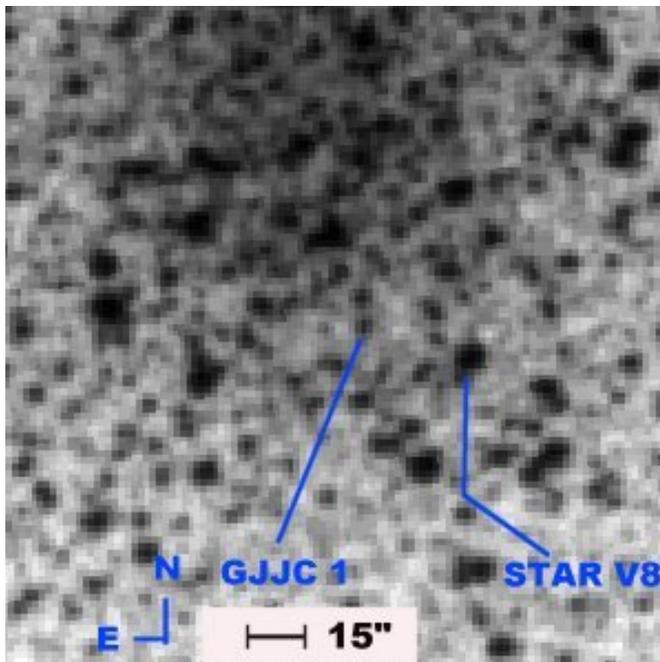
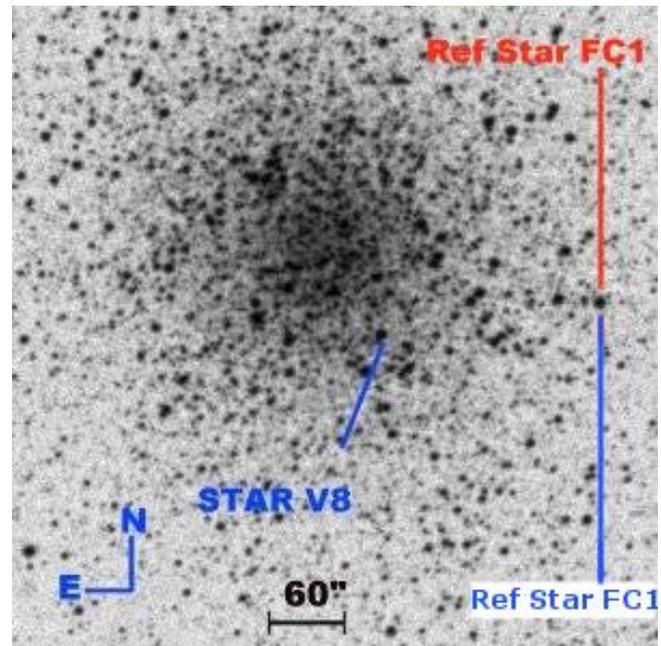
Finder charts and directions reproduced with permission from Doug Snyder www.blackskies.org

GJJC1 in M22 (Sagittarius)



This image shows the overall view of M22 and in general the location of GJJC1. The Reference Star FC1 (arbitrarily chosen) can be a starting point for star hopping to the area of the PNe, but it is also used as a reference on the next image so that we don't lose our bearings. All of the images have North at the top and East to the left.

