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by Andrew Johnson 04/24/05 | Email Author

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THE MAG-7 STAR ATLAS PROJECT

What is it?

This project is my attempt to produce a *free*, downloadable set of high-quality star charts -- the Mag-7 Star Atlas -- capable of being printed at reasonable resolutions on the average home printer.

The Mag-7 Star Atlas plots stars down to Magnitude 7.25, with double / multiple stars indicated by a thin horizontal bar. Plotted DSO's (Deep Sky Objects) include all objects on the Messier list, the RASC's finest NGC list, and the Herschell 400 list --- more than 550 DSO's in total.

Now that this project is also being hosted by the kind folks at CloudyNights, availability shouldn't be an issue and it will be more convenient and reliable to make reference to the charts in forum posts (no need to worry about an external site being down when linking to or referring to a chart). It will also relieve some of the bandwidth load on my website, for which I am certainly grateful.

I hope beginner's and experienced observers alike might find some use in these charts -- as a first atlas, as a bridge atlas between planisphere and a deeper atlas, as a binocular atlas, as printable charts for outlining observing plans and/or recording small field notes, or to make wallpaper for your outhouse. At the very least, when you take family or friends on an observing outing it is easy (and affordable) to ensure everyone has an atlas of their own to refer to. The free licencing (see below) makes these charts an open resource for teachers and astronomy outreach programs. But, you don't have to be an association -- go ahead and print one off for your neighbor, and the kid down the street, and ...

But Free? Really?

Yes. And not just free of charge -- you have other freedoms as well. This work is licenced under a [Creative Commons License](#). Basically you are free to download, use, and or distribute this work for non-commercial purposes with appropriate attribution. You can create and distribute derived works if they follow the same licence.

The Mag-7 Star Atlas

There are 20 primary charts and one supplemental chart (11a for the Virgo Coma Berenices region) comprising the complete Mag-7 Star Atlas. Based on early feedback, I've made two versions available: a black on white version for use in the field (where red light may interfere with different color schemes), and a version with DSO's, constellation lines and boundaries, and gridlines highlighted in different colors. Different colors help to visually break up the charts making for a more relaxed viewing experience (whether viewing on-screen or printing in color for a "desktop" version). Apart from color, the two versions are identical. Enjoy.

Black and White field version:

Download the whole [Black and White Atlas](#) as a gzipped tar file, or just take the individual charts you need from the table.

Chart-1.pdf	North of declination +65	Chart-11.pdf Chart-11a.pdf	RA 12h to 16h, Dec +20 to -20 RA 11.5h to 13.5h, Dec +20 to 0
Chart-2.pdf	RA 0h to 4h, Dec +65 to +20	Chart-12.pdf	RA 16h to 20h, Dec +20 to -20
Chart-3.pdf	RA 4h to 8h, Dec +65 to +20	Chart-13.pdf	RA 20h to 0h, Dec +20 to -20
Chart-4.pdf	RA 8h to 12h, Dec +65 to +20	Chart-14.pdf	RA 0h to 4h, Dec -20 to -65
Chart-5.pdf	RA 12h to 16h, Dec +65 to +20	Chart-15.pdf	RA 4h to 8h, Dec -20 to -65
Chart-6.pdf	RA 16h to 20h, Dec +65 to +20	Chart-16.pdf	RA 8h to 12h, Dec -20 to -65
Chart-7.pdf	RA 20h to 0h, Dec +65 to +20	Chart-17.pdf	RA 12h to 16h, Dec -20 to -65
Chart-8.pdf	RA 0h to 4h, Dec +20 to -20	Chart-18.pdf	RA 16h to 20h, Dec -20 to -65
Chart-9.pdf	RA 4h to 8h, Dec +20 to -20	Chart-19.pdf	RA 20h to 0h, Dec -20 to -65
Chart-10.pdf	RA 8h to 12h, Dec +20 to -20	Chart-20.pdf	South of declination -65

Color version:

Download the whole [Color Atlas](#) as a gzipped tar file, or just take the individual charts you need from the table.

ChartC-1.pdf	North of declination +65	ChartC-11.pdf ChartC-11a.pdf	RA 12h to 16h, Dec +20 to -20 RA 11.5h to 13.5h, Dec +20 to 0
ChartC-2.pdf	RA 0h to 4h, Dec +65 to +20	ChartC-12.pdf	RA 16h to 20h, Dec +20 to -20
ChartC-3.pdf	RA 4h to 8h, Dec +65 to +20	ChartC-13.pdf	RA 20h to 0h, Dec +20 to -20
ChartC-4.pdf	RA 8h to 12h, Dec +65 to +20	ChartC-14.pdf	RA 0h to 4h, Dec -20 to -65
ChartC-5.pdf	RA 12h to 16h, Dec +65 to +20	ChartC-15.pdf	RA 4h to 8h, Dec -20 to -65
ChartC-6.pdf	RA 16h to 20h, Dec +65 to +20	ChartC-16.pdf	RA 8h to 12h, Dec -20 to -65
ChartC-7.pdf	RA 20h to 0h, Dec +65 to +20	ChartC-17.pdf	RA 12h to 16h, Dec -20 to -65
ChartC-8.pdf	RA 0h to 4h, Dec +20 to -20	ChartC-18.pdf	RA 16h to 20h, Dec -20 to -65
ChartC-9.pdf	RA 4h to 8h, Dec +20 to -20	ChartC-19.pdf	RA 20h to 0h, Dec -20 to -65
ChartC-10.pdf	RA 8h to 12h, Dec +20 to -20	ChartC-20.pdf	South of declination -65

Notes

Double Stars

I selectively marked double stars using the Washington Double Star catalog with the following criteria: only stars with a separation of at least 0.5 arc-seconds, a secondary component of Magnitude 11 or brighter, and were based on at least five observations, were marked as doubles on the charts.

Because separate, non-synchronized data sources were used, occasionally the star positions are not identical, resulting in the double-star marker (the thin horizontal bar) and the star being slightly offset. Also, since the magnitudes may be slightly different in each source, stars close to the Mag-7.25 cutoff may be mismarked. This means either a star could be plotted but not marked as a double (if the WDS listed it as fainter than the cutoff), or a marker might be plotted without its star --- the latter being the only

case you can readily notice. These are pretty rare occurrences and I'm not sure any reconciliation is worth the effort at the moment.

Viewing/Printing

These PDF's display and print as expected on Acroreader-5.05 on my Linux box. Your results may vary depending on platform and PDF viewer.

Credits:

The following software and data are being used in this project:

- [PP3 celestial charting program](#) and its data/catalogs
- [LaTeX](#) (typesetting engine used by PP3)
- [Ruby](#) and [Perl](#) programming languages (for preprocessing my own pp3 input format, and various database and data manipulation tasks)
- [SQLite](#) database engine
- Additional data derived from:
 - [Tycho-2](#) star catalog/database
 - [Washington Double Star](#) (WDS) catalog/database
 - [NGC/IC](#) catalogs (Wolfgang Steinicke's corrected version)
- [Linux](#) (actually [Slackware](#))

Additional thanks to:

- Several members of the [Cloudy Nights](#) community for providing some feedback and suggestions.
- The [Cloudy Nights](#) organization for hosting these charts here, and all their hard work in building and maintaining the nicest online astronomy community available (in this author's humble opinion) -- it's not just a resource or community, it's an education!

Sincerely,
Andrew L. Johnson (jandrew on CN)

UPDATED - Version 2.0, April 2007

The latest version corrects a few errors in the first edition, uses a new color scheme that avoids red, and uses new symbols for different DSOs (no legend, but it isn't hard to figure out). Galaxy ellipses on charts 2 through 19 reflect their approximate position angles -- ellipses on the two polar charts are not corrected for North not being up, but still provide approximated relative position angles. Double stars were marked using more recent data from the Washington Double Star catalog (2006.5). Chart-11a (the Coma Berenices - Virgo region closeup) now plots stars to 8.5.

[Black and White Charts](#)

[Color Charts](#)

The deluxe milky way version is also available, it is a single PDF file of about 18MB, and I've uploaded it to:

[Archive.org](#)

(the link to the PDF is on the left of the page in the "View the book" box)

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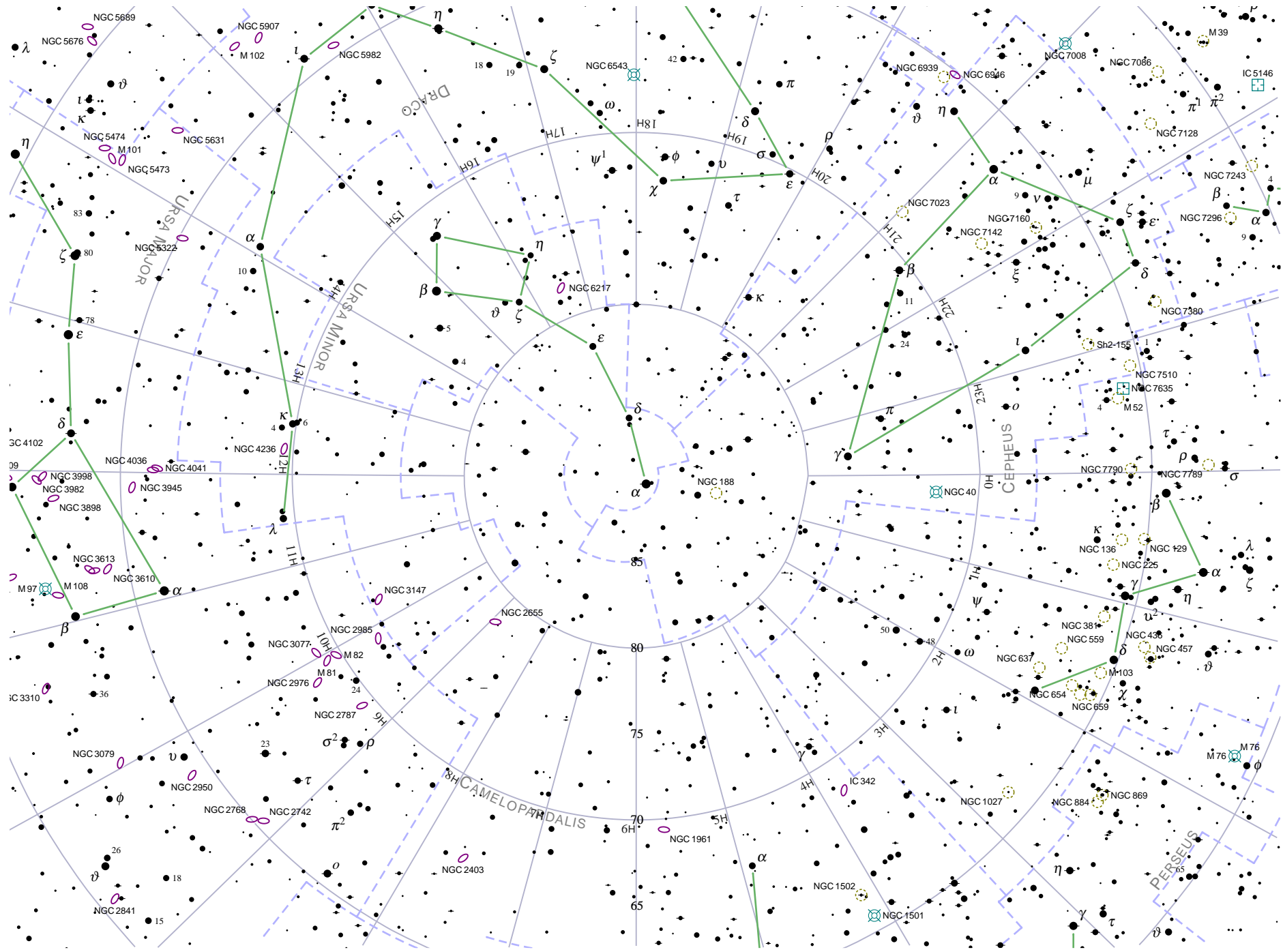


