Binocular Universe:

Let's Play Hydra and Seek

April 2013

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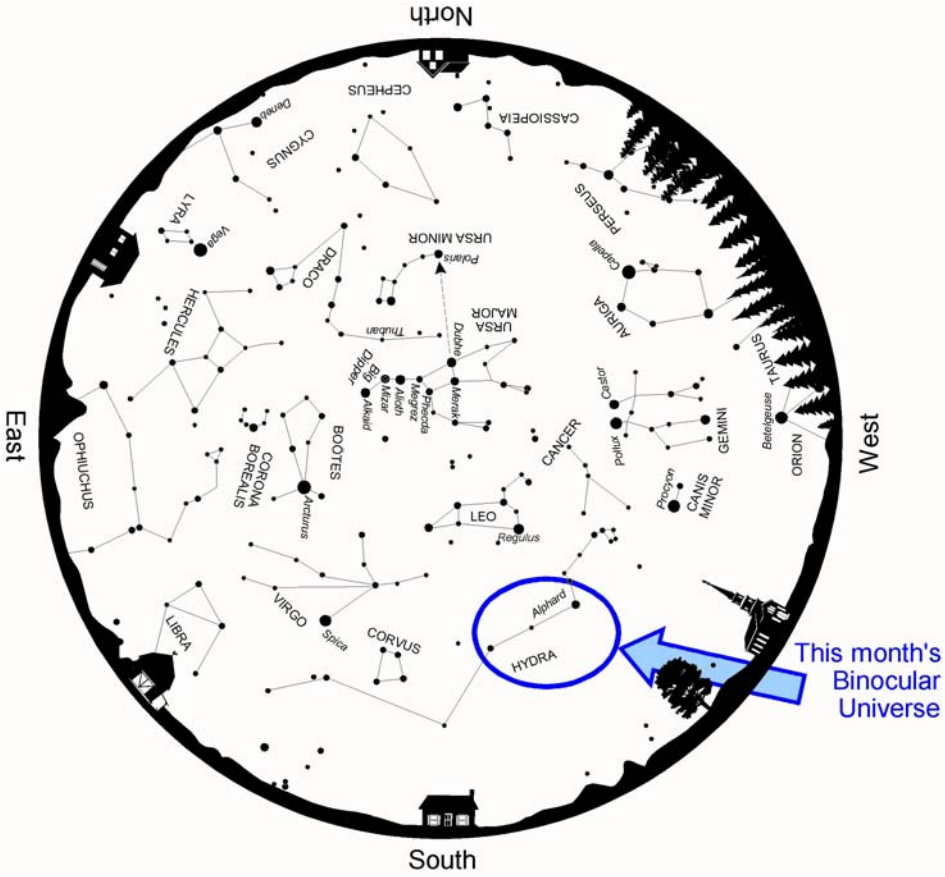
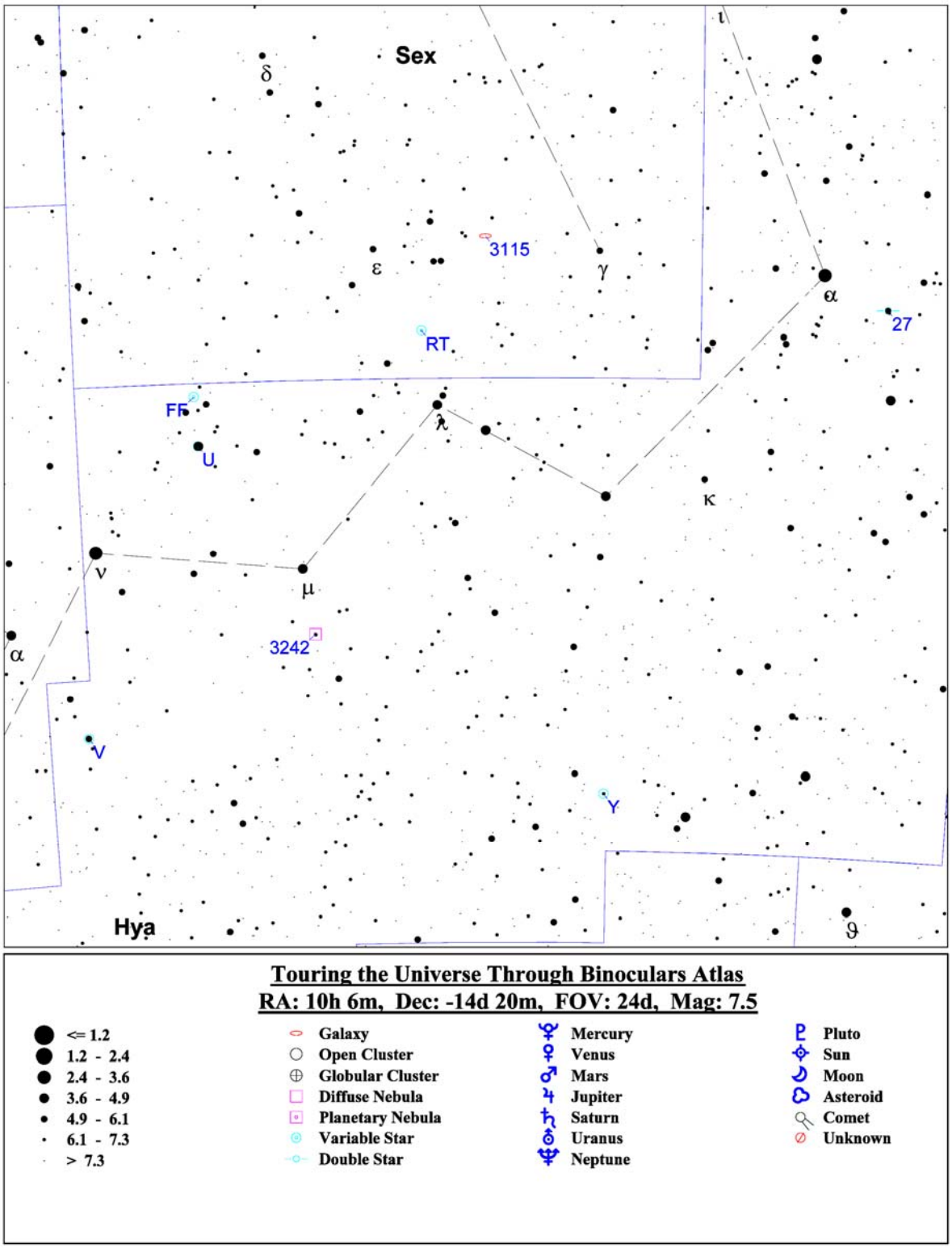
Of the 88 constellations scattered across the sky, none spans so great a length as Hydra, the Water Serpent. Westernmost Hydra, lying just east of Canis Minor and winter's Milky Way, consists of a four-star trapezoid marking one of the serpent's seven heads. The serpent's long, slithering body then winds its way eastward across our southern spring sky to end near Libra, Scorpius, and the gateway to the summer Milky Way.