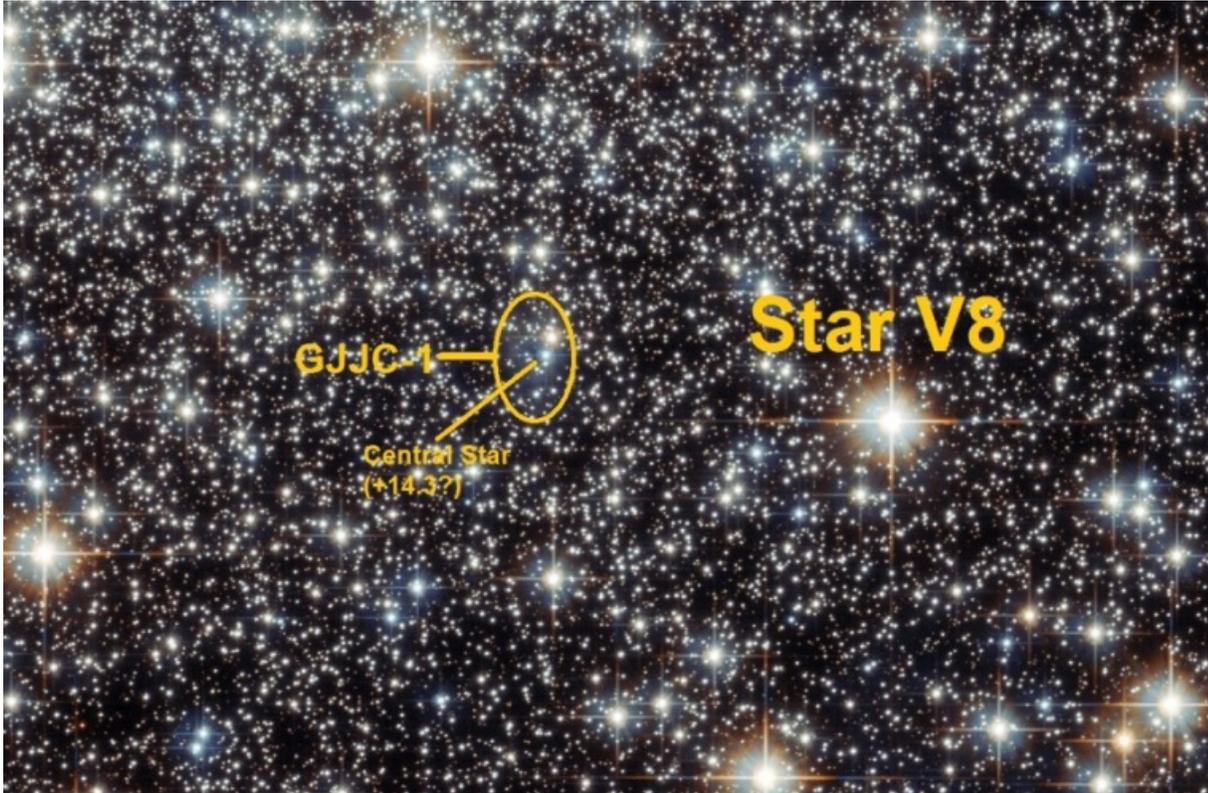
The reference star V8 on **Image2** (right) is a check point for **Image3** (bottom left), and a rough position is also shown for GJJC1. Now proceed to **Image4** (bottom right) for the final location. Also confirm with the Hubble image found on the next page.



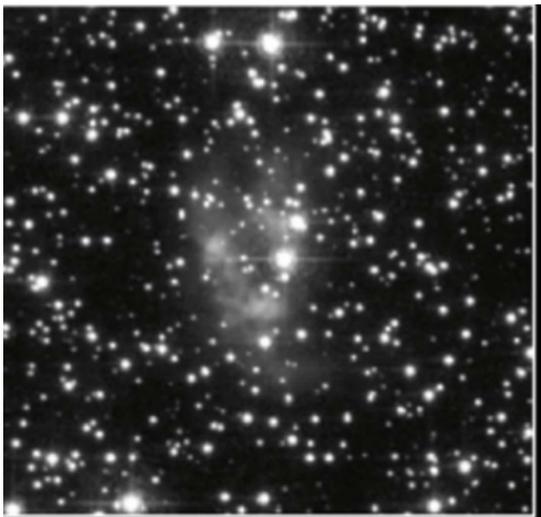
Finder charts and directions reproduced with permission from Doug Snyder www.blackskies.org

GJJC1 in M22 (Sagittarius)

Upon closer look by Scott Harrington, he found the object in the Hubble image.

