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# Binocular Universe:

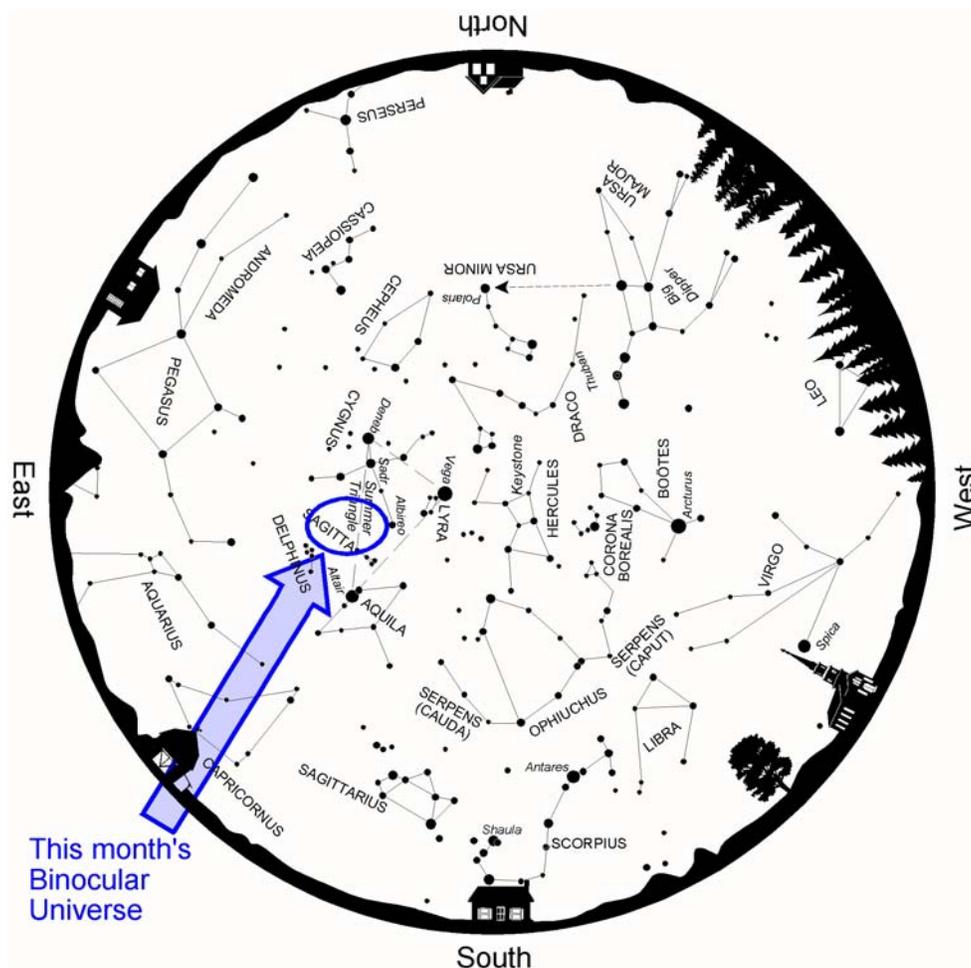
## Sly Fox

September 2010

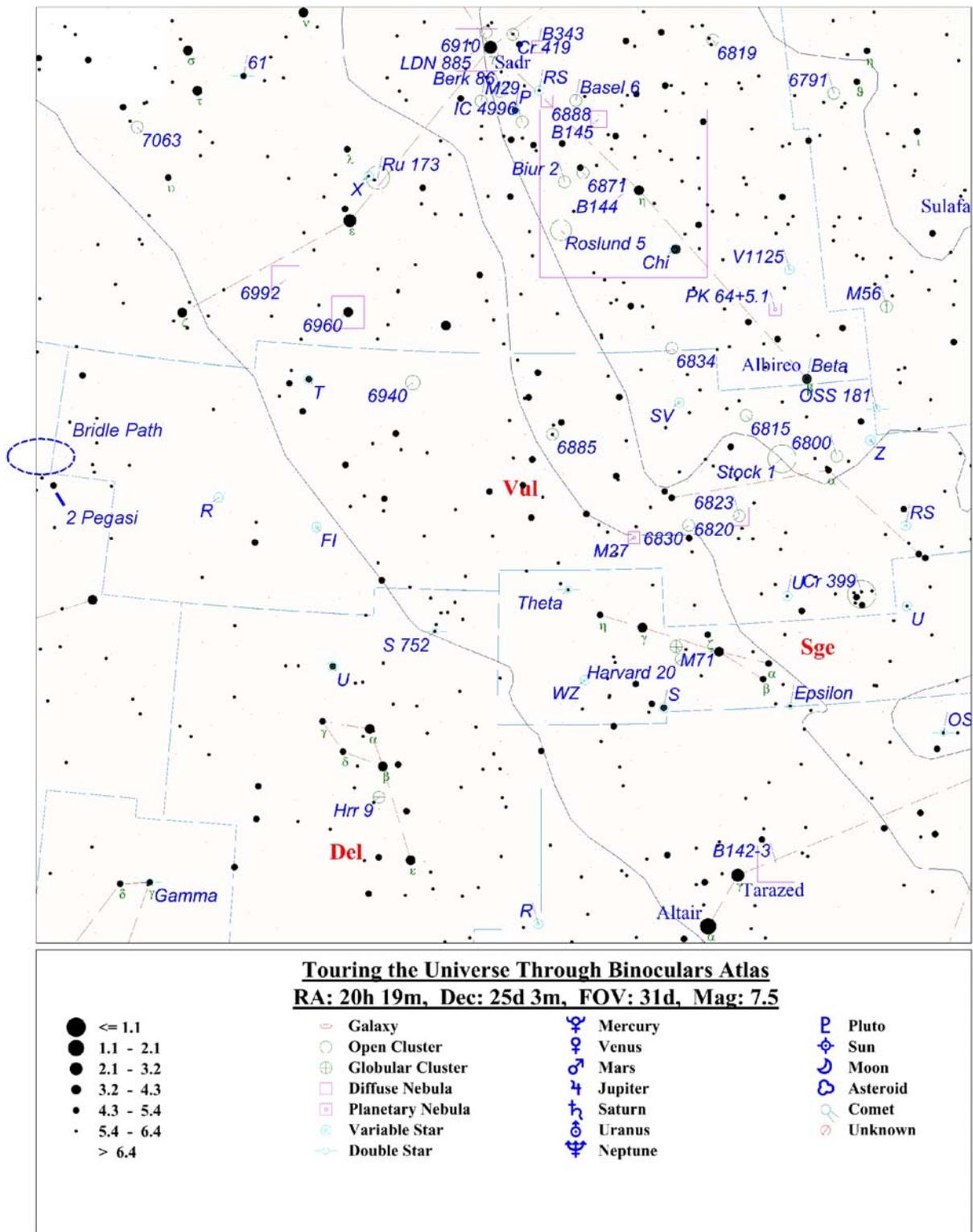
[Phil Harrington](#)



Last month's Stellafane convention, held atop Breezy Hill outside of Springfield, Vermont, was the best in recent memory. The skies were the clearest we've had in years, giving us a chance to enjoy the beauty of the summer Milky Way, which stretched from horizon to horizon. Armed with my trusty 10x50 and 16x70 binoculars, I sat back in my reclining chair and swept the plane of our Galaxy in pursuit of some old friends and new conquests.



Above: Summer star map from [Star Watch](#) by Phil Harrington



Above: Finder chart for this month's *Binocular Universe*. Chart adapted from *Touring the Universe through Binoculars Atlas (TUBA)*, [www.philharrington.net/tuba.htm](http://www.philharrington.net/tuba.htm)

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Here are a few gems I bumped into along the way as I viewed the tiny constellation of Vulpecula the Fox. Vulpecula is a faint summertime constellation wedged between Cygnus (the Swan) to the north and Sagitta (the Arrow) to the south. None of Vulpecula's stars shine brighter than magnitude 4.5, so seeing a fox here is a tall order indeed. But the sly Fox holds many binocular treasures for those who the time to seek them out.

Vulpecula was created in 1687 by the Polish astronomer Johannes Hevelius. His original drawing showed a small fox carrying a hapless goose in its mouth. He called the combination *Vulpecula et Anser* ("the little fox and the goose"). Later, the constellation was split into two separate parts, Vulpecula and Anser. In their efforts to fix 88 standard constellations, the International Astronomical Union dropped the Goose, but kept the Fox. Although the Goose is no longer a recognized constellation, Vulpecula's brightest star, Alpha Vulpeculae, is still known as Anser.

