



## *Grus - an Elegant Starry Bird*

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Image source: Stellarium.org

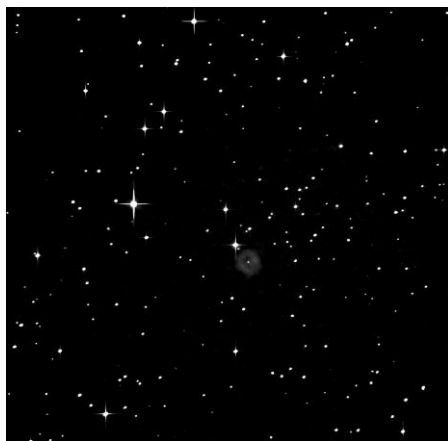
Slender and lithe forms are typically associated with wild birds. When we look up at the stars we also find interesting shapes and patterns that appear slender and lithe. Combining the world of the wild and the world of the night sky, it is not that difficult to find a constellation like Grus the Crane presenting itself to our imagination. In real life the Blue Crane is very special, and is our South African national bird.

Known by the Germans as *der Kranich*, was introduced by Johann Bayer in 1604. Bayer (1572–1625) was a German lawyer and amateur astronomer who assigned to bright stars of a constellation a letter of the Greek alphabet: alpha the brightest, beta the next brightest and so on. The French and Italians called the constellation *la Grue* and in England it had the popular names Flamingo and Stork.

The eye of this beautiful starry bird is represented by the magnitude 2.9 gamma Grus, a lovely white prominent star in the far north-west of the constellation. Follow the line of stars southwards to trace the outline of the bird. Delta<sup>1</sup> and Delta<sup>2</sup>, at magnitudes 3.9 and 4.1 respectively, form a beautiful naked-eye double star more or less in the middle area of the starry line, but a dark night sky is recommended for

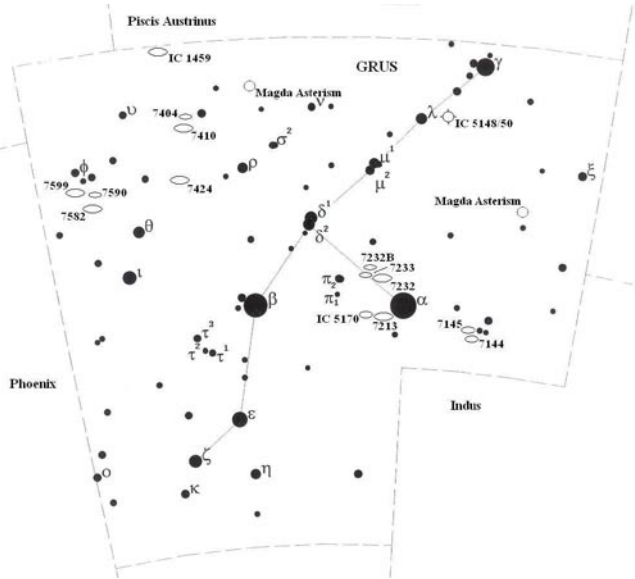
splitting them with the naked eye.

Perhaps the most famous object in Grus is the exceptional planetary nebula **IC 5148/50**, the only one in the constellation. This beautiful object is situated only one degree west from magnitude 4.4 lambda Grus along the long and slender neck of the bird. The ghostly round nebula appears smooth with a dark, hollow central region. The central star shows up well in photographs but, surprisingly, the author could not see it, and is not the first to have reported its elusiveness during observation. Higher power and an oxygen (O<sup>III</sup>) filter highlights it's knotty and dusty, une-



## grus - an elegant starry bird

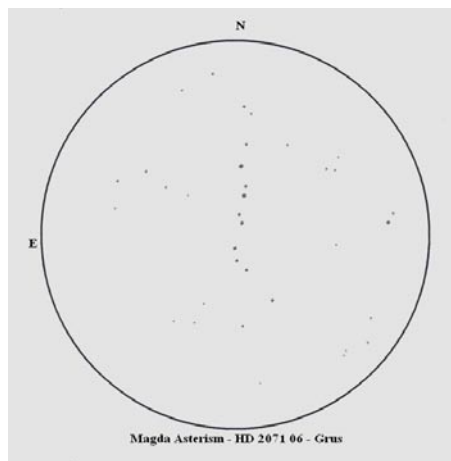
ven surface. There is a definite brightening along the eastern and western edges, with the eastern edge perhaps a little brighter. The nebula's colour ranges from pale white to light grey, with a magnitude 11 star situated just outside its southern edge. The planetary is situated in a lovely field of view with a myriad of faint stars (see image by Lucas Ferreira). Brian



