

The Caldwell Field Guide

Patrick Moore's Deep-Sky Complement to Messier

Curated targets from the 109-object Caldwell catalog visible from 45° N — by season.

About the Caldwell Catalog

Sir Patrick Moore (1923–2012) was a British amateur astronomer, prolific author, and host of the BBC's *The Sky at Night* for 55 years — the longest-running television program with the same presenter in history. In 1995, he noticed that Charles Messier's famous catalog had a glaring asymmetry: it was compiled from Paris, so it ignored the southern sky, and it was a list of comet-confusers rather than a curated tour of the best deep-sky objects. Moore's solution was the Caldwell Catalog (named after his middle name, since 'M' was already taken) — 109 deep-sky objects he felt should have been famous, ordered by declination from north to south. About 60 are visible from 45° N latitude. The list includes spectacular objects Messier missed: the Double Cluster, the Veil Nebula, the Helix, the Sculptor Galaxy, the Eskimo Nebula, and the Iris Nebula, among others.

We're including 38 of the most-observed Caldwell objects below, organized by season like the companion Messier guide. A few entries (Caves, Bubble, North America, Crescent) cross-reference the Bright Nebulae Imaging Guide where they appear under their Sharpless designations.

WINTER

Dec — Feb · 11 objects

Winter Caldwell highlights are mostly clusters and the famous Rosette Nebula in Monoceros, plus the Eskimo planetary in Gemini. The Hyades anchor naked-eye Taurus, and the Double Cluster (C14) between Cassiopeia and Perseus is one of the visual showpieces of the year — easily worth the trip on its own.

C13 · NGC 457 · Owl Cluster (E.T. Cluster) ★ FEATURED

● ○ ○ ○ EASY

Open Cluster · Cassiopeia · 1h 19m +58° 20' · mag 6.4 · size 13'

Visual Owl-shaped pattern with two bright 'eye' stars (ϕ Cas pair) and arms of fainter stars. Easy in any small scope; binocular target

Imaging Wide field at 400–800mm; vibrant in OSC since the bright stars show as gold/blue

C14 · NGC 869/884 · Double Cluster ★ FEATURED

● ○ ○ ○ EASY

Open Cluster · Perseus · 2h 21m +57° 08' · mag 4.3 · size 60'

Visual Naked-eye double cluster between Perseus and Cassiopeia. Two distinct rich clusters in the same low-power field — one of the most rewarding visual targets in the sky

Imaging Wide field 200–400mm captures both clusters with surrounding star field. Standard cluster framing

C28 · NGC 752

● ○ ○ ○ EASY

Open Cluster · Andromeda · 1h 58m +37° 41' · mag 5.7 · size 50'

Visual Big loose cluster best in binoculars; too sparse for higher magnifications

Imaging Wide field

C31 · IC 405 · Flaming Star Nebula ★ FEATURED

● ● ● ○ CHALLENGING

Emission/Reflection · Auriga · 5h 16m +34° 16' · mag 6.0 · size 30'x19'

Visual Faint emission/reflection mix around AE Aurigae; needs dark skies and a small scope plus narrowband filter for the emission portion

Imaging H α + RGB; SHO works. 600–1000mm. Pairs with IC 410 (Tadpoles) in same wide field at 300–400mm

C39 · NGC 2392 · Eskimo / Clown Face Nebula ★ FEATURED

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Planetary Nebula · Gemini · 7h 29m +20° 55' · mag 9.2 · size 0.7'

Visual Bright compact planetary; the 'face' structure visible in 6–8" scopes at high magnification

Imaging Long focal length 1500mm+ shows the inner shell and outer halo. OIII filter helps

C41 · Hyades ★ FEATURED

● ○ ○ ○ EASY

Open Cluster · Taurus · 4h 27m +15° 52' · mag 0.5 · size 330'

Visual The biggest, brightest, closest open cluster — a naked-eye V-shape forming the bull's face in Taurus, with Aldebaran as the eye (Aldebaran isn't a member, just superimposed)

Imaging Too big for telescopes. 50–85mm camera lens or wide-field DSLR captures with Pleiades and California Nebula nearby

C49 · NGC 2237 · Rosette Nebula ★ FEATURED

●●○○ MODERATE

Emission Nebula · Monoceros · 6h 32m +5° 03' · mag 9.0 · size 80'x60'

Visual Big rose-shaped emission ring around the open cluster NGC 2244 (which is C50). Faint visually; binoculars show the cluster, not the nebula. H α filter at the eyepiece helps**Imaging** Iconic narrowband target — H α bright, OIII fills the central cavity. 300–600mm; SHO palette stunning. Easy target for OSC + duo-narrowband**C50 · NGC 2244 · Rosette Cluster**

●○○○ EASY

Open Cluster · Monoceros · 6h 32m +4° 56' · mag 4.8 · size 30'

Visual Bright cluster at center of Rosette Nebula. Visible in binoculars without realising the surrounding nebulosity**Imaging** Always framed as part of C49 Rosette captures**C54 · NGC 2506**

●●○○ MODERATE

Open Cluster · Monoceros · 8h 00m -10° 47' · mag 7.6 · size 7'

Visual Compact rich open cluster; pretty in 6"+**Imaging** Standard cluster framing 800–1500mm**C58 · NGC 2360 · Caroline's Cluster**

●○○○ EASY

Open Cluster · Canis Major · 7h 18m -15° 38' · mag 7.2 · size 13'

Visual Discovered by Caroline Herschel; pretty rich cluster in southern winter sky**Imaging** Wide field**C64 · NGC 2362 · Tau Canis Majoris Cluster ★ FEATURED**

●○○○ EASY

Open Cluster · Canis Major · 7h 19m -24° 57' · mag 4.1 · size 8'

Visual Bright cluster surrounding the supergiant tau CMa — the central star dominates and the cluster sparkles around it. One of the best 'jewel-on-velvet' clusters**Imaging** Compact target good for 1000mm+. The bright central star forces careful exposure planning

SPRING

Mar — May · 17 objects

Spring Caldwells focus on edge-on galaxies (C23 Needle Galaxy, C26, C32 Whale, C38 Needle in Coma) and the bright spiral C7 NGC 2403 in Camelopardalis. Galaxy hunting is the theme, like Messier spring — but with new targets you may not have hit before.