Chart 1: Declination North of +65°

Magnitude: 0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0

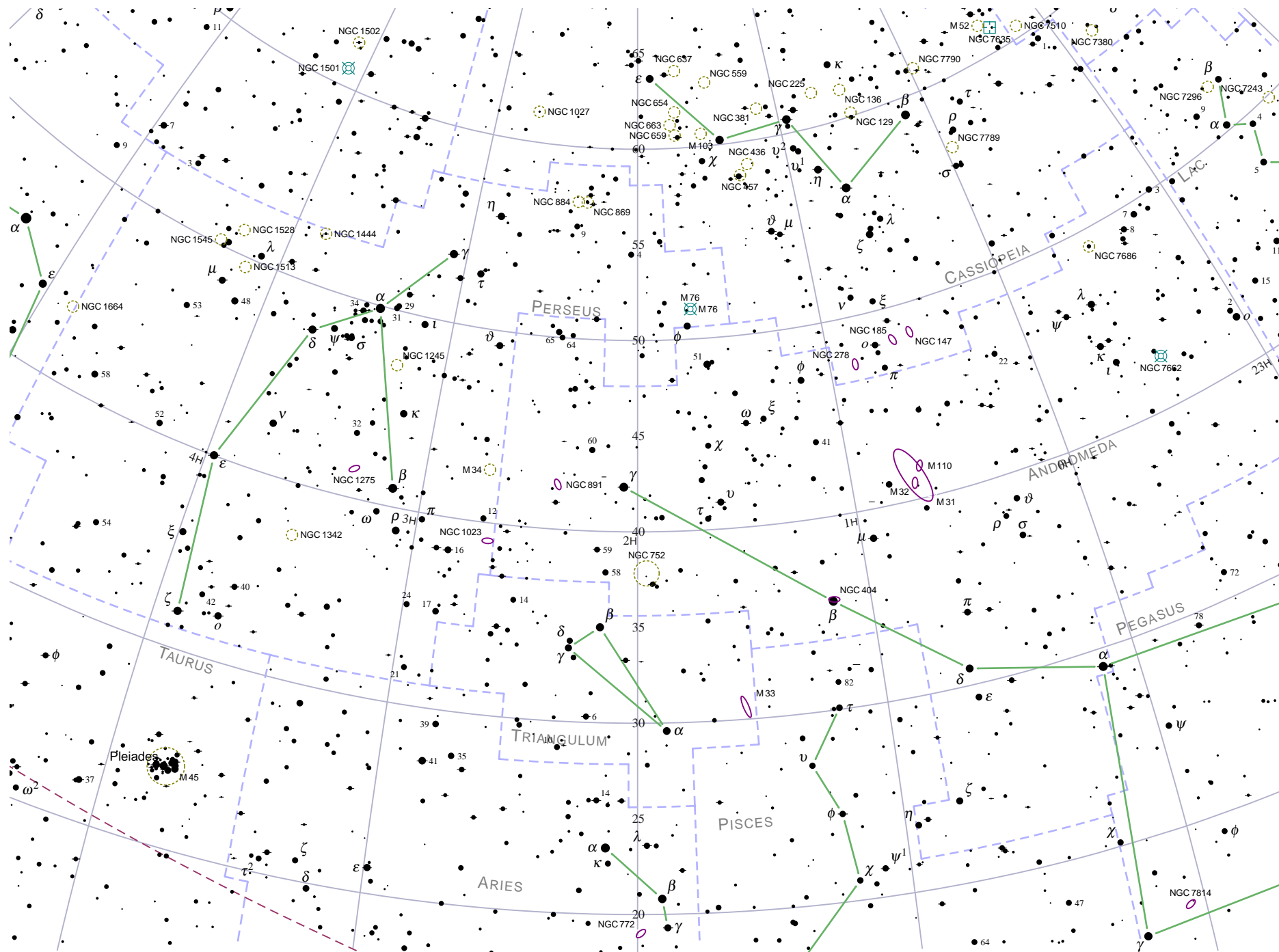


Chart 2: RA 0^h to 4^h, Declination +65° to +20°

Magnitude: 0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0

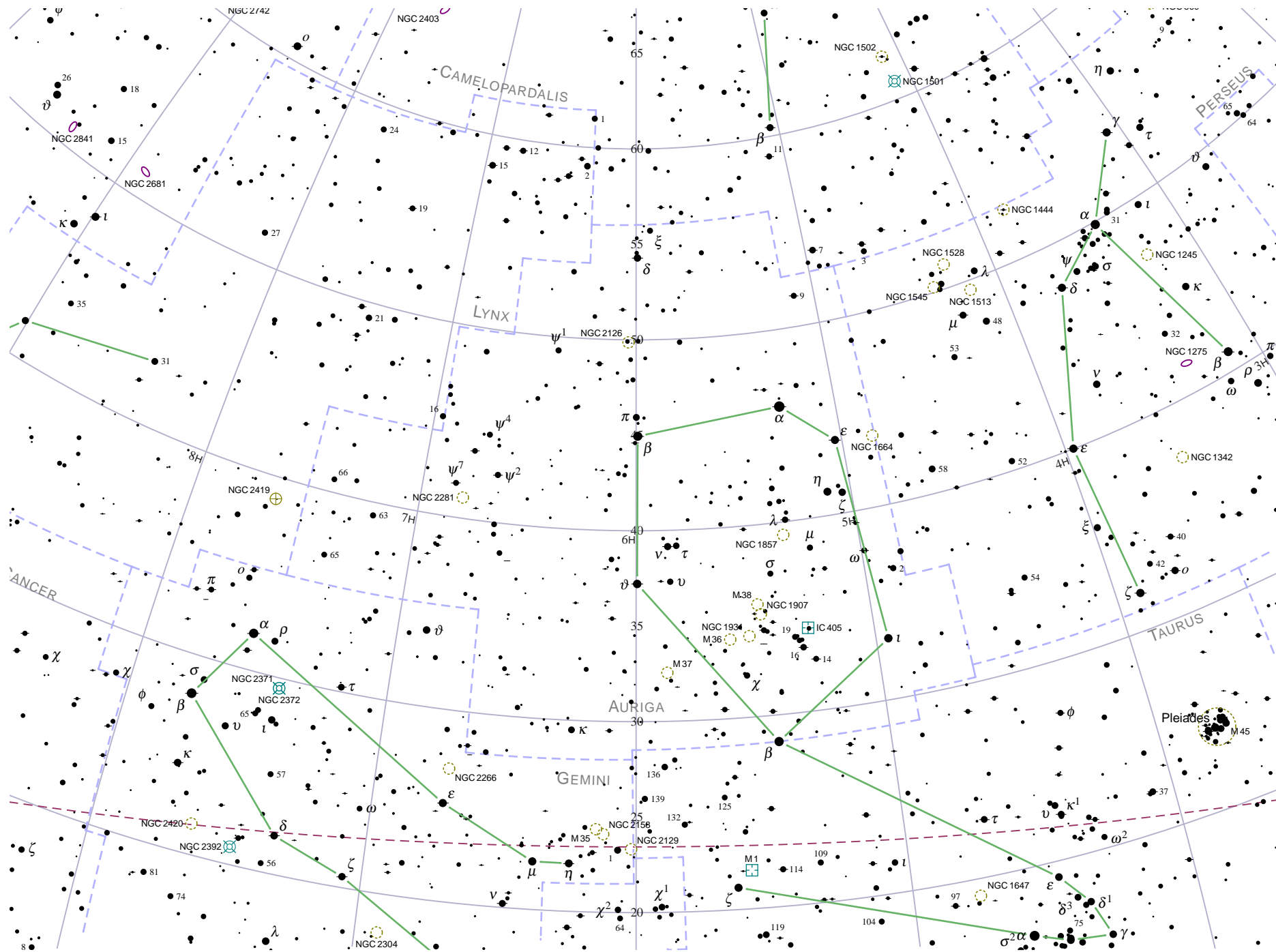


Chart 3: RA 4^h to 8^h, Declination +65° to +20°

Magnitude: 0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0

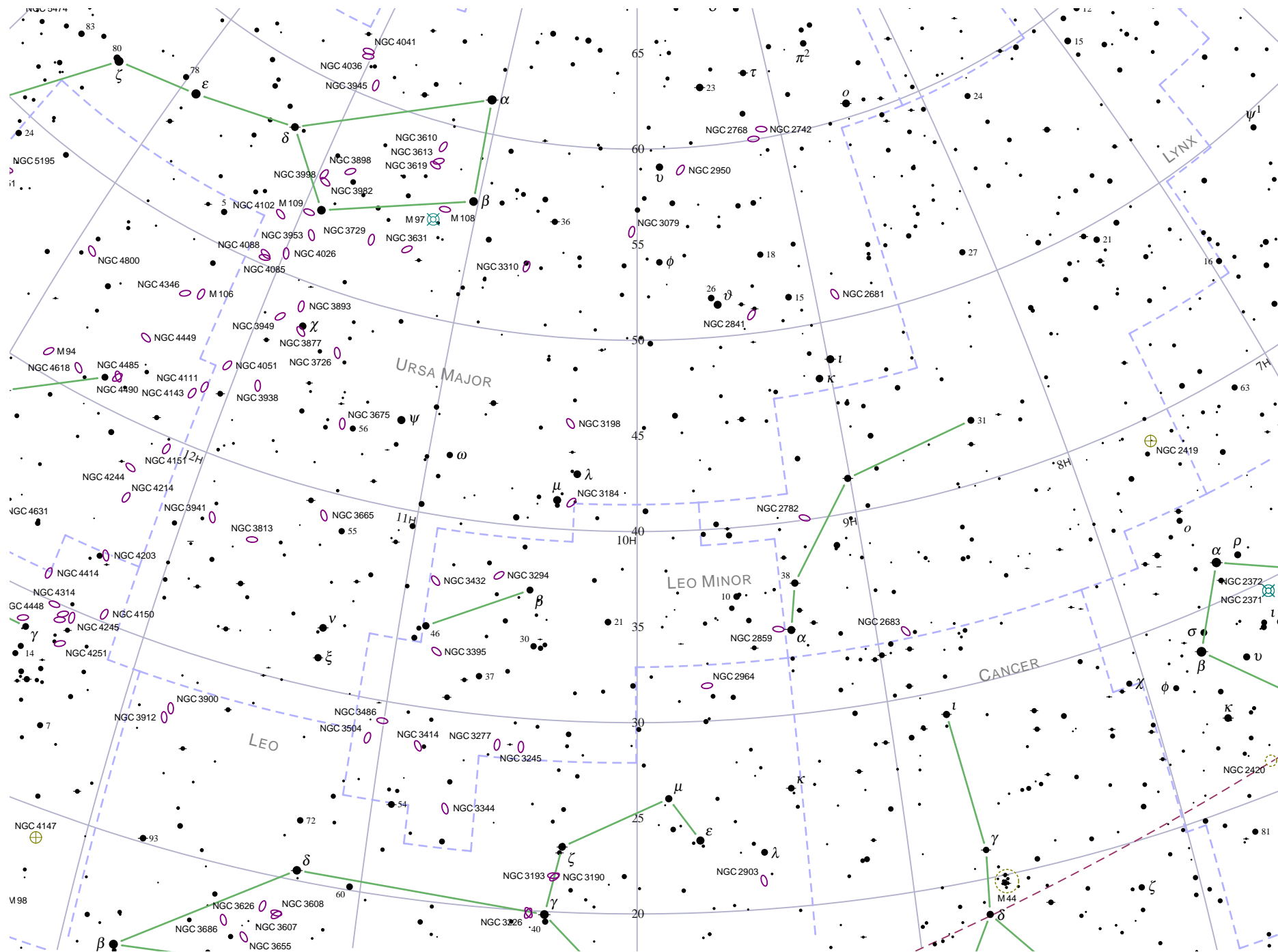


