

In the region of the sky between Vindemiatrix (Epsilon Virginis) and Denebola (Beta Leonis), often called "The Realm of the Galaxies," reside fifteen Messier galaxies. They are dispersed among many dozens of other, mostly fainter galaxies lying within the reach of amateur instruments. This fact alone intimidates some observers, preventing them from exploring the area. How can the Realm be successfully navigated?

To keep from becoming lost among the numerous galaxy smudges, use the fifth magnitude guide stars of Rho Virginis and 6 Comae Berenices as reference points. Rho, easily recognized by its three surrounding dimmer stars, can be found one firdscope field of view west of Vindemiatrix. 6 Comae Berenices shines one finder field directly east of Denebola.

If Rho is centered in a typical 8 x 50 finderscope, then M58, M59, M60, M89, and M90 all dimly glow in the northern half of the field. Just outside the southwestern edge of the finder's field sits M49, Messier's first discovery in this galaxy packed area.

If 6 Comae Berenices is centered, then the smudges of M98, M99, and M100 can be seen faintly glowing around it. About one-half of a finder field north shines another fifth magnitude star, 11 Comae Berenices, with the dim M85 lurking just to its east.

Next, center the scope half way between Vindemiatrix and Denebola. M84 and M86 both lie near the center of the finder's field while M87 glows prominently to their east. M88, M89, M90 and M91 can be barely spotted in the eastern and northeastern portions of the field. M58 glows on the far eastern edge of the field roughly twice the distance as M87.

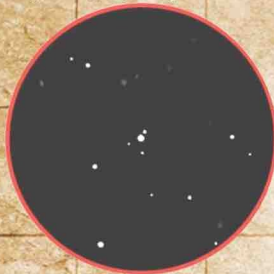
While searching for Messier's treasures, you will probably also find a few small, dim galaxy smudges included in the same field as one or two larger, brighter ones. Which are your true quarries? Most likely, the brighter ones are Messiers, and the dimmer ones are not.

In the Realm's center, there exists an intriguing galaxy string known as "Markarian's Chain" that your scope may be able to pick up. The chain begins with M84 and M86, then arcs northeast past several smaller, dimmer galaxies, and ends on M88. Through the scope's eyepiece, two galaxies near M86, known as "Copeland's Eyes," seem to stare back at you, giving an eerie sight.

As a bonus for you, there are four large, "bright" galaxies that Messier apparently missed that are listed in the New General Catalogue: NGC 4216, 4438, 4535, and 4762. Except for NGC 4438 — the southern "Eye," none lie near a Messier target.

Congratulations! You successfully navigated the Realm and discovered Messier's hidden treasures!

Finderscope view of 4th magnitude Rho Virginis with galaxy "smudges" in the area.



Finderscope view of the area around M86.











Finderscope view of the galaxy smudges near 6 Comae Berennices.



Two finder fields of view
directly north resides the
Coma Berenices Open Cluster

32 + 33 Comae Berenices,
an easy binocular double star

Stellar Magnitudes	
	1.5 - 2.5
	2.5 - 3.5
	3.5 - 4.5
	4.5 - 5.5
	5.5 - 6.5
	6.5 - 7.5
Galaxies	
	Messier
	NGC

Vindemiatrix

Observing characteristics of Messier Galaxies

Messier	Dimensions (arc min)	Integrated Magnitude (magnitude)	Surface Brightness (mag./min ²)	Binocular Appearance
M49	8.9 x 7.4	8.4	12.70	Bright, round glow between two 6th mag. stars
M58	5.4 x 4.4	8.8	13	Faint hazy glow 7' east of an 8th mag. star
M59	5.1 x 3.4	8.8	12.6	Rho Virginis 2Y to its southeast
M60	7.2 x 6.2	8.8	12.7	Bright, uniform round glow
M84	5.0 x 4.4	9.3	12.4	Bright, uniform round glow 15' west of M86
M85	7.1 x 5.2	9.2	12.9	Elongated patch 1' east of 11 Comae Ber.
M86	7.4 x 5.5	9.2	13.1	Round and brighter than M84
M87	7.2 x 6.8	8.6	12.6	Bright round glow
M88	9.3 x 3.9	9.5	12.8	Elongated smudge 35' southeast of 7th mag. star
M90	7.2 x 6.2	9.5	12.7	Hard to spot smudge at edge of 1' east of M87
M91	6.5 x 4.7	9.5	13.4	Elongated smudge 45' southwest of 7th mag. star
M91	5.4 x 4.4	10.2	13.4	Difficult to find faint, round smudge
M98	9.5 x 3.2	10.1	13.5	Difficult to find elongated smudge 30' west of 6 Comae Ber.
M99	5.4 x 4.8	9.8	13.1	Dim, round patch 10' southwest of 6.5 mag. star
M100	6.9 x 6.2	9.4	13.2	Faint, round smudge at center of triangle of 6.5 mag. stars