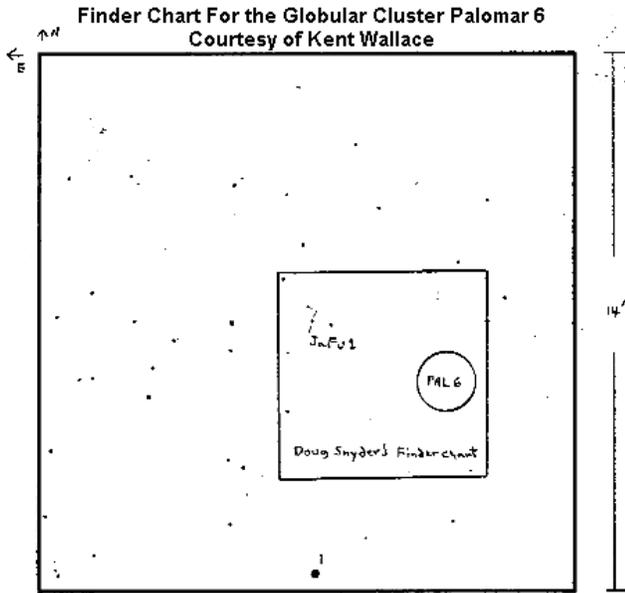


Annotated Hubble image by Scott Harrington

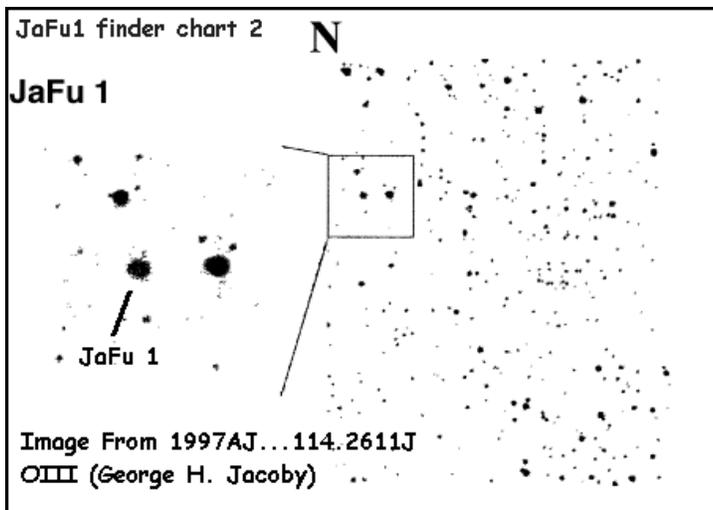
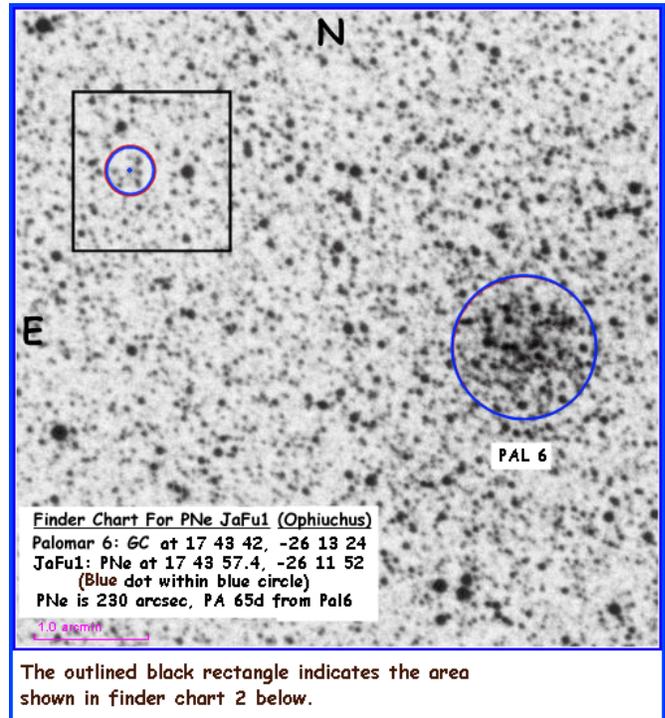


This photo was taken by the Hubble Space Telescope.