Chart 4: RA 8^h to 12^h, Declination +65° to +20°

Magnitude: 0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0

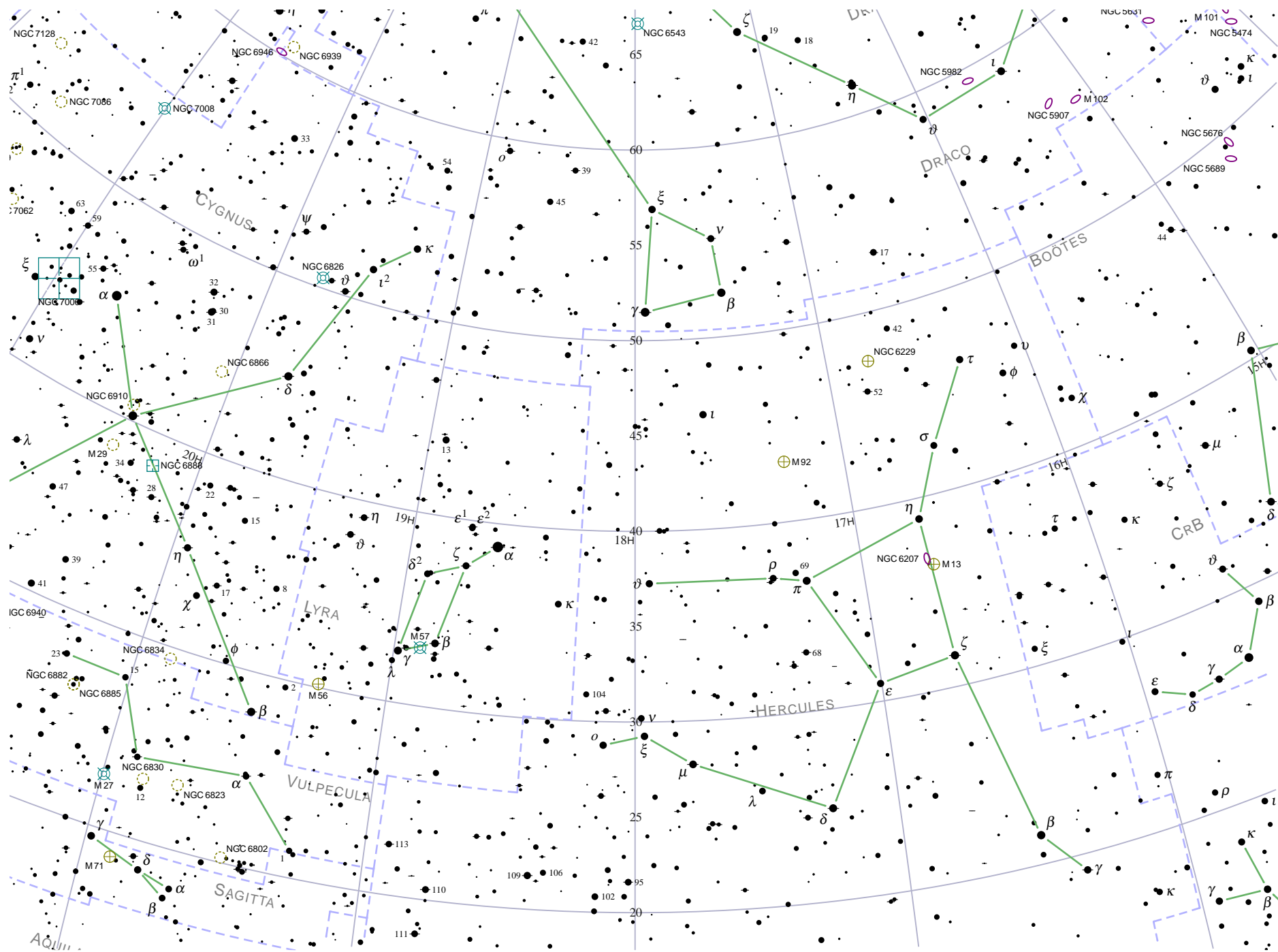


Chart 6: RA 16^h to 20^h, Declination + 65° to + 20°

Magnitude: 0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0

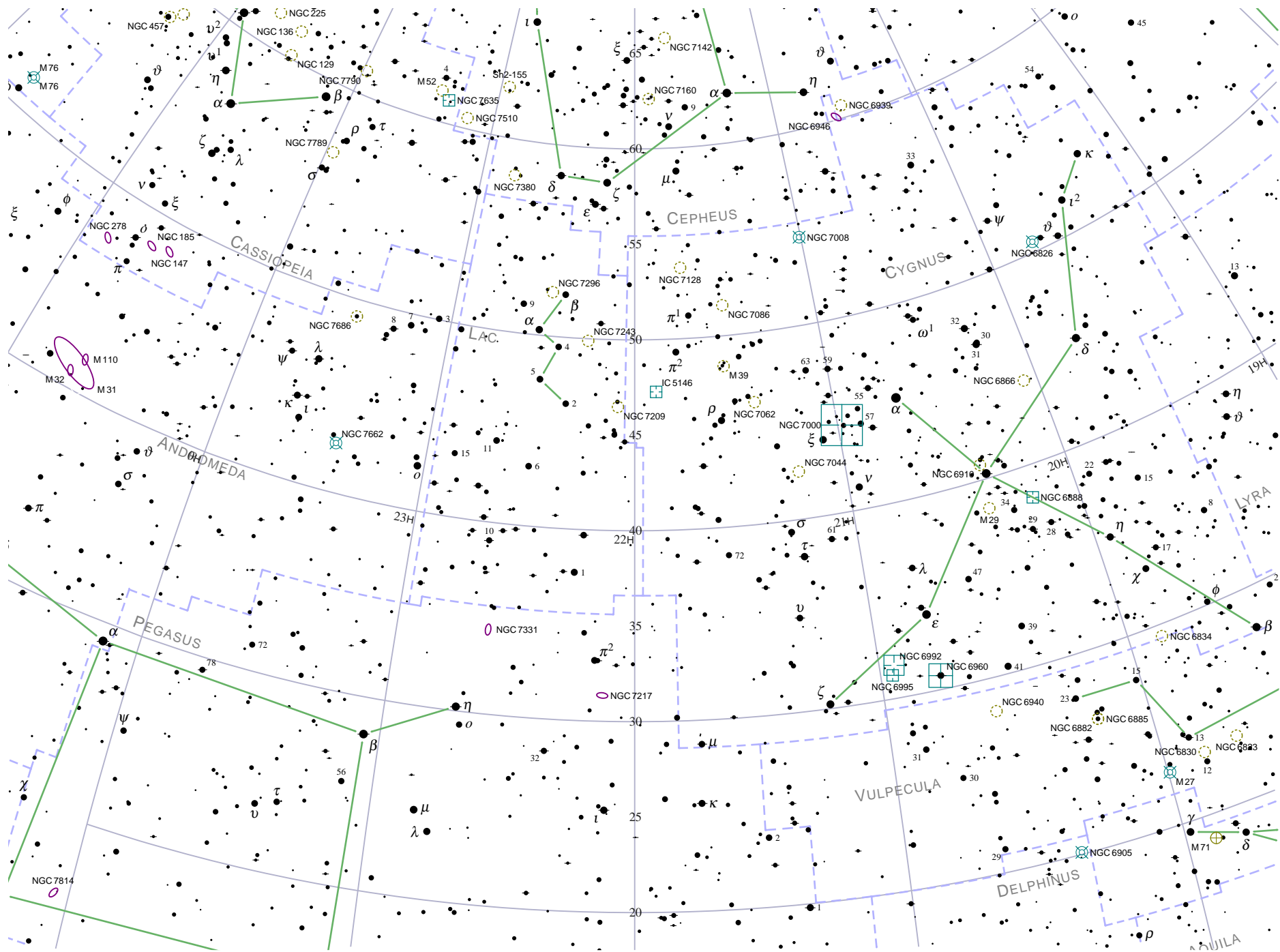


Chart 7: RA 20^h to 0^h , Declination $+65^\circ$ to $+20^\circ$

Magnitude: 0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0

