



*Lupus  
a wild animal*

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Image source: Stellarium

There is a true story behind this month's constellation. "Star friends" as I call them, regularly visit me on the farm, exploiting the ideal conditions for deep-sky studies and of course talking endlessly about astronomy. One winter's weekend the Coopers from Johannesburg came to visit. What a weekend it turned out to be. For Tim it was literally heaven on earth in the dark night sky with ideal circumstances to study meteors. My observatory is perched on top of a building in an area consisting of mainly Mopane veld with a few Baobab trees littered along the otherwise clear horizon. Ascending the steps you are treated to a breathtaking view of the heavens in all their glory.

That Saturday night Tim settled down comfortably on a camp bed, busy plotting meteors. The evening was exceptionally quiet, very dark and cold. Suddenly, without warning, the most unearthly animal sounds that I've ever heard in the Bushveld, echoed through the night. The horrific growls and howls were getting louder and nearer. Nerve wracking is putting it mildly. Terrifying, with cold chills running down your back, is closer to the truth. Fortunately for me I was upstairs in my observatory, but poor Tim was down

below in what might be 'ground zero'! "What is that?" Tim enquired in a brave voice, "It sounds like a leopard catching a buck". To which I replied: "No, Timmy, it is much, much more dangerous!" Great was our relief when the wrestling match started disappearing into the distance. The altercation was between two aardwolves, wrestling over a bone or a four-legged lady.

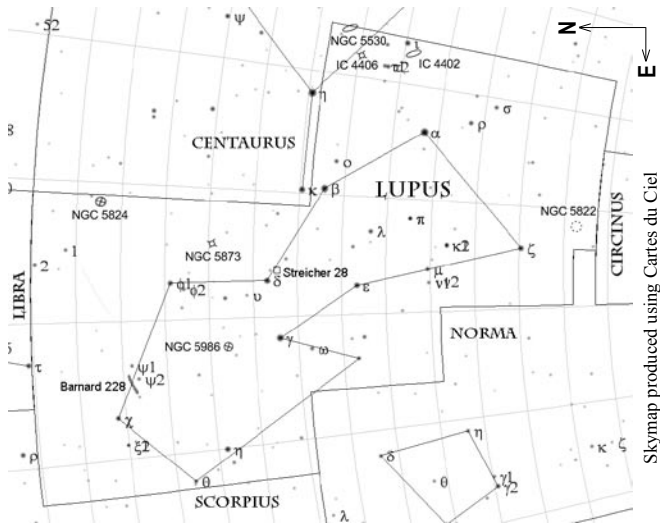
The Greeks and Romans saw the constellation Lupus as a wild animal but for the Arabians and Timmy it was their Leopard or Panther. This very ancient constellation known as Lupus the Wolf is just east of Centaurus and south of Scorpius. It has no stars brighter than magnitude 2.6.

**Zeta Lupi**, the most southern star at the tail-end of the constellation Lupus, is a wide double star which boasts an orange, magnitude 3.4 primary and a magnitude 7 golden-yellow companion.

Approximately 2.5 degrees further South brings us to our first deep-sky object, **NGC 5822**, one of the most beautiful "sprinkled" open clusters. Short curved strings of stars intertwine with each other.

## Lupus, a wild animal

It is not a very tight cluster and has faint members that run out to mingle well with the surrounding star-field. It resembles a distant town in the dark of night with flickering streetlights, as seen from an aeroplane. Nearby is a small patch of faint stars, discovered by Auke Slotegraaf with his 11x80 tripod-mounted binoculars while sweeping the



Circinus/Lupus area. A short, curved chain of 9<sup>th</sup> magnitude stars leads to NGC 5822, about 48' SW from 'Auke's cluster', which at 52x forms a close gathering of a few stars. However, with binoculars at RA 15h and DEC -55, the impression of a cluster remains. Quite pretty in a telescope.

**Alpha Lupi** is situated 6.5 degrees NW from Zeta Lupi which incidentally was originally thought to be a triple system. The primary is a brilliant blue/white magnitude 2.3 star with a very faint magnitude 13.4 companion, separated by 27.3' at position angle 232. The original third component is a field-star, deep orange, with magnitude 6.8 HD 129017, situated 6' to the north of the double. Its contrasting colour with the blue/white double nearby makes an arresting sight.

Edge-on galaxies are some of my favourite objects to study. **IC 4402**, a lovely spindle in a NW-SE direction, is just 23' SE of Iota Lupi in the south-western part of the Lupus constellation, close to the border with Centaurus. The galaxy has a small, bright nucleus that terminates in sharp pointed ends. Two faint stars can be seen on both the SE and NW ends. A string of faint stars north of the galaxy runs along the eastern side of the galaxy to the south.

Right on the Centaurus border, 2.6 degrees north from Iota Lupi, the spiral galaxy **NGC 5530** can be seen. This galaxy appears as a very soft NW-SE oval haze with a prominent bright star-like nucleus. The nuclear region of NGC 5530 appears unusually bright owing to the near superposition of a 13<sup>th</sup> Magnitude star. In higher power (218x), a few splinter-stars can be seen on its dusty surface. John Herschel

was very excited about this one when he described it as "... perfectly sharp in the centre with a very dilute gradually fading atmosphere". It has been said that when it was photographed from Egypt in 1935 for the first time, it was identified as a "spiral nebula".