Skiff, an astronomer at Lowell Observatory in the United States, on one of his visits to Chile in 1993, called it “a southern showpiece”. He noted that oxygen (O<sup>III</sup>) and UHC (ultra-high contrast) filters gave similar contrast enhancements, but that the UHC was better at showing the annularity, which was subtle. The object was mistakenly catalogued twice in the 19th century, as both IC 5148 and IC 5150, having been independently discovered by astronomers Walter Gale from Australia and Lewis Swift from the USA.

During an asterism search a long string of stars about 5 degrees north-west of alpha Grus was found, and although not yet confirmed as a Streicher object in the *Deep Sky Hunters Catalogue*, this **STREICHER** asterism is probably one of the longest star strings seen so far – almost

20 arc minutes long and stands out quite well against the star field (see sketch). The similar magnitude 10.5 stars running closely spaced from north to south all display a yellow to orange colour which is quite outstanding. The brightest star,

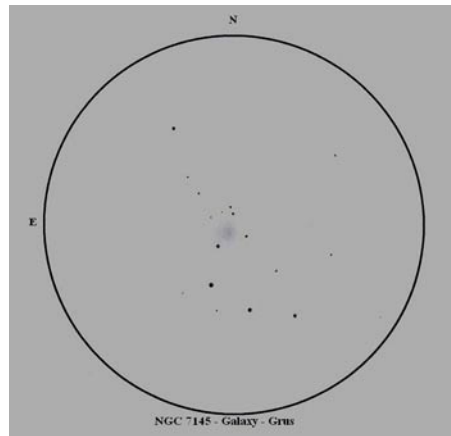
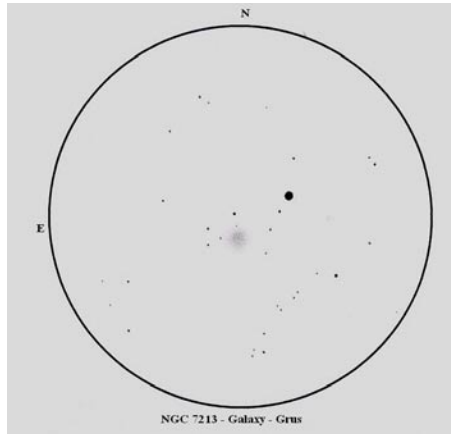


at magnitude 9.5 (HD207082), is situated just north of the string's centre. It is quite amazing! The Crane's right wing, as seen from the southern hemisphere, is reflected by the brilliant white magnitude 1.7 alpha Grus, also known as Al Nair. It is also a double star with a magnitude 11.8 companion and a separation of 28.4" in a position angle (PA) of 149.

Only 16 arc minutes to the south, and in the shadow of next-door neighbour alpha Grus, we find the elliptical galaxy **NGC 7213**. Rounder than round and relatively bright, it looks somewhat like a large star out of focus. The galaxy brightens up to an outstanding broad nucleus, the focal impression of the galaxy (see sketch). No fewer than seven galaxies can be seen in a one degree field of view. The Australian Professor Ernst Johannes Hartung (1893–1979) compares the object to a remote globular. Hartung first produced a comprehensive and highly respected guide for southern observers in 1968. The galaxy NGC 7213, which is also a member of the Grus cluster of galaxies, was discovered by Sir John Herschel during his stay at the Cape of Good Hope between the years 1834 and 1838. Just 33 arc minutes further east from NGC 7213 the exceptional, unmistakable pencil-like galaxy **IC 5170** can be seen as an oblong shape in an east to west direction. The galaxy brightens gradually towards the central area.