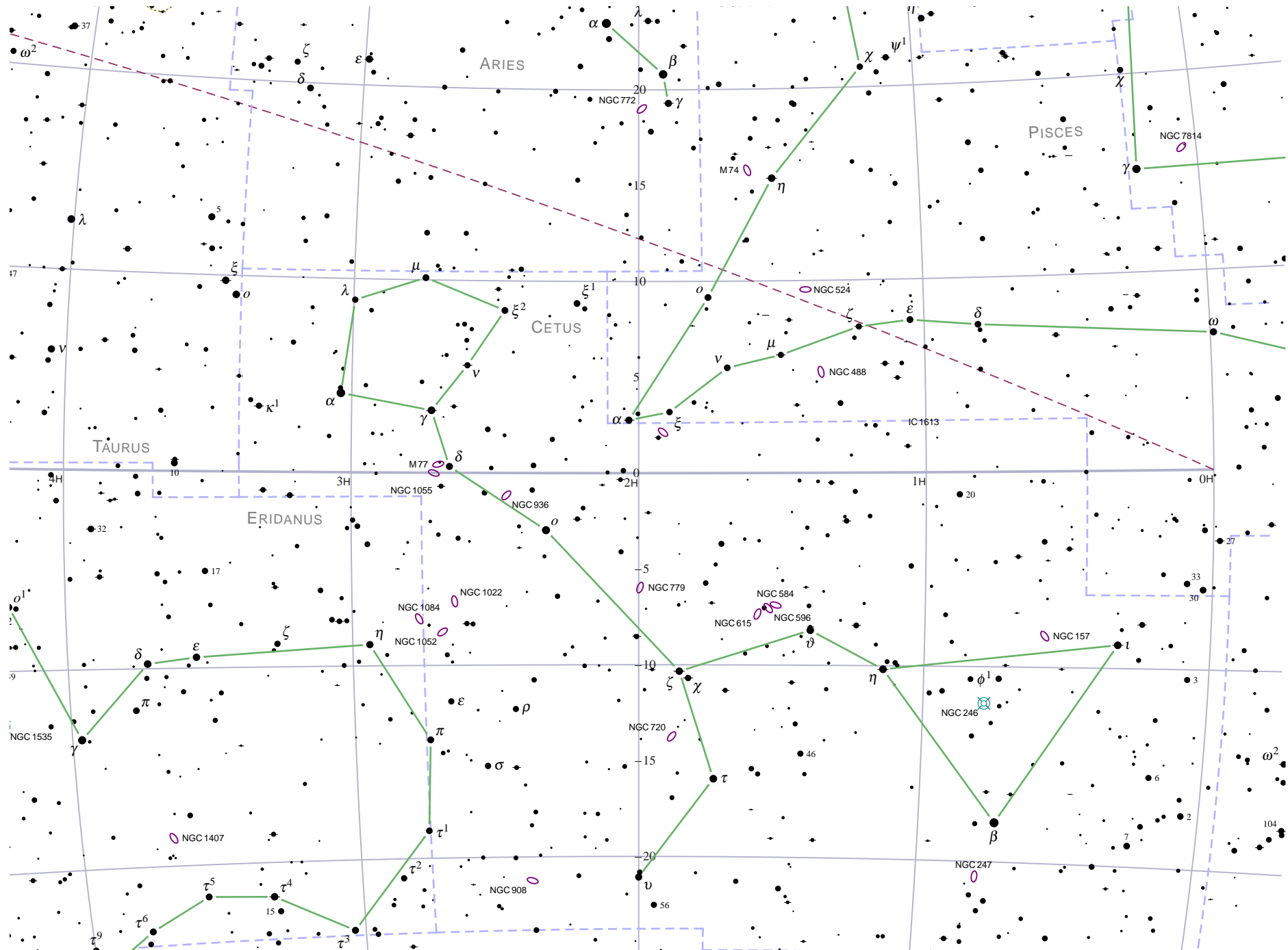


Chart 8: RA 0^h to 4^h, Declination +20° to -20°

Magnitude: 0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0

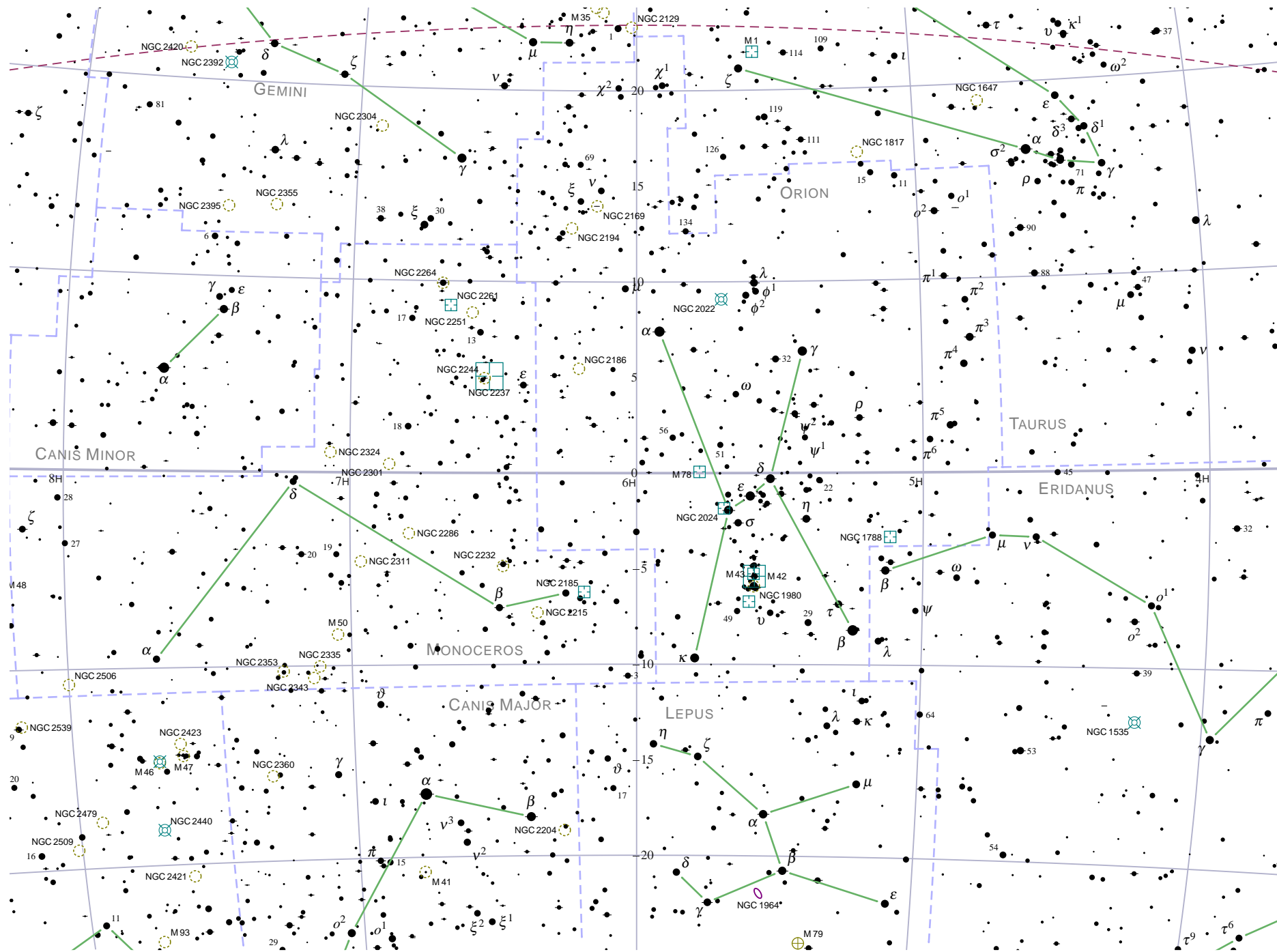


Chart 9: RA 4^h to 8^h, Declination +65° to +20°

Magnitude: 0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0

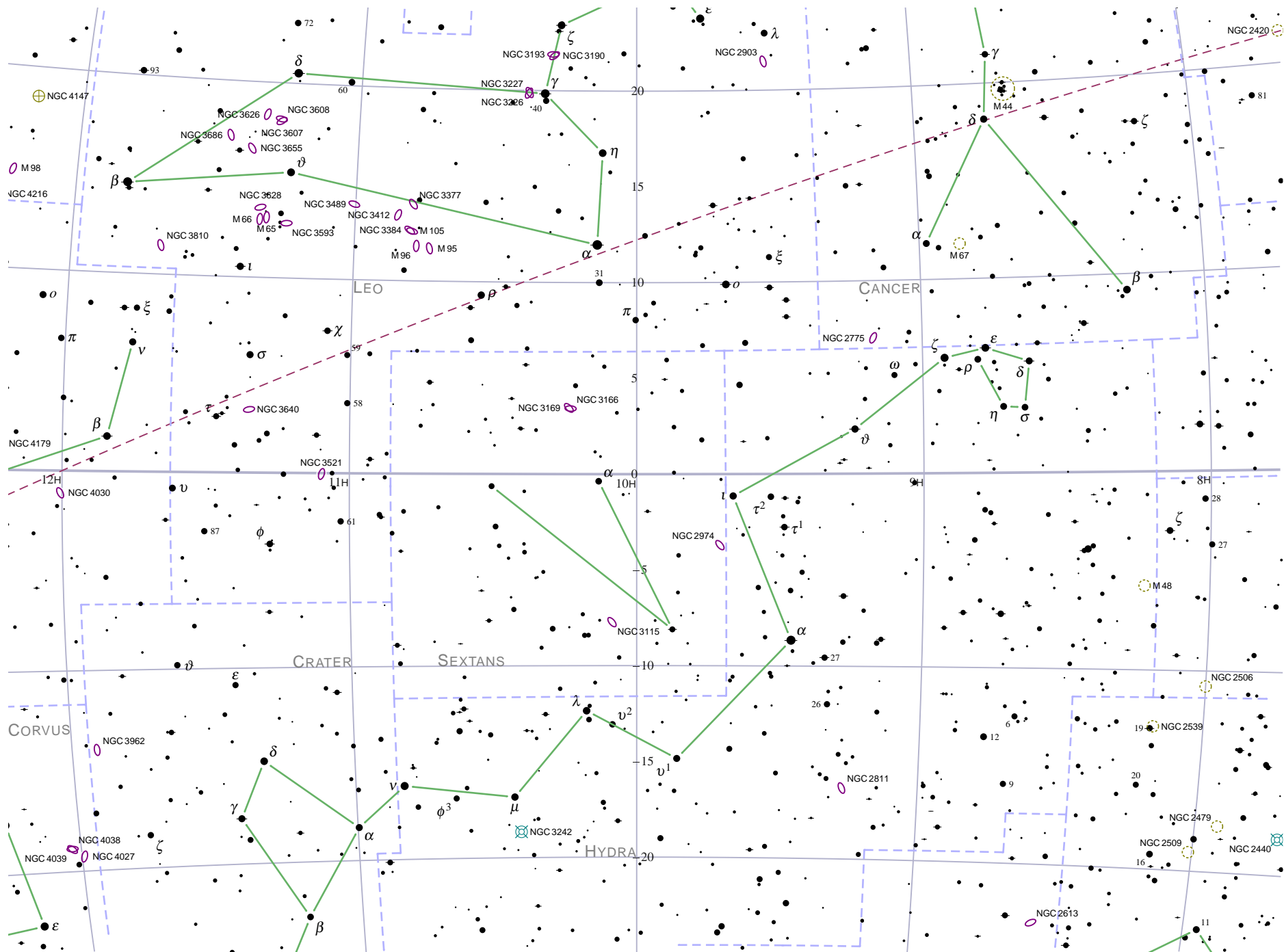


Chart 10: RA 8^h to 12^h, Declination +20° to -20°