JaFu1 in Palomar 6 (Ophiuchus)

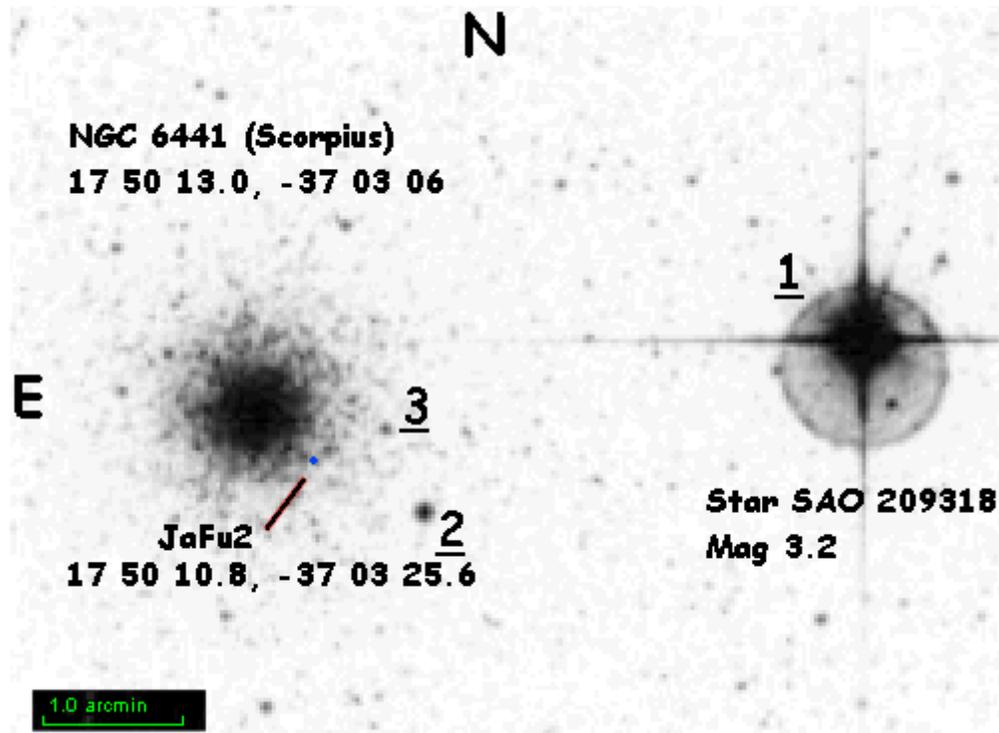


Star 1 is the 8th mag. star SE of PAL 6 shown in Sky Atlas 2000, chart 22 next to the Sagittarius / Ophiuchus border; shown in Uranometria 2000.0, chart 338 and shown in Millennium Atlas Chart 1393. Coordinates for Star 1 are RA 17h 43.9m, Dec -26d 18m (2000.0)



Finder charts and directions reproduced with permission from Doug Snyder
www.blackskies.org

JaFu2 in NGC 6441 (Scorpius)



Finder charts and directions reproduced with permission from Doug Snyder
www.blackskies.org