Above: Spring 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

While its stars are faint, and at times rather hard to follow, the great length of Hydra contains nearly every type of deep-sky object there is. This month, we are going to seek out a few hidden targets that are often missed by observers.

We begin our visit at Hydra's brightest star, Alphard [Alpha (α) Hydrae]. Even though the stars in Hydra are quite faint, Alphard is surprisingly easy to identify. Draw a line from Megrez [Delta (δ) Ursae Majoris] through Phecda [Gamma (γ) Ursae Majoris] in the Bowl of the Big Dipper, and extend it southward to Regulus in Leo. But, keep going until you arrive at another star, a bit fainter than Regulus, but still fairly bright. That's Alphard. Its name translates from the Arabic "the solitary one," which seems appropriate given the barren surroundings. Alphard is a type K giant star, evidenced by its slight orangish tint through binoculars.

Scan just 2 degrees west of Alphard through your binoculars and you'll come to **27 Hydrae**, a wide, easily split binary star. The 5th-magnitude, spectral type-G primary star will hint at the species' characteristic yellowish tint if its image is just nudged out of focus. The accompanying 7th-magnitude secondary sun, separated from the primary by nearly 4' of arc, shines pure white and should be easily visible even with the lowest power opera glass. The pair show the same proper motion, which indicates that they form a true binary system. Further, a 2008 report by the Okayama Planet Search team finds that a third "substellar" member, perhaps a brown dwarf, may belong to the system.