Magnitude: 0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0

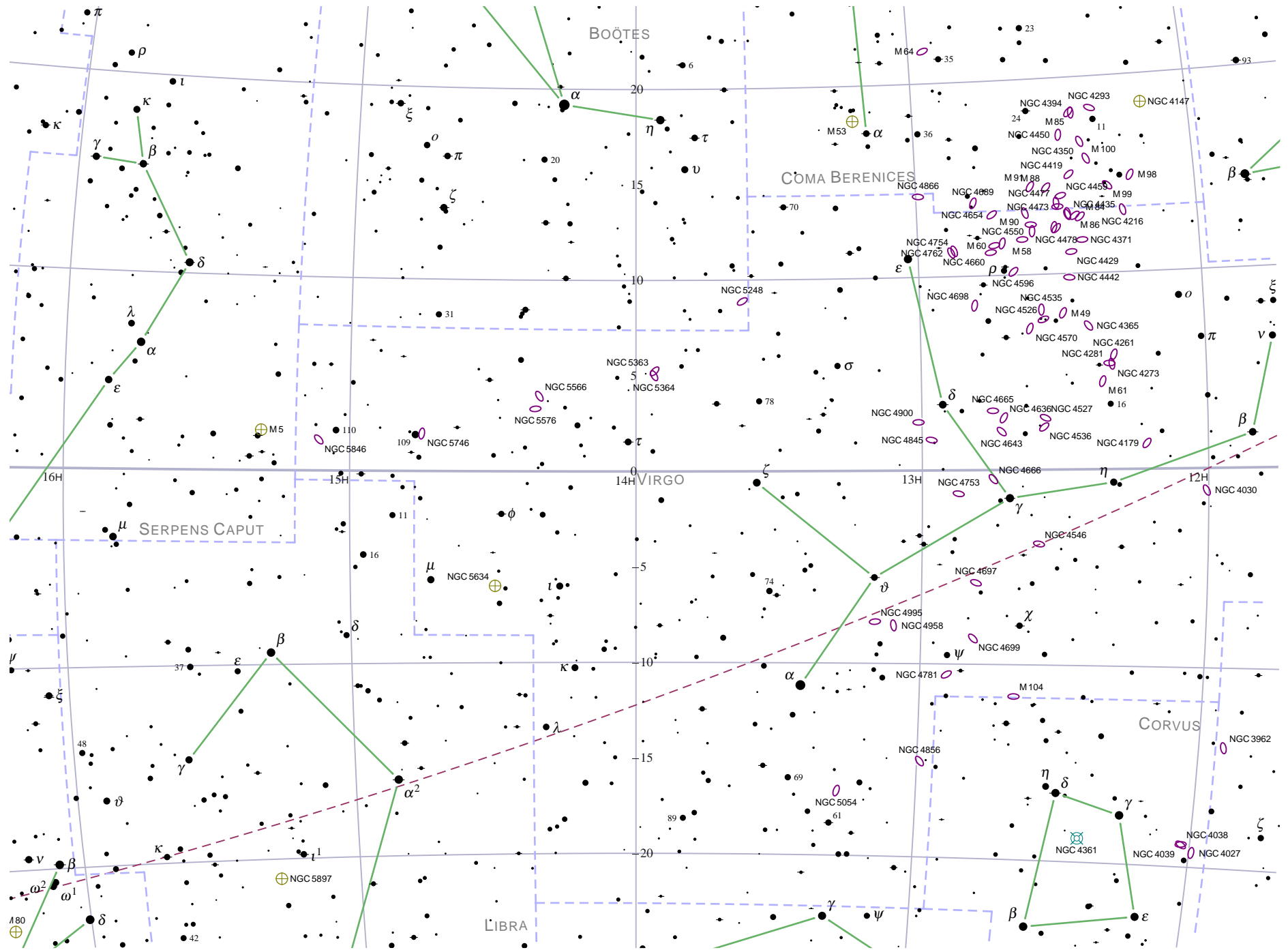


Chart 11: RA 12^h to 16^h, Declination +20° to -20°

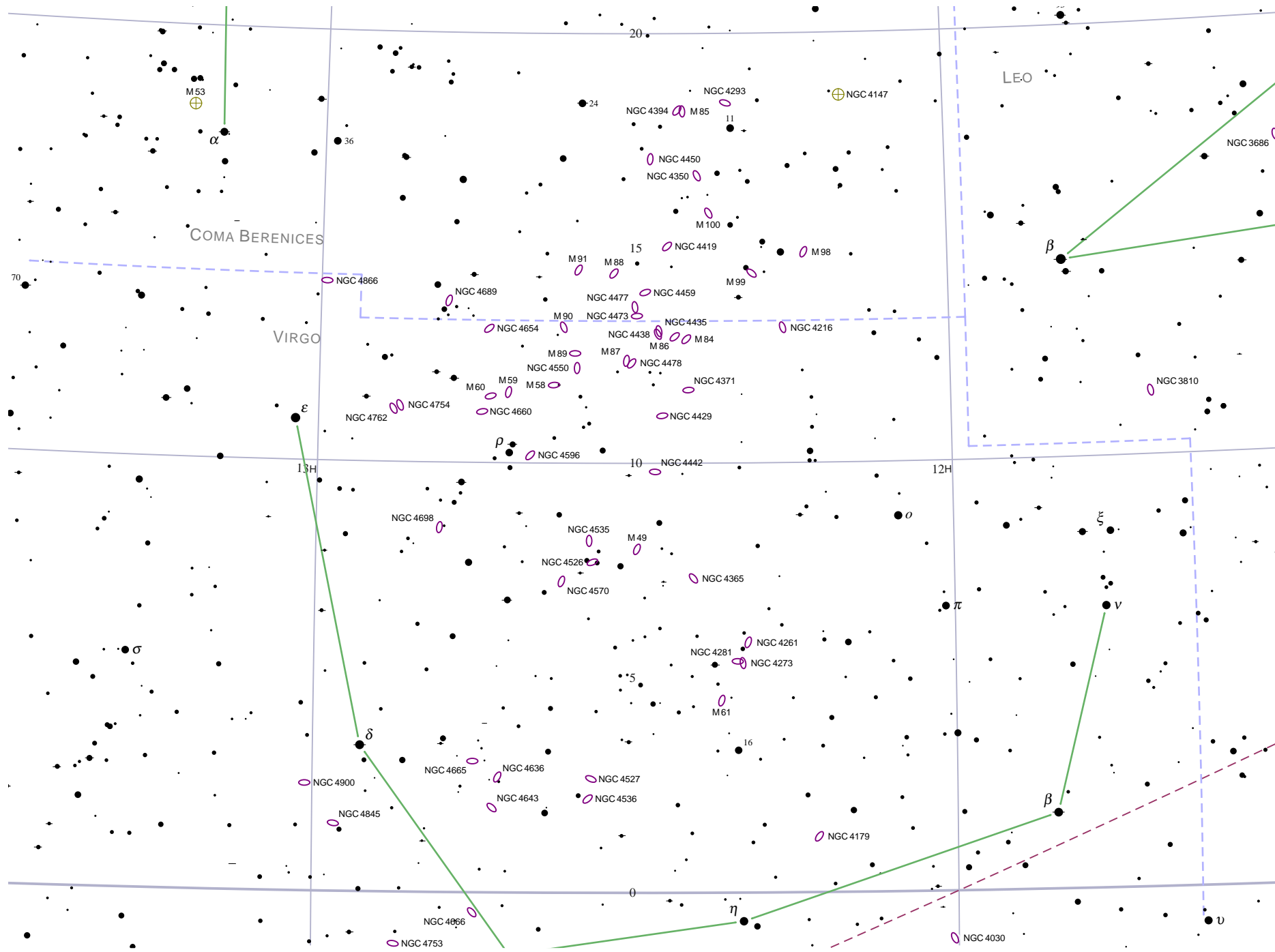


Chart 11a (supplement): RA 11.5^h to 13.5^h, Declination +20° to 0°

Magnitude: 0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0

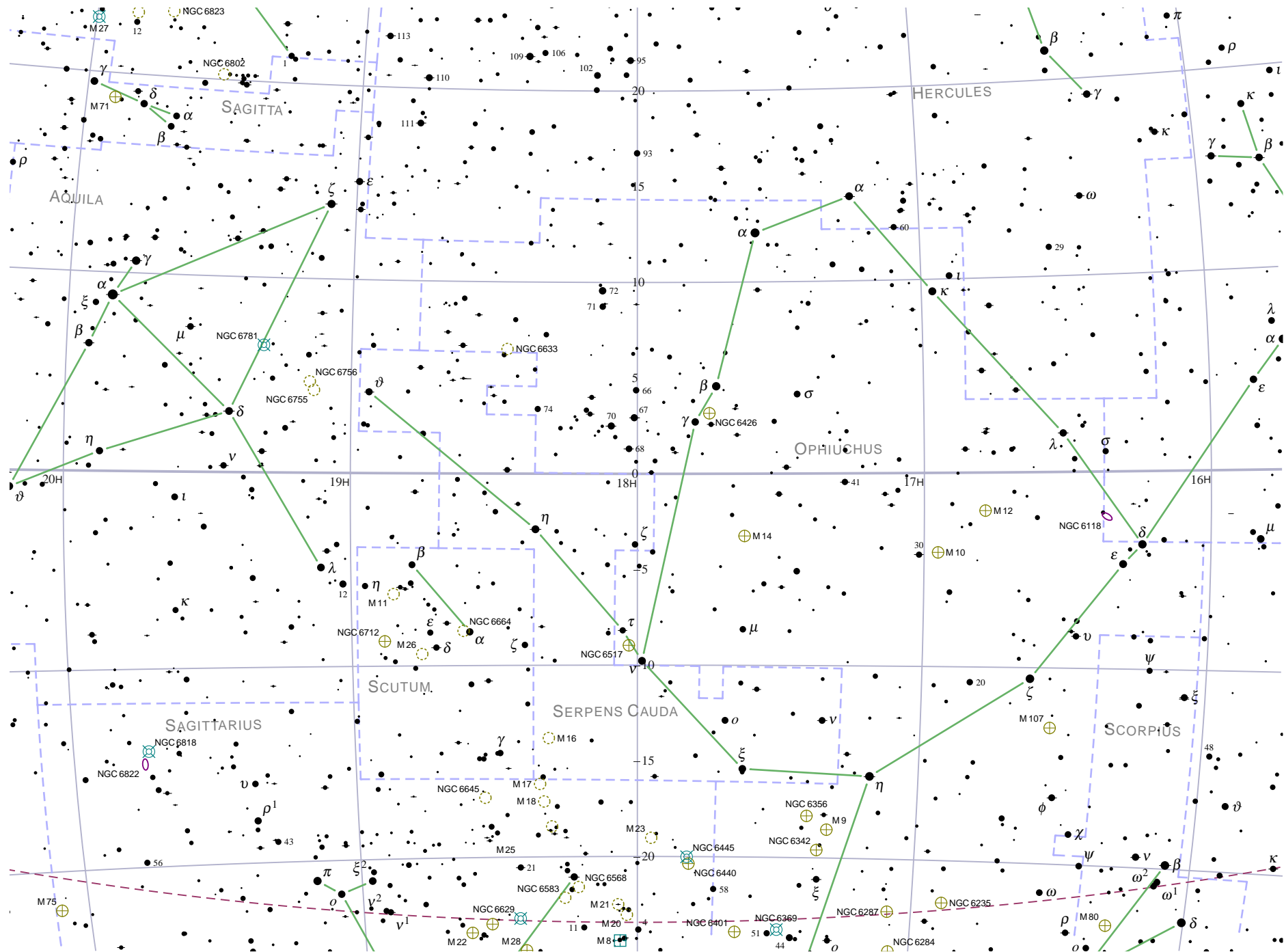


Chart 12: RA 16^h to 20^h, Declination +20° to -20°