Objects Omitted from Observing Guide

Name	Con	RA	Dec	Source
VVV CL002	Sgr	17:54:42	-24:00:53	Moni Bidin et.al. 2011
FSR 0584	Cas	02:27:15	+61:37:28	Bica e.a. 2007
Segue 1	Leo	10:07:04	+12:47:30	-
Willman 1	Uma	10:49.4	+51:03	Willman 2004; GC or dSph?
SDSSJ1527+3419	CVn	12:57:10	+34:19:12	Sakamoto/Hasegawa 2006
FSR 1716	Nor	16:10:33	-53:44:12	Froebrich/Scholz/Raferty 2007
FSR 1767	Sco	17:35:43	-36:21:28	-
FSR 190	Cyg	20:05:31	+33:34:09	Froebrich et.al 2008a
Schuster 1	Vel	10:04:39	-55:51:29	Archinal/Hynes 2003
Rup 1, FSR 1603	Cru	12:09:45	-62:59:49	Froebrich/Scholz/Raferty 2007
Alessi J12130-6242	Cru	12:13:02	-42:42.4	Archinal/Hynes 2003
FSR 1703	Lup	15:41:55	-54:59:48	Froebrich/Scholz/Raferty 2007
FSR 0001	Oph	17:32:22	-27:03:39	Froebrich/Scholz/Raferty 2007
FSR 0002	Oph	17:32:32	-27:03:51	Froebrich/Scholz/Raferty 2007
VVV_CL003	Oph	17:38:55	-29:54:25	Moni Bidin et.al. 2011; probably open cluster
GLIMPSE-C02	Sgr	18:18:31	-16:58:38	-
Mercer 5	Sct	18:23:19	-13:40.0	Longmore et.al. 2011
FSR 0055	Sct	18:24:42	-13:23:40	Froebrich/Scholz/Raferty 2007

This list comprises candidate globular clusters that were intentionally left out/. They were left out mainly due to the unlikelihood of visual observability, even in very large telescopes. The determination was based on visual inspection of DSS, SDSS, and Pan-STARSS, wherever available.

The list used for this survey can be found here: <http://spider.seds.org/spider/MWGC/mwgc.html>