Two more galaxies can be found within 2.7 degrees south-west of alpha Grus. The more northern of the two is **NGC**

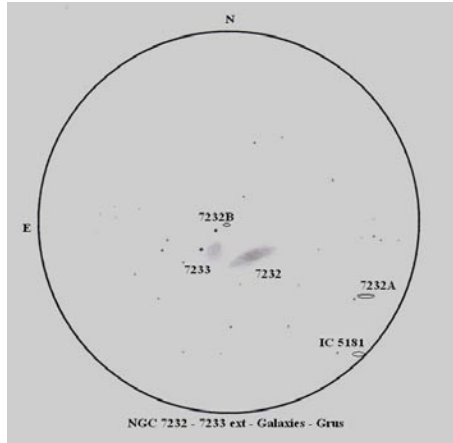
**7145**, situated in a lovely star field. The galaxy displays a bright, round, diffuse glow without any detail, but the lovely star field compensates for the lack (see sketch). Only 23 arc minutes further south is **NGC 7144**, which reflects the same round glow, but with a considerably brighter nucleus. The two galaxies form a triangle with a pair of magnitude 12 stars to the north-west. A double star worth paying a visit,



$\pi^1$  and  $\pi^2$ , situated 2.7 degrees north-east of alpha Gruis, displays a most outstanding crimson red and silvery white colour combination. The red carbon star  $\pi^1$  fluctuates from magnitude 5.4 to magnitude 6.7 over a period of 150 days. Carbon build-up in the star's upper atmosphere dims and reddens its light.

A bunch of galaxies is situated between this outstanding double star and alpha Grus. The focus around the trio of galaxies is a pair of magnitude 8.5 yellow-coloured stars situated virtually between the star cities. **NGC 7232** appears as a soft, faint and elongated thin dust lane in an east to west direction, with a bright centre. The galaxy is also the largest of the three, and displays a soft, hazy outer envelope. The companion galaxy **NGC 7233** to the east and closest to the pair of bright stars is nothing more than a soft, wispy glow (see sketch). The very faint member **NGC 7232B** with a magnitude of 14.4 north of the pair of bright stars was not visible. Three more galaxies, **NGC 7232A**, **IC 5181** and **IC 5171**, are situated a further 25 arc minutes to the west.

The far eastern part of the constellation houses a trio of galaxies one degree west of the Phoenix constellation and 1.4 degrees south of magnitude 5.5  $\phi$  Gruis. **NGC 7599** is the eastern partner and displays a cigar shape in a north-east to south-west direction. High power reveals the north-eastern tip to be somewhat frayed at the edges and hazier than the more defined south-western tip. **NGC 7590**, about 5 arc



minutes to the west, is the smallest of the three, and although faint, it is relatively easy to spot. The surface brightness of this galaxy works up to a quite outstanding oval nucleus. The south-western member, **NGC 7582**, the largest and brightest of the trio, displays a relatively bright oval in a north to south direction. High power reveals a very hazy edge, perhaps indicating a spiral structure with a small, point-like nucleus. The Grus Trio, as it is also known is quite outstanding against the star field, covering an area of only 18 arc minutes. Two other members in the area can be glimpsed: **NGC 7632** to the east and **NGC 7552** to the west. I cannot emphasise enough what an enormous privilege it is to be able to observe galaxies.

Situated between the Crane's eastern feathery wing about 4 degrees west of the Grus Trio, the galaxy **NGC 7424** portrays a beautiful open spiral with a very small, bright nucleus. Although it is difficult to detect the spiral arms it is by no means

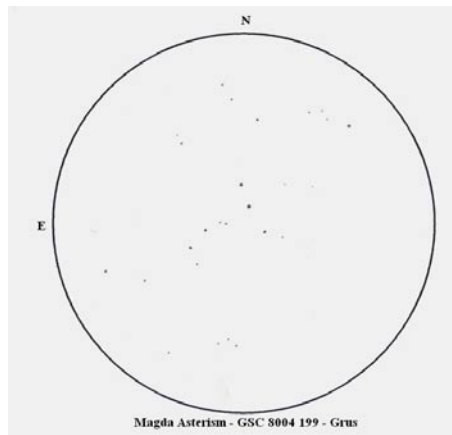
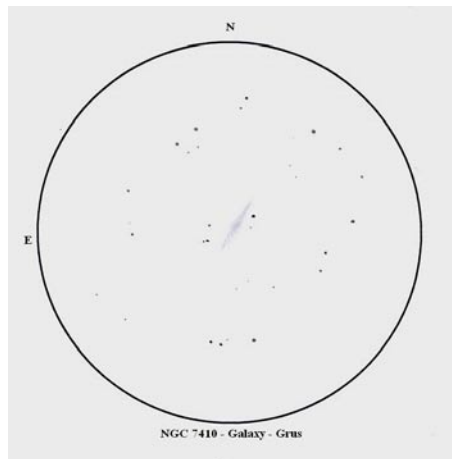
impossible. With the use of averted vision, structure can be glimpsed on the hazy surface. Averted vision is a way of gazing off to one side of the field of view to use your eye's sensitive rods to detect fainter specks of light. The supernova 2001ig situated in NGC 7424 shed valuable light on the Wolf Rayet stars.