Magnitude: 0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0

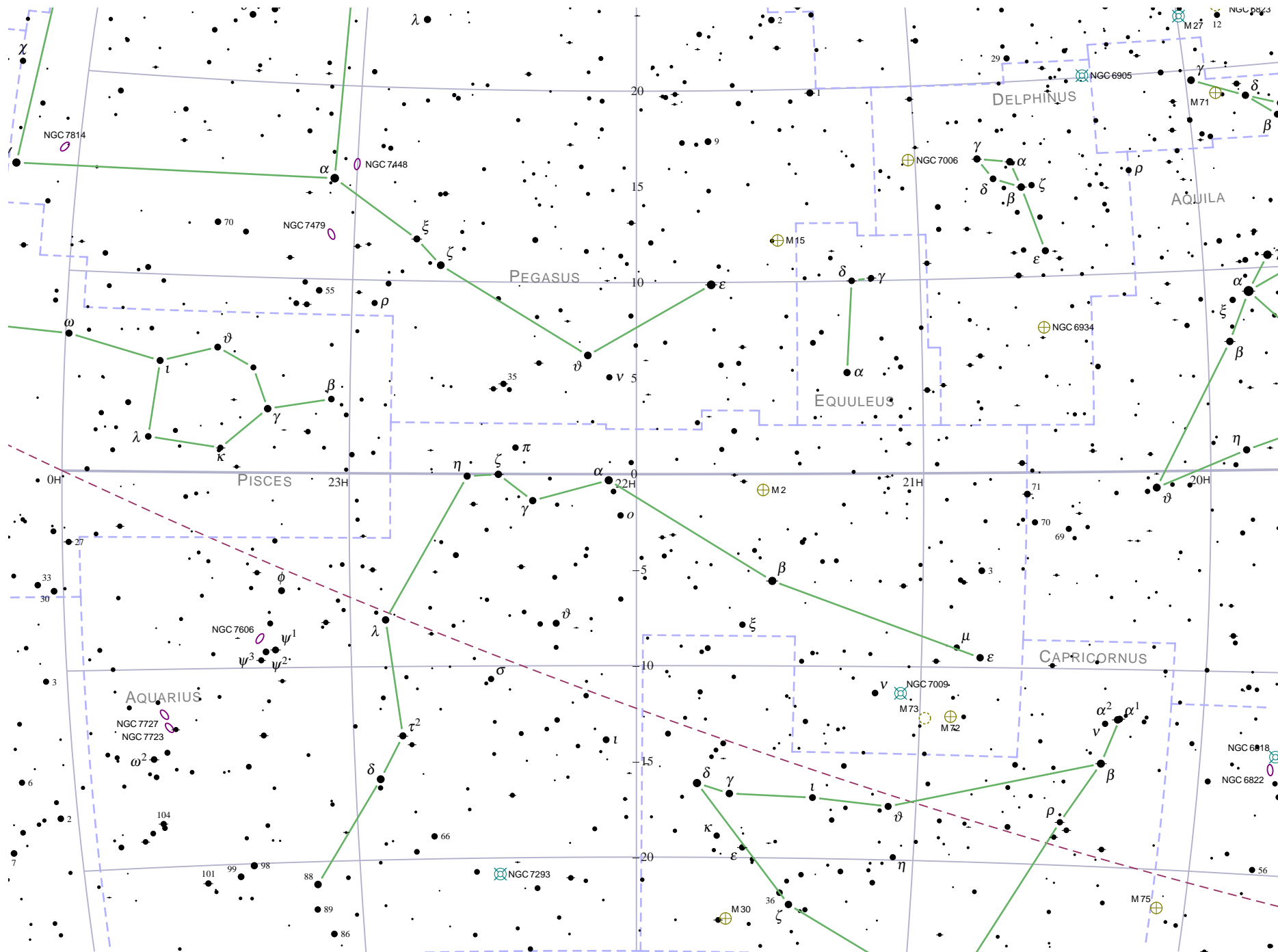


Chart 13: RA 20^h to 0^h, Declination +20° to -20°

Magnitude: 0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0

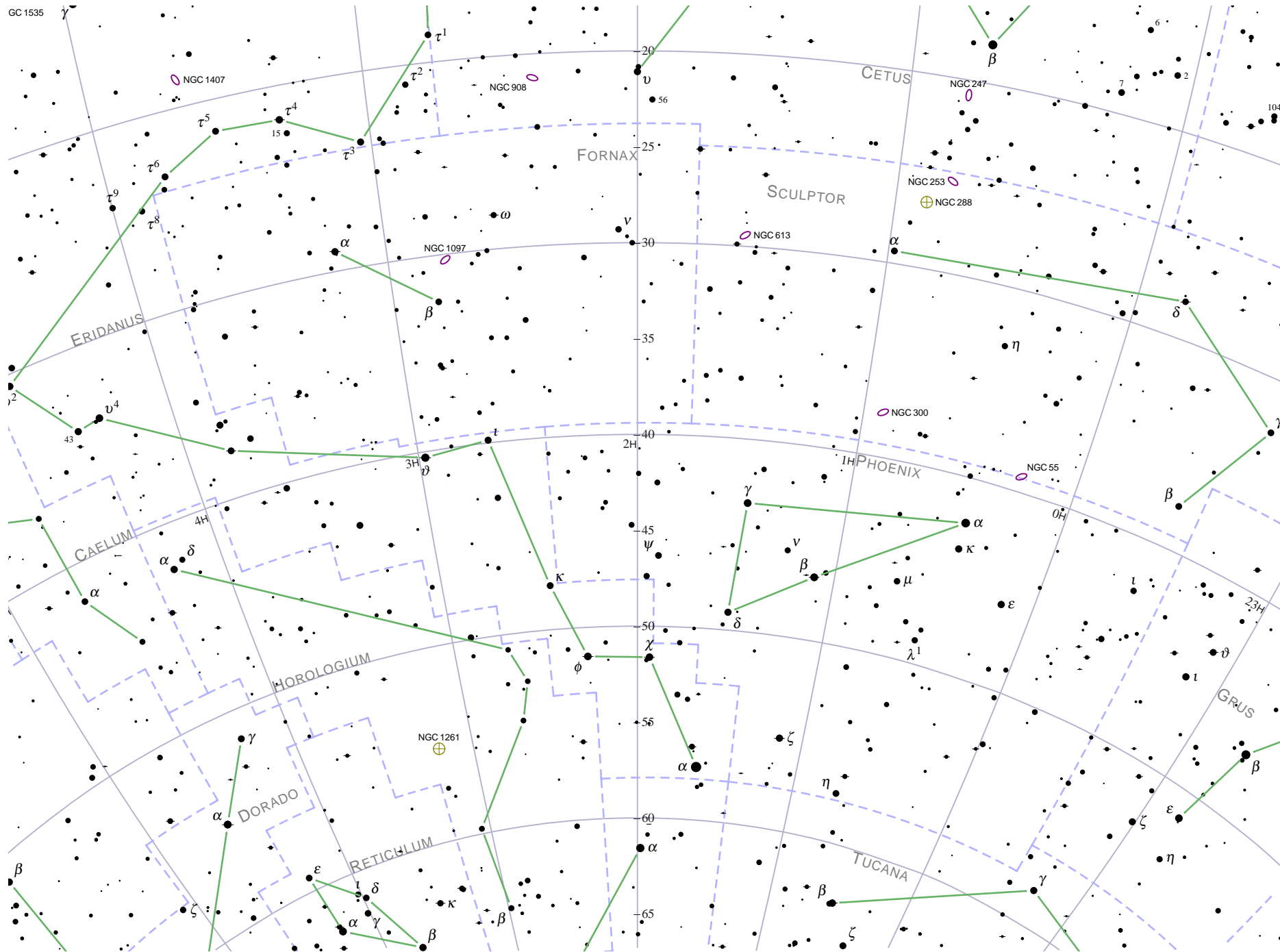


Chart 14: RA 0^h to 4^h, Declination -20° to -65°

Magnitude: 0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0

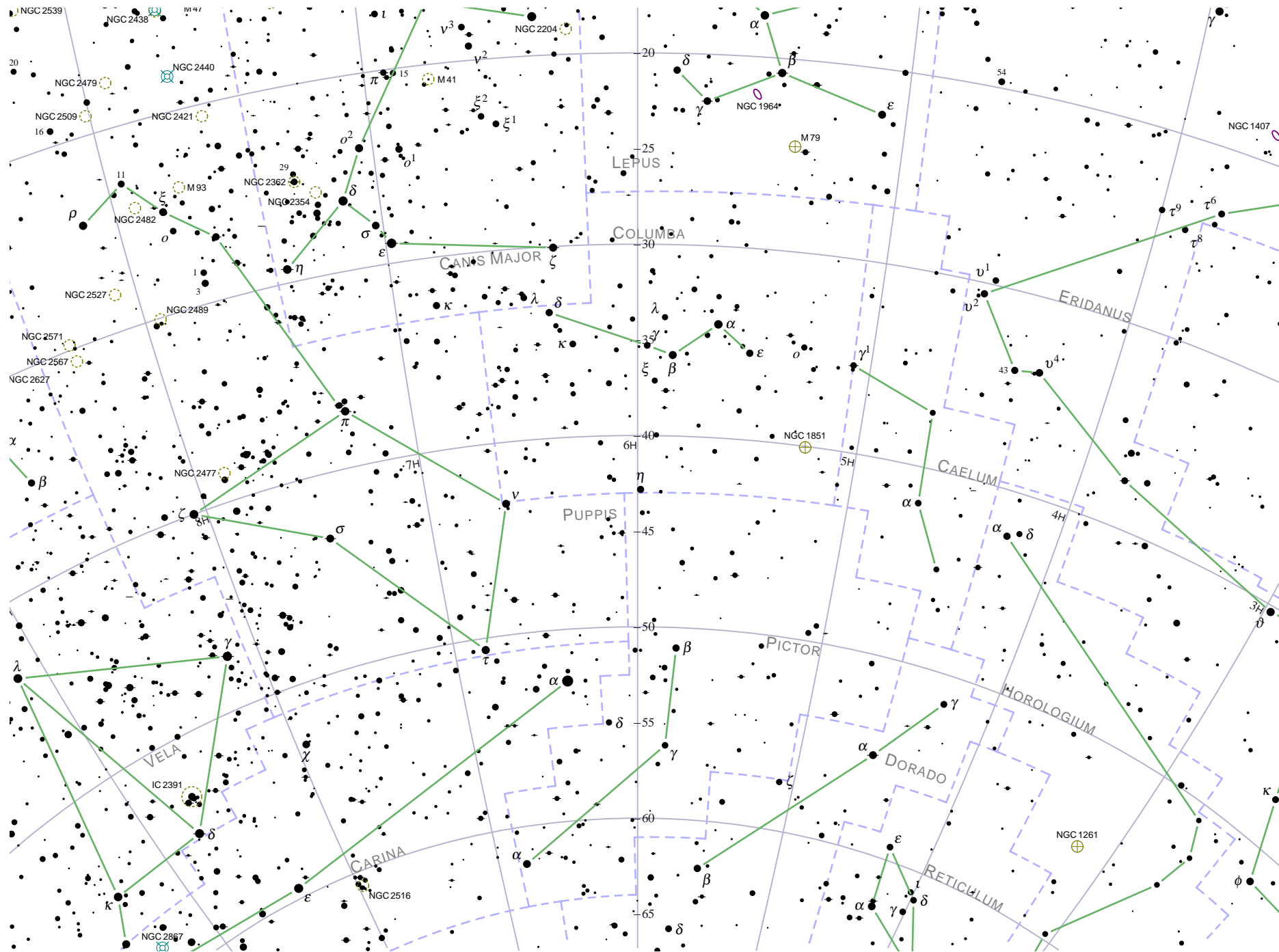