Index

Page	Name	Page	Name	Page	Name	Page	Name
144	1636-283	64	M62 (NGC 6266)	53	NGC 6287	103	NGC 6934
149	2MASS-GC1	40	M68 (NGC 4590)	62	NGC 6293	104	NGC 7006
149	2MASS-GC2	89	M69 (NGC 6637)	64	NGC 6304	108	NGC 7492
150	AL 3	89	M70 (NGC 6681)	64	NGC 6316	111	Palomar 1
141	AM 4	98	M71 (NGC 6838)	54	NGC 6325	112	Palomar 2
93	Arp GC2	103	M72 (NGC 6981)	66	NGC 6342	113	Palomar 3
46	BH 176	94	M75 (NGC 6864)	78	NGC 6352	114	Palomar 4
146	Djorgovski 1	21	M79 (NGC 1904)	63	NGC 6355	52	Palomar 5
135	E 1, AM 1	71	M80 (NGC 6093)	66	NGC 6356	52	Palomar 5
25	E 3	39	M92 (NGC 6341)	79	NGC 6362	115	Palomar 6
136	Eridanus Cluster	51	M107 (NGC 6171)	56	NGC 6366	61	Palomar 7
81	ESO 280-SC06	17	NGC 104, 47 Tuc	76	NGC 6380	61	Palomar 7
86	ESO 456-SC38	16	NGC 288	74	NGC 6388	117	Palomar 8
147	FSR 1735	18	NGC 362	80	NGC 6397	118	Palomar 9
151	GLIMPSE-C01	19	NGC 1261	68	NGC 6401	119	Palomar 10
57	Haute Provence 1	20	NGC 1851	58	NGC 6426	120	Palomar 11
56	IC 1257	22	NGC 2298	69	NGC 6440	121	Palomar 12
42	IC 4499	23	NGC 2419	77	NGC 6441	122	Palomar 13
140	Koposov 1	24	NGC 2808	77	NGC 6453	123	Palomar 14
137	Koposov 2	26	NGC 3201	75	NGC 6496	124	Palomar 15
139	Laevens 1	27	NGC 4147	59	NGC 6517	144	PWM78 2
145	Liller 1	32	NGC 4372	82	NGC 6522	140	Pyxis Cluster
48	Lynga 7	33	NGC 4833	82	NGC 6528	37	Rup 106
105	M2 (NGC 7089)	28	NGC 5053	61	NGC 6535	154	Segue 3
29	M3 (NGC 5272)	34	NGC 5139	59	NGC 6539	126	Terzan 1
70	M4 (NGC 6121)	36	NGC 5286	86	NGC 6540	132	Terzan 10
50	M5 (NGC 5904)	30	NGC 5466	75	NGC 6541	134	Terzan 11
66	M9 (NGC 6333)	31	NGC 5634	85	NGC 6544	126	Terzan 2
52	M10 (NGC 6254)	41	NGC 5694	85	NGC 6553	128	Terzan 3
52	M12 (NGC 6218)	45	NGC 5824	83	NGC 6558	126	Terzan 4
38	M13 (NGC 6205)	49	NGC 5897	83	NGC 6569	115	Terzan 5
55	M14 (NGC 6402)	46	NGC 5927	96	NGC 6584	115	Terzan 5
107	M15 (NGC 7078)	46	NGC 5946	84	NGC 6624	129	Terzan 6
62	M19 (NGC 6273)	44	NGC 5986	87	NGC 6638	130	Terzan 7
87	M22 (NGC 6656)	43	NGC 6101	87	NGC 6642	131	Terzan 8
87	M28 (NGC 6626)	72	NGC 6139	89	NGC 6652	132	Terzan 9
104	M30 (NGC 7099)	70	NGC 6144	100	NGC 6712	78	Tonantzintlia 2
28	M53 (NGC 5024)	37	NGC 6229	92	NGC 6723	150	UKS 1
91	M54 (NGC 6715)	53	NGC 6235	99	NGC 6749	145	VVV CL001
93	M55 (NGC 6809)	73	NGC 6256	97	NGC 6752	136	Whiting 1
95	M56 (NGC 6779)	54	NGC 6284	99	NGC 6760		

Additional Resources

Books

Archinal, Brent A. and Hynes, Steven J. *Star Clusters*. Richmond, VA: Willmann-Bell, 2003.

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

Coe, Steven R. *Deep Sky Observing. The Astronomical Tourist*. New York: Springer Publishing Company, 2000.

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

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

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

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

Stoyan, Ronald and Schurig, Stephan. *interstellarum Deep Sky Atlas*. Cambridge, MA: Cambridge University Press, 2015

Stoyan, Ronald and Glahn, Uwe. *interstellarum Deep Sky Guide*. Cambridge, MA: Cambridge University Press, 2018

Webb Society. *Webb Society Deep-Sky Observer's Handbook, Volume 3: Open and Globular Clusters*. Edited by Kenneth Glyn Jones. Hillside, NJ: Enslow Publishers, 1982.

Amateur Articles

Bunge, Robert. "Discover the Unknown Globulars of Sagittarius" *Deep Sky*, Vol 34 (1991): 24-29.

Higgins, David. Spring 1988. "Pushing to the Limit: The Palomar Clusters from Your Backyard" *Deep Sky* 6(1): 16-21.

Jakiel, Richard. "A Tour of Extragalactic Globulars" *Sky and Telescope*, Vol 102 (2001): 115-117.

King, Bob. "Palling Around With Palomar Globular Clusters," (2016)
<https://skyandtelescope.org/observing/palling-around-with-the-palomar-globular-clusters/>

Meketa, Jim. "The Ophiuchus Globulars" *Deep Sky*, Vol 7 (1984): 6-15.

Schur, Chris. "A Survey of Bright Globular Clusters for Backyard Telescopes" *Deep Sky*, Vol 26. (1989): 10-17.