Binoculars show that **Anser**, a red giant, forms a colorful pair with the orange giant star **8 Vulpeculae** located 7' to its northeast. It's just a chance alignment, however. Anser is believed to be 297 light years away, while 8 Vul is 485 light years from Earth. If you have trouble seeing the colors, try defocusing the image slightly. A soft focus often enhances our eyes' ability to perceive subtle color.

Vulpecula's prettiest binocular target has to be the **Coathanger** asterism, which was detailed in the September 2009 edition of this column. But it's always well worth a revisit to this fun target. The outline is drawn from six stars aligned in a straight line that marks the Coathanger's cross bar, and another four that curve away to create the hook. Those stars really sparkled from Stellafane this year, perhaps in homage to Walter Scott Houston, a Stellafane fixture for decades. Scotty Houston first introduced the Coathanger to me, and likely countless others, thanks to a small write-up in an old newsprint star atlas he created half a century ago.

Next, I visited **M27**, the Dumbbell Nebula. M27 carries the distinction of being the first planetary nebula ever discovered. Charles Messier spotted it in 1764. Located about 1,250 light years away, M27 is the biggest and brightest planetary visible in northern skies.

While it is easy to tell M27 apart from the surrounding stars through binoculars, locating it in the first place can be another matter. Rather than scratch your head in frustration, do as most others do and start your search in neighboring Sagitta. Concentrate your aim on Gamma Sagittae, the star marking the Arrow's eastern tip. Look about half a field due north for a triangle of stars formed from 14, 16, and 17 Vulpeculae. M27 will look like a smudge of grayish light just southeast of 14 Vulpeculae.

Can you see a shape to M27? Even through my 10x50 binoculars, I can see its unusual box-shaped glow floating in a field strewn with stardust. Catching a hint of its hourglass form, however, takes the magnification of my 16x70s. Those same binoculars created a spectacular illusion of it floating in a field overrun with faint stars, as the sketch here tries to capture.



*A sketch of M27 and surroundings made through the author's 16x70 binoculars.*

*North is up.*

Next, I glanced  $2^\circ$  due west to 5<sup>th</sup>-magnitude 12 Vulpeculae, and then looked just to the north. There, I spotted the faint glow of **NGC 6830**, an open cluster made up of about two dozen stars. A couple of faint points were resolved through the 16x70s, but only with averted vision. My 10x50s only showed the faintest hint of the cluster.

Siding another  $2^\circ$  west-northwest, I arrived at open cluster **NGC 6823**. NGC 6823 is tougher to see than its neighbor, but if you look along the eastern side of a triangle formed by the 8<sup>th</sup>-magnitude stars SAO 87582, SAO 87608, and SAO 87613, you just might make out its dim smudge. Again, it was evident in the 16x70s, but a challenge in the smaller 10x50s.

**NGC 6940** is far easier to see than either NGC 6823 or NGC 6830. This obvious open cluster lies just inside the northeastern border of Vulpecula. I first saw this cluster years ago through my 8-inch reflector, but recently stumbled upon it again quite by accident while just casually sweeping the region through my 10x50 binoculars. *Bang!* There it was. The cluster's football-shaped glow measures about as large as the Full Moon and looks like a detached cloud from the Milky Way. You can't miss it, even from light-polluted suburban skies. Look carefully, and you may even see a few faint stars poking out from within.

NGC 6940 lies out in the hinterlands, which is probably why so few observers even know about it. To find it, begin at Epsilon Cygni, along the Swan's eastern wing. Drop about  $3.5^\circ$  (depending on your binoculars, that's about half a field) due south

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to 52 Cygni, famous as the star superimposed on the western segment of the Veil Nebula, NGC 6960. From 52, glance an equal distance to the southwest, where you should find the cluster.

Our last stop this month is an asterism that is best suited for giant binoculars. While I was scanning the area in and around Vulpecula with my 16x70 binoculars, I stumbled upon a very pretty hook-shaped trail of stars centered at R.A. 21h 33m, Dec. +24°, just across the border in Pegasus. The Horse's **Bridle Path**, as I call it, starts at 7th-magnitude SAO 89725 at the border and meanders eastward to end about 3.5 degrees later at SAO 89828, also 7th magnitude. Along the way, the Path's approximately three dozen stars divert northward around the star 2 Pegasi. Because of their dimness, the stars' light seems to blend together to create a misty, almost ethereal glow that was quite striking under the dark Vermont skies. Have a look for yourself and post your impressions in this column's discussion forum.