Chart 15: RA 4^h to 8^h , Declination -20° to -65°

Magnitude: 0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0

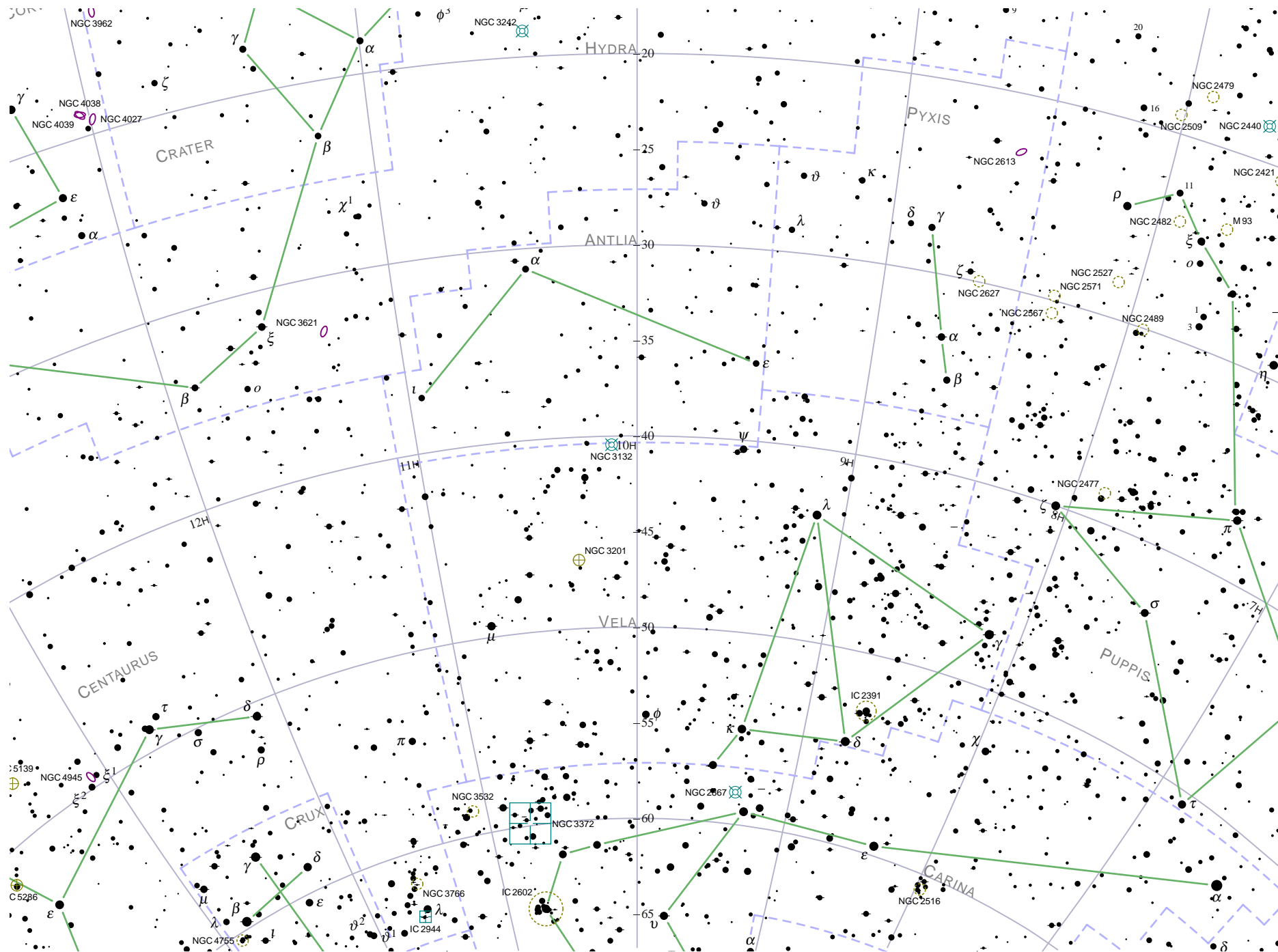


Chart 16: RA 8^h to 12^h, Declination -20° to -65°

Magnitude: 0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0

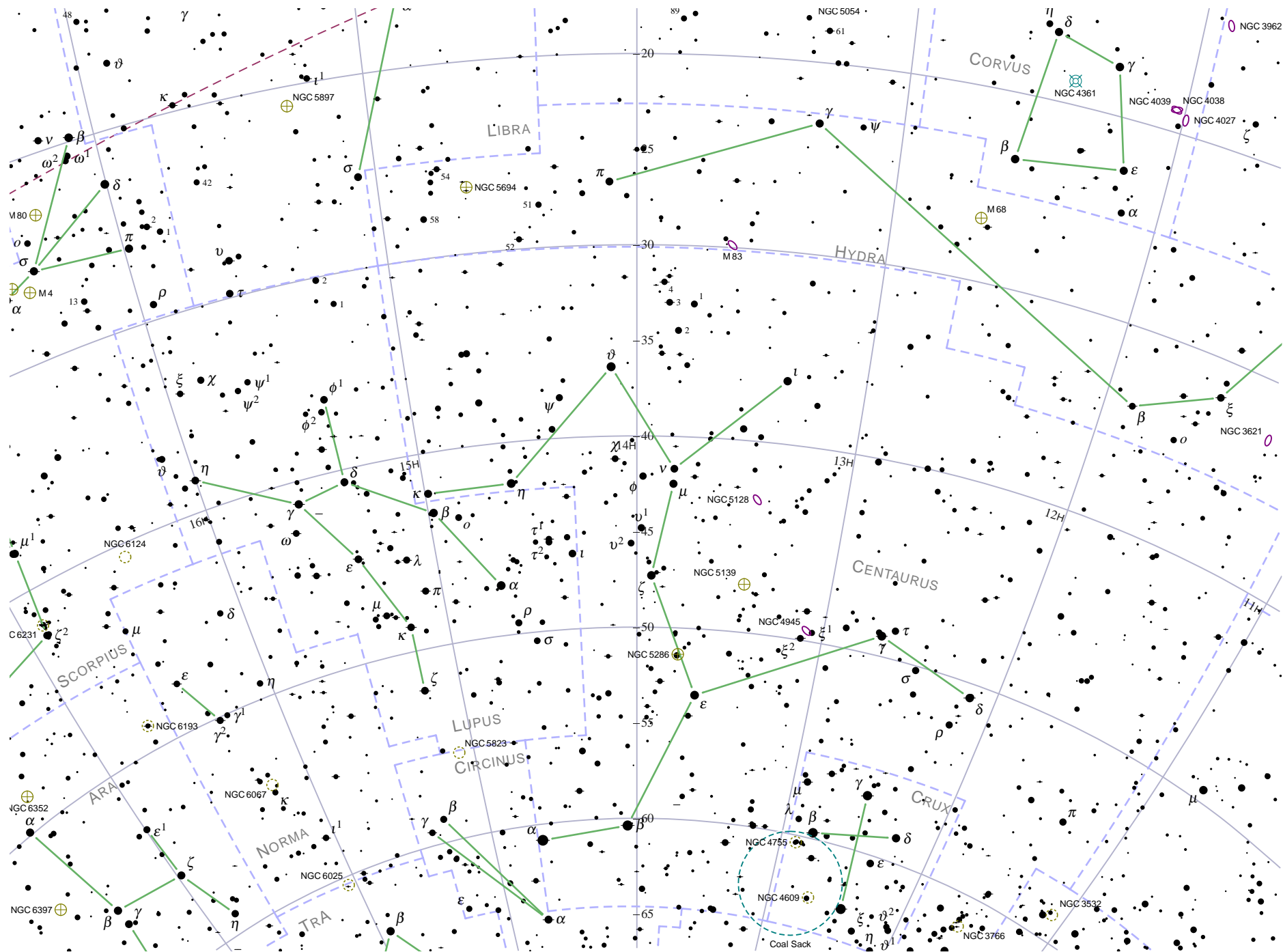


Chart 17: RA 12^h to 16^h, Declination -20° to -65°

Magnitude: 0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0

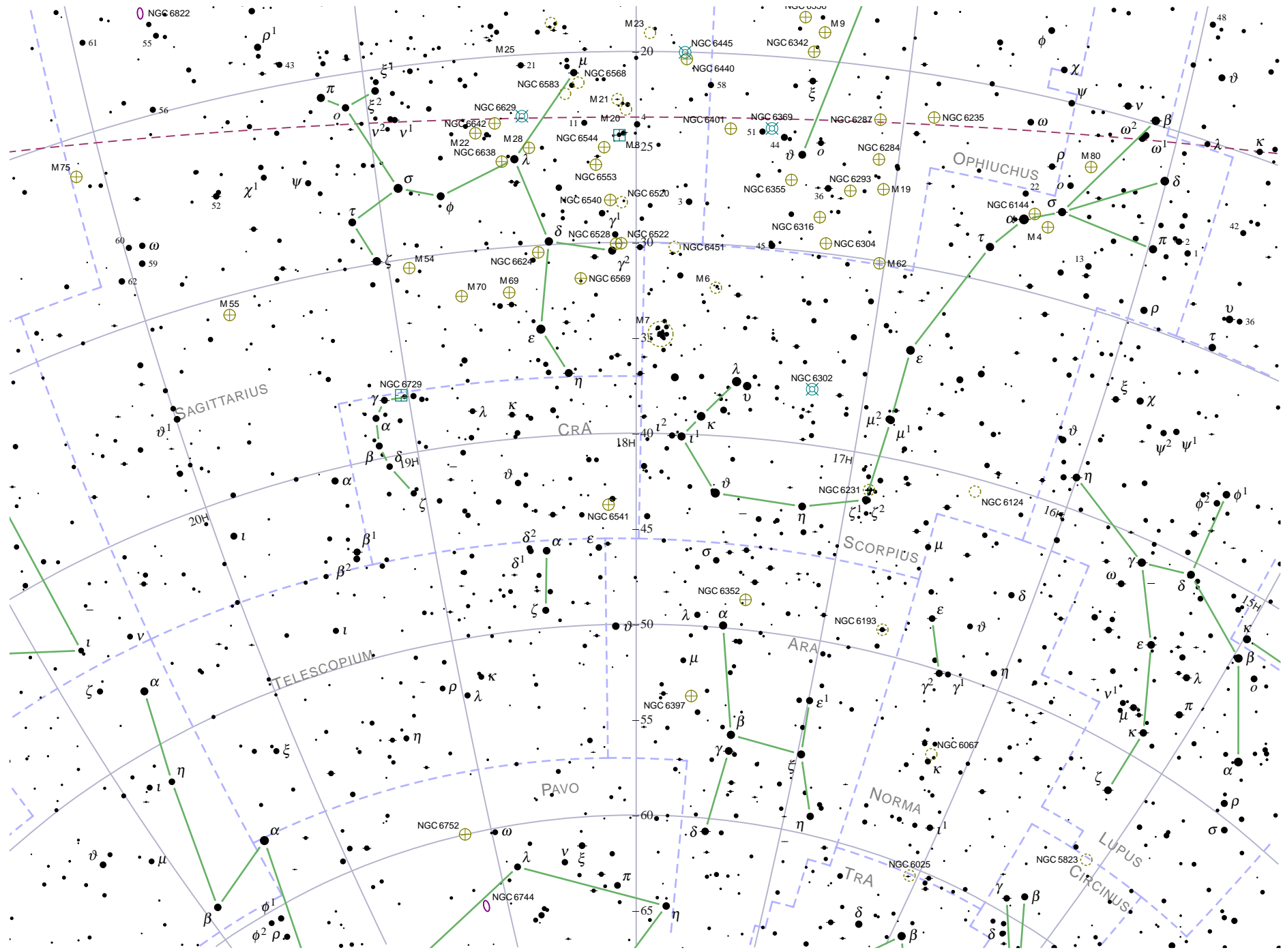