Witkoski, Michael. "Off-Season Globular Clusters" *Deep Sky*, Vol 24 (1988): 10-17.

Websites

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

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

adventuresindeepspace.com/ - Great source of observing projects for all skill levels.

http://www.deepsky-visuell.de/Projekte/PalomarGC_E.htm - Palomar Globular Clusters by Uwe Glahn

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

Sources of charts and images

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

Acknowledgements for the two main image sources

Digital Sky Survey (DSS): These results are based [in part] on data obtained with the Digitized Sky Survey, which was produced at the Space Telescope Science Institute under U.S. Government grant NAG W-2166. The images are based on photographic data obtained using the Oschin Schmidt Telescope on Palomar Mountain, which has been processed to create the Digitized Sky Survey by the California Institute of Technology.

Sloan Digital Sky Survey (SDSS): Funding for the Sloan Digital Sky Survey V has been provided by the Alfred P. Sloan Foundation, the Heising-Simons Foundation, the National Science Foundation, and the Participating Institutions. SDSS acknowledges support and resources from the Center for High-Performance Computing at the University of Utah. SDSS telescopes are located at Apache Point Observatory, funded by the Astrophysical Research Consortium and operated by New Mexico State University, and at Las Campanas Observatory, operated by the Carnegie Institution for Science. The SDSS web site is www.sdss.org.

SDSS is managed by the Astrophysical Research Consortium for the Participating Institutions of the SDSS Collaboration, including the Carnegie Institution for Science, Chilean National Time Allocation Committee (CNTAC) ratified researchers, Caltech, the Gotham Participation Group, Harvard University, Heidelberg University, The Flatiron Institute, The Johns Hopkins University, L'Ecole polytechnique fédérale de Lausanne (EPFL), Leibniz-Institut für Astrophysik Potsdam (AIP), Max-Planck-Institut für Astronomie (MPIA Heidelberg), Max-Planck-Institut für Extraterrestrische Physik (MPE), Nanjing University, National Astronomical Observatories of China (NAOC), New Mexico State University, The Ohio State University, Pennsylvania State University, Smithsonian Astrophysical Observatory, Space Telescope Science Institute (STScI), the Stellar Astrophysics Participation Group, Universidad Nacional Autónoma de México (UNAM), University of Arizona, University of Colorado Boulder, University of Illinois at Urbana-Champaign, University of Toronto, University of Utah, University of Virginia, Yale University, and Yunnan University.

Revision History

Date	Revision
Mar 31, 2009	New document
Sep 8, 2011	Correct typos in coordinates for NGC 4717, NGC 6426 and Palomar 8
Mar 26, 2013	Enhanced throughout to be consistent with other guides. Note: No new objects.
Mar 28, 2013	Added four new objects: <ul style="list-style-type: none"> • Kaposov 1 • Kaposov 2 • Whiting 1 • FSR 1735
Jun 17, 2013	Corrected table on page 75 for NGC 6540.
Mar 27, 2014	Added newly discovered globular cluster PSO j174.0675-10.8774. Correct constellation for M3 (Bootes -> Canes Venatici)
Jun 4, 2020	Corrected naked eye finder chart for NGC 4147 (page 22)
March 2024	Added additional images to help find GJJC1. Annotated images by Scott Harrington. Minor edits. No new objects.
March 2026	<ul style="list-style-type: none"> • Deleted M31 globular clusters. They are covered in the Observing Local Group Galaxies book. • Added the remaining Milky Way globular clusters essentially covering the entire sky. <ul style="list-style-type: none"> ○ All Milky Way globular clusters below -50 degrees dec ○ Added new candidate globular clusters: AM1, Laevens 1, VVV CL001, GLIMPSE-C01, and Segue 3. • Created a new section: Candidate and Extremely Faint Globular Clusters. All objects in this section are very challenging objects, even in large telescopes. • Corrected data line for NGC 6496.