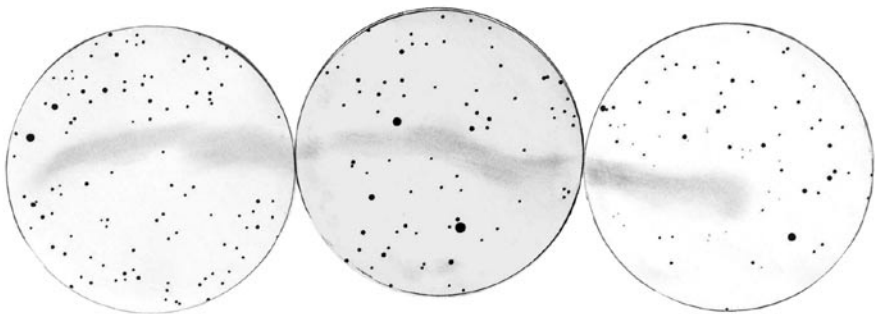
As a bonus the Planetary Nebula **IC 4406** is just one degree SE of NGC 5530. This planetary reminds me of a galaxy in low power (127x). Higher power (290x) brings out its boxy glow in an EW direction, with the NS axis fading out into soft nebulosity. At even higher power (462x) the EW pair of lobes can be seen tapering towards the middle area. This planetary is in the final stages of its life, resembling a doughnut from the side. RTA Innes discovered this planetary nebula with the 7-inch Metz refractor from the Cape of Good Hope on 14 August 1901.

Well-known to the northern hemisphere guys and situated in the constellation Camelopardalis, is the "Kemble Arcade"

asterism. Right in the centre of the starry wolf's heart I came across a petite **asterism**, also resembling an arcade but on a much smaller scale. It is 30' SW of Delta Lupi and consists of 10 stars. The brightest is 8.6-magnitude HD 135814 with fainter stars about 10' in a downward string running northwest to southeast.

Three degrees NNW of this miniature arcade, the planetary nebula **NGC 5873** can be seen, hanging like a drop of water from the starry Wolf's tongue. It is arranged in a perfect triangle with two stars of magnitude 11.5, in a star-field strewn with faint stars. This small planetary nebula, almost 16 000 light years away, appears stellar and slightly out of focus. With averted vision it displays a light frosted blue-grey colour.

In the far northern corner of the Wolf constellation, on the Lupus/Centaurus boundary, lies the globular cluster **NGC 5824** (Bennett 67). Easily visible, this globular reminds me of a streetlight on



The dark nebula **Barnard 228** sketched by Magda. The sketches were rotated by 45 degrees, so that north-east is up and north-west to the right.

## lupus, a wild animal

a rainy, misty night (95x). Small in size and relatively bright, it grows gradually brighter to a much brighter nearly star-like core that roughly covers one third of the globular (218x). The core displays a slightly soft envelope around it, changing into a soft outward haze. Even at 290x magnification, no stars are resolved although the edges become faintly granular with just a few faint stars visible. It was missed by John Herschel and picked up by EE Barnard who described it as a nebula with a stellar nucleus.

Talking about EE Barnard, dark nebulae should be observed more and fortunately the constellation Lupus houses **Barnard 228**, situated just NE of psi2. It appears as a very obvious long, dark ink-stain in a SE-NW direction, completely without starlight. This long streak of dark nebulosity is more than 5 degrees in length. The north-western part of the nebula looks wider – I estimate it at around 15' with the 7.6-magnitude star HD 143098 on the southern end of the nebula.

Continue a few degrees south-west to reach yet another Globular Cluster, **NGC 5986**, also known as Bennett 70. It is a beautiful, bright, relatively large globular cluster, standing out well against the background star-field. It displays a medium concentration of stars with a soft envelope around its bright core at 218x. Stars are well resolved towards the edges. The cluster is slightly elongated in the NW-SE direction (290x) and is about 35 000 light years away. It was discovered by James Dunlop in May 1826. Auke Slotegraaf, our deep-sky director, wonders why there are such widely differing sizes given for this globular, varying between 2' and 10'. It would be interesting to find the reason why people see it so differently. Have a look and let him have your observations.

I brave the dark of the African bush with my telescope to enjoy and appreciate wonderful deep-sky objects. The Wolves who invaded the campsite are long gone but certainly made the evening in the Lupus constellation very memorable. ☆

Object	Type	RA (J2000.0)	Dec	Mag	Size
NGC 5530	Galaxy	14 <sup>h</sup> 18.5 <sup>m</sup>	-43°24'	11.1	4.9'x2.2'
IC 4402	Galaxy	14 21.2	-46 17	12.1	4.2' x1.0'
IC 4406	P/Nebula	14 22.4	-44 09	10.2	28"
Alpha Lupi	Double Star	14 41.9	-47 23	2.3&13.4	27.6' sep
NGC 5824	Globular	15 04.0	-33 04	7.8	6.2'
NGC 5822	Cluster	15 05.2	-54 21	6.5	39'
NGC 5873	P/Nebula	15 12.8	-38 08	11.0	3'
Streicher 28	Asterism	15 19.5	-40 56	11.0	16'
B 228	Dark Nebula	15 45.5	-34 24		240' x24'
NGC 5986	Globular	15 46.1	-37 47	7.5	9.8'