*The Bridle Path, as sketched through the author's 16x70 binoculars. The bright star to the lower right of center is 2 Pegasi.*

*North is up.*

There are many other interesting targets in this area, so get out there and enjoy each. To help you find out what's what, here are some additional objects plotted on the TUBA chart above.

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Object	Con	Type	R.A. (2000)	Dec	Mag	Size/Sep/ Period	Notes
Beta	Cyg	**	19 30.7	+27 58	3.1,5.1	34"	*TUB page 139* 54°(1967);12540;Albireo
V1125	Cyg	Vr	19 31.8	+31 52	9.0-9.9p		Irregular
PK 64+5.1	Cyg	PN	19 34.8	+30 31	9.6p	8"	Campbell's Star
Chi	Cyg	Vr	19 50.8	+32 55	3.3-14.2	406.93 days	*TUB page 139* Long Period Variable
6834	Cyg	OC	19 52.2	+29 25	7.8	5'	
B144	Cyg	Dk	19 59	+35 0		360'x180'	Fish on the Platter Nebula
6871	Cyg	OC	20 5.9	+35 47	5.2	20'	*TUB page 139-140*
Biur 2	Cyg	OC	20 9.2	+35 29	6.3	13'	
Roslund 5	Cyg	OC	20 10	+33 46		45'	*TUB page 140*
Ru 173	Cyg	OC	20 41.8	+35 33		50'	*TUB page 140*
X	Cyg	Vr	20 43.4	+35 35	5.9-6.9	16.39 days	Cepheid
6960	Cyg	DN	20 45.7	+30 43		70'x6'	Filamentary Nebula (52 Cyg)
6992	Cyg	DN	20 56.4	+31 43		60'x8'	Veil Nebula
S 752	Del	**	20 30.2	+19 25	6.6,7.0	106"	288°(1915);13921
U	Del	Vr	20 45.5	+18 5	7.6-8.9p	110 days	*TUB page 145* Semi-Regular
Epsilon	Sge	**	19 37.3	+16 28	5.7,8.0	89"	81°(1949);12693
Harvard 20	Sge	OC	19 53.1	+18 20	7.7	7'	*TUB page 213*
M71	Sge	GC	19 53.8	+18 47	8.3	7'	*TUB page 214* NGC 6838
S	Sge	Vr	19 56	+16 38	5.3-6.0	8.382 days	Cepheid
WZ	Sge	Vr	20 7.6	+17 42	7.0-15.5p	11900 days?	*TUB page 214* Recurrent nova (1978)
Theta	Sge	**	20 9.9	+20 55	6.5,7.4	84"	223°(1949);13442;Optical
6800	Vul	OC	19 27.2	+25 8			
Stock 1	Vul	OC	19 35.8	+25 13	5.3	60'	*TUB page 260*
U	Vul	Vr	19 36.6	+20 20	6.8-7.5	7.991 days	Cepheid
6815	Vul	OC	19 40.9	+26 51			
6820	Vul	DN	19 43.1	+23 17		40'	
6823	Vul	OC	19 43.1	+23 18	7.1	12'	
6830	Vul	OC	19 51	+23 4	7.9	12'	
SV	Vul	Vr	19 51.5	+27 28	6.7-7.8	45.035 days	Cepheid
M27	Vul	PN	19 59.6	+22 43	8.1	480" x 240"	*TUB page 260, 261* NGC 6853 Dumbbell Neb
6885	Vul	OC	20 12	+26 29	5.7p	7'	
6940	Vul	OC	20 34.6	+28 18	6.3	31'	*TUB page 260-261*
FI	Vul	Vr	20 48.9	+23 0	8.6-9.4p		Irregular
T	Vul	Vr	20 51.5	+28 15	5.4-6.1	4.436 days	Cepheid

Have a suggestion for a fun binocular target that you'd like to share? E-mail me at [phil@philharrington.net](mailto:phil@philharrington.net).

Until next month, when we continue my Stellafane survey up through Cygnus and Lacerta, remember that when it comes to stargazing, two eyes are better than one!



#### About the Author:

Phil Harrington is the author of eight books on astronomy, including [Touring the Universe through Binoculars](#). Visit his web site at [www.philharrington.net](http://www.philharrington.net) for a preview of his next book, [Cosmic Challenge](#), coming this fall from Cambridge University Press.

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