Follow Hydra's zigzagging form eastward, pausing at 4th-magnitude Mu (μ) Hydrae. Spring's brightest planetary nebula, **NGC 3242**, lies only 2 degrees due south. Like nearly all planetary nebulae, NGC 3242 appears quite small. But at 8th magnitude, it's still bright enough to identify in 7x50 binoculars. Look for a blue "star" in amongst the surrounding white field stars. That will be NGC 3242. A pronounced "bulge" is evident through higher power glasses, but the 11th-magnitude central star will probably remain out of range. NGC 3242 is nicknamed the "Ghost of Jupiter" for it similar appearance to our largest planet through telescopes. Photographs, however, show a strong resemblance to a human eye, with a fainter outer shell of gas surrounding the brighter core.

This segment of Hydra also holds two other colorful binocular targets. **U and V Hydrae** are both are classified as semiregular variable stars, meaning their fluctuation period varies within certain parameters. U Hydrae has an average period of 183 days, during which time it pulses between magnitudes 4.6 and 5.4. V Hydrae averages a much longer 531-day period, flickering from 6th magnitude to, at times, as low as 12th.

To find U Hydrae, look 3 degrees (or about half a field) north of the midpoint between Mu and Nu (ν) Hydrae. Since U remains bright throughout its period, it should stands out nicely as an orange-red point set among a field of faint white stars. Like Orion's Betelgeuse, which is now setting in the west, U Hydrae is a red supergiant star. U is further classified as a *carbon star*, a nod to the sooty molecules of carbon that envelope the star. Carbon scatters the red end of the spectrum while absorbing blue wavelengths, creating these stars' colorful appearances.

Left: The carbon star U Hydrae commands center stage in this view through the author's 10x50 binoculars.

North is up.

V Hydrae is also listed as carbon star. To find it, scan 5 degrees south of Nu Hydrae. Though fainter than U Hydrae, V Hydrae's telltale reddish color strikes many as more prominent. To enhance the color of both, as well as the bluish tint of NGC 3242, try defocusing your binoculars ever so slightly.

Both U and V Hydrae are among the 153 variables in the American Association of Variable Star Observers' (AAVSO's) Binocular Program. I mentioned this program in last month's column, as well, and hope you've had a chance to look it over. There are plenty of binocular variables scattered throughout the spring sky for you to find and monitor. Follow the link here to learn more about the program as well as to create finder charts for the stars.

We have one final target within our Binocular Universe this month. To find it, we'll need to jump across borders into the faint constellation of Sextans, the Sextant. **NGC 3115**, nicknamed the Spindle Galaxy for its distinctive lens shape, is an outstanding example of an E6 elliptical galaxy. Through 10x glasses, it appears only a barely visible smudge. But double the magnification and its unique profile begins to come clear.

While 9th-magnitude NGC 3115 is well known to deep-sky aficionados, few casual observers take the time to hunt it down due to its bleak backdrop. The easiest way

to find NGC 3115 is to return to Alphard and then scan due east for 6 degrees to 5th-magnitude Gamma (γ) Sextantis. Continue another 4.5 degrees until you arrive at the wide optical double star 17 and 18 Sextantis. Our quarry is only about 1.5 degrees to their northwest. But make no mistake. This is big game for most binoculars. You'll need very clear, dark skies and a steady hand (better still, a tripod or other support) to claim victory.

My time is up for this month, but if you long for more, this list of nearby targets offers further challenges.

Object	Con	Type	R.A. (2000)	Dec	Mag	Size/Sep/ Period	Notes	
27	Hya	**	9 20.5	-9 33	5.0,6.9	229"	*TUB page 161*	211°(1923);7311
Y	Hya	Vr	9 51.1	-23 1	8.3-12.0p	302.8 days	Semi-Regular	
3242	Hya	PN	10 24.8	-18 38	8.6p	16"	*TUB page 161*	Ghost of Jupiter
U	Hya	Vr	10 37.6	-13 23	7.0-9.2p	450 days	Semi-Regular	
FF	Hya	Vr	10 37.9	-12 1	8.2-10.3p	85 days	Semi-Regular	
V	Hya	Vr	10 51.6	-21 15	6.5-12	533 days	Semi-Regular	Carbon star
3115	Sex	Gx	10 5.2	-7 43	9.1	8'x3'	*TUB page 235*	E6 Spindle Galaxy
RT	Sex	Vr	10 12.3	-10 19	8.0-8.5	96 days	Semi-Regular	

We begin to see hints of the summer sky next month, and not a moment too soon for me! Until we meet again under the stars, remember that two eyes are better than one.

About the Author:

Phil Harrington is the author of nine books on astronomy, including Touring the Universe through Binoculars and Cosmic Challenge. Visit his web site at www.philharrington.net