Barely 1.5 degrees further south and 2.5 degrees west of magnitude 5.7 upsilon Gruis, yet another galaxy **NGC 7410** (Bennett 129a) displays a bright, large and elongated spindle in a north-east to south-west direction. This edge-on galaxy is relatively easy to spot and gradually brightens towards a small nucleus. The edges of the galaxy are enveloped in haziness. The south-eastern side appears fainter and thinner, with a magnitude 12.5 star near the northern tip. Although it displays a smooth surface, higher power brings out mottled areas. A double star graces the star field just south of the galaxy (see sketch). In some ways the galaxy reminds one of a smaller version of the galaxy NGC 253 in the constellation Sculptor. Barely seen was the light speck of the companion galaxy NGC 7404 situated only 22 arc minutes north of NGC 7410.

There are few experiences that are as pleasurable as coming across an incidental star asterism in the course of observations. Not yet confirmed in the *Deep Sky Hunters Catalogue*, but a **STREICHER** asterism with a difference, the capital letter J is easy to distinguish against the backdrop of the relevant stars, with the top horizontal

bar running from north-east to south-west (see sketch). This little surprise is located 3 degrees north-west of NGC 7410. The brightest star in this grouping is magnitude 9 (HD 2148 75). Seeing is believing!

**IC 1459** (Bennett 129b) is almost 80 million light years away and situated on the boundary between the constellations Gruis and Piscis Austrinus. It is also one of the



brightest IC objects listed in catalogues – even brighter than most of the NGC objects in Grus. The galaxy displays a faint wisp of light surrounded by a halo of haziness. Slightly tilted in a south-western to north-eastern direction, the glow surprisingly displays a bright stellar nucleus with high power. The two stars positioned on either side of the galaxy reminds one of the constellation Aquila, with the galaxy occupying the spot of alpha Aquilae, or Altair by its common name. With even higher power and averted vision it is just possible to distinguish the galaxy IC 5264 pairing to the south-east. What makes IC 1459 so special is the fact that it is situated virtually in the centre of a string of a dozen galaxies spanning 2 degrees at

approximately equal distances from one another. The string of galaxies runs in a curved line into the constellation Piscis Austrinus, with the most northern IC 5270 and IC 5273 to the south. In dark, ideal dark night sky conditions away from any intrusive city lights, it can be a challenge to pin down this string of galaxies.

The plains of the Karoo are the home of the southern crane, but what captures and holds the observer's attention is this bird's graceful flight. To study a constellation associated with such a splendid bird is an enormous privilege and pure pleasure. Grus is arguably one of the most beautiful constellations that the southern hemisphere has laid at our proverbial front door. ☆

Object	Type	RA (J2000.0)	Dec	Mag	Size
Streicher	Asterism	21 <sup>h</sup> 47.8	-44°09'	10	20'
NGC 7144	Galaxy	21 52.7	-48 15	10.9	3.2'x3.0'
NGC 7145	Galaxy	21 53.3	-47 53	11.1	2.6'x2.6'
IC 5148/50	Planetary Neb	21 59.5	-39 23	11	120"
NGC 7213	Galaxy	22 09.3	-47 10	10	4.8'x4.2'
IC 5170	Galaxy	22 12.5	-47 13	13	1.8'x0.8'
NGC 7232	Galaxy	22 15.7	-45 51	11.6	3.0'x1.1'
NGC 7233	Galaxy	22 15.8	-45 51	12	1.8'x1.4'
Streicher	Asterism	22 41.6	-38 09	8	12'
NGC 7410	Galaxy	22 55.0	-39 41	10.5	5.8'x1.7'
IC 1459	Galaxy	22 57.2	-36 28	10	4.9'x3.6'
NGC 7424	Galaxy	22 57.3	-41 04	10.2	7.6'x6.2'
NGC 7582	Galaxy	23 18.4	-42 22	10.1	6.9'x2.6'
NGC 7590	Galaxy	23 18.9	-42 14	11.3	2.9'x1.2'
NGC 7599	Galaxy	23 19.3	-42 15	11.1	4.7'x1.5'