Chart 18: RA 16^h to 20^h, Declination -20° to -65°

Magnitude: 0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0

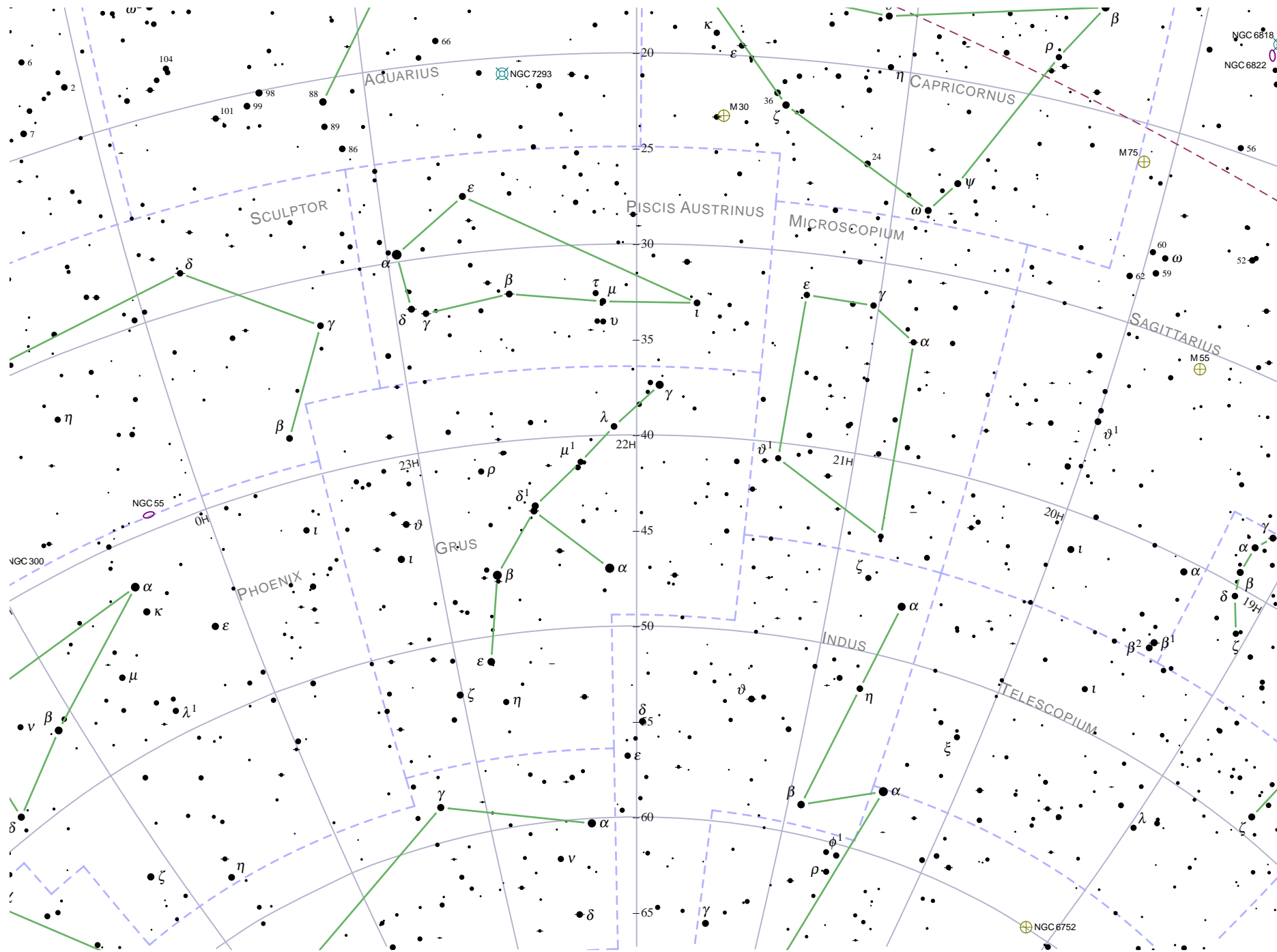


Chart 19: RA 20^h to 0^h, Declination -20° to -65°

Magnitude: 0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0

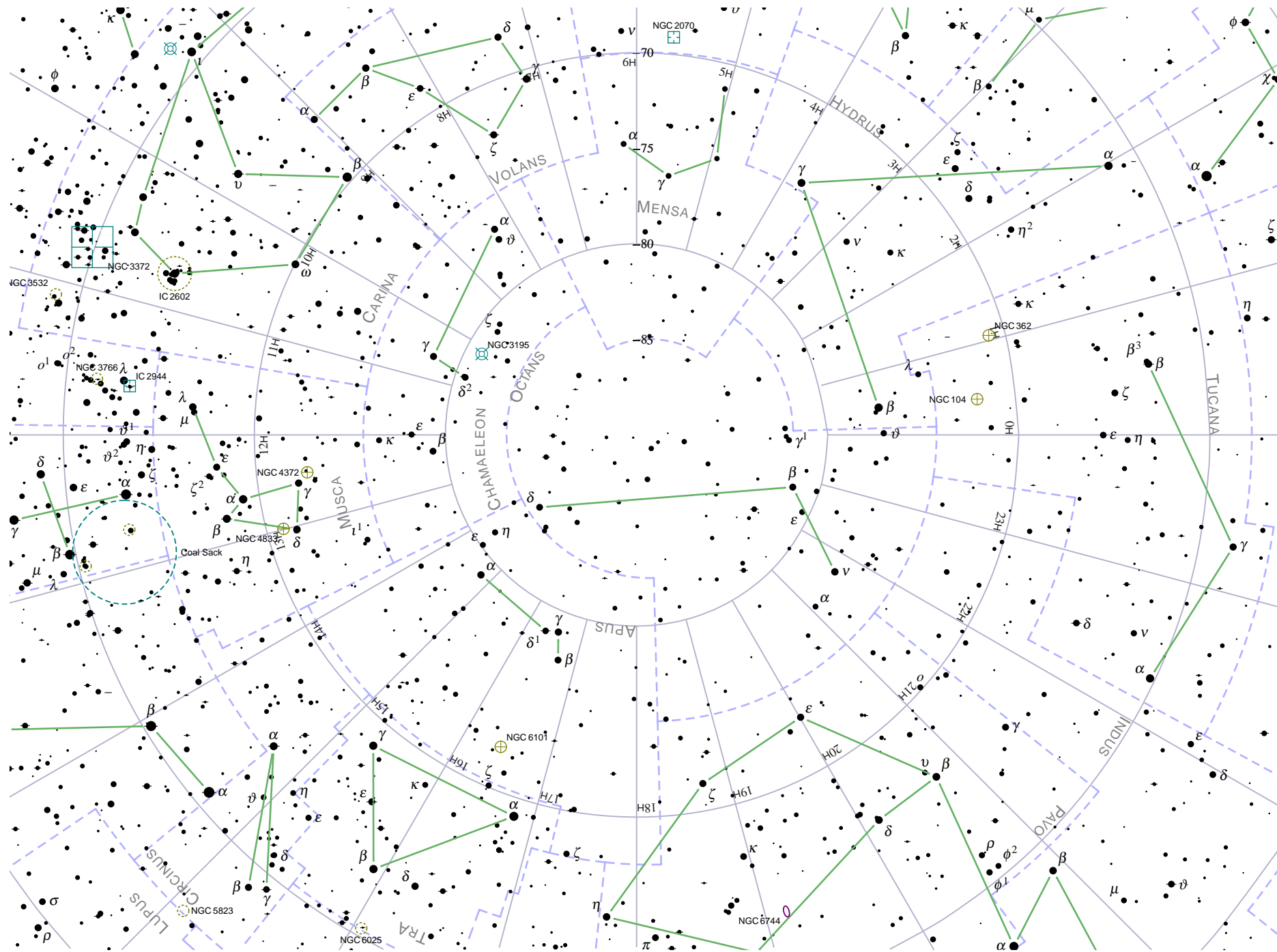


Chart 20: Declination South of -65°

Magnitude: 0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0