C3 · NGC 4236

●●●○ CHALLENGING

Spiral Galaxy · Draco · 12h 17m +69° 28' · mag 9.7 · size 23'x7'

Visual Faint elongated spiral; needs 8" scope and dark skies

Imaging Long focal length; rewards dark skies

C7 · NGC 2403 ★ FEATURED

●○○○ EASY

Spiral Galaxy · Camelopardalis · 7h 37m +65° 36' · mag 8.5 · size 23'x12'

Visual Bright face-on spiral; one of the best non-Messier galaxies for visual observers. Visible in binoculars from dark sites

Imaging Showcase spiral at 800–1500mm; HII regions visible with H α

C12 · NGC 6946 · Fireworks Galaxy ★ FEATURED

●●○○ MODERATE

Spiral Galaxy · Cepheus · 20h 35m +60° 09' · mag 8.8 · size 11'x9'

Visual Face-on spiral nicknamed 'Fireworks' for the rate of supernova production (10+ in the last century). Soft round glow with mottled arms in 8"+

Imaging Stunning at 1000–1500mm; rich in HII regions. Pairs nicely with adjacent open cluster NGC 6939 in wider field

C21 · NGC 4449

●●○○ MODERATE

Irregular Galaxy · Canes Ven. · 12h 28m +44° 06' · mag 9.6 · size 5'x3'

Visual Compact irregular galaxy; visible as bright oval in 6"+ scope

Imaging Striking at long focal lengths; dwarf irregular with intense star formation

C23 · NGC 891 ★ FEATURED

●●○○ MODERATE

Edge-on Galaxy · Andromeda · 2h 23m +42° 21' · mag 9.9 · size 14'x3'

Visual Classic edge-on spiral with prominent dark dust lane; needs 8" for the dust lane visually

Imaging Showcase edge-on target at 1500mm+. Razor-thin profile with dust lane bisecting the disc

C24 · NGC 1275 · Perseus A

●●●● DIFFICULT

Galaxy + Cluster · Perseus · 3h 20m +41° 31' · mag 11.6 · size 2'x1.5'

Visual Faint elliptical at the heart of the Perseus Galaxy Cluster (Abell 426); 50+ galaxies in the wider field

Imaging Long focal length captures the central region; wider field for the cluster context

C25 · NGC 2419 · Intergalactic Wanderer ★ FEATURED

●●●○ CHALLENGING

Globular Cluster · Lynx · 7h 38m +38° 53' · mag 10.4 · size 4.6'

Visual Distant globular ~300,000 ly from Earth — beyond the Magellanic Clouds. Faint and tight in any scope; soft fuzzy ball

Imaging Long focal length; one of the most distant resolvable globulars

C26 · NGC 4244

●●●○ CHALLENGING

Edge-on Galaxy · Canes Ven. · 12h 18m +37° 49' · **mag 10.4** · size 16'x2'**Visual** Long thin edge-on spiral; needs dark skies**Imaging** Pretty edge-on at long focal lengths**C29 · NGC 5005**

●●●○ CHALLENGING

Spiral Galaxy · Canes Ven. · 13h 11m +37° 03' · **mag 9.8** · size 5.4'x2.7'**Visual** Bright tilted spiral with mottled core; rewards 8"+ scope**Imaging** Long focal length**C30 · NGC 7331** ★ **FEATURED**

●●○○ MODERATE

Spiral Galaxy · Pegasus · 22h 37m +34° 25' · **mag 9.5** · size 10.5'x3.7'**Visual** Bright tilted spiral; visible as elongated glow in 4". Often called the 'Milky Way's twin' for similar structure**Imaging** Stunning at 1500mm+; Stephan's Quintet (compact galaxy group) visible in same wider field**C32 · NGC 4631 · Whale Galaxy** ★ **FEATURED**

●○○○ EASY

Edge-on Galaxy · Canes Ven. · 12h 42m +32° 32' · **mag 9.0** · size 15'x3'**Visual** Bright edge-on whale-shaped galaxy with companion NGC 4627 forming the 'baby whale' nearby. Visible in 4"+**Imaging** Pair with C38 Needle Galaxy in nearby region. Whale has a galactic outflow visible in deep H α **C35 · NGC 4889**

●●●● DIFFICULT

Elliptical Galaxy · Coma Bere. · 13h 00m +27° 59' · **mag 11.4** · size 3'**Visual** Brightest member of the Coma Cluster (Abell 1656); thousands of galaxies in the field. Faint individually**Imaging** Wide field captures hundreds of cluster members; long integration**C38 · NGC 4565 · Needle Galaxy** ★ **FEATURED**

●○○○ EASY

Edge-on Galaxy · Coma Bere. · 12h 36m +25° 59' · **mag 9.6** · size 16'x2'**Visual** Razor-thin edge-on spiral with central bulge; one of the finest edge-on galaxies in the sky. Visible in 4" scope as a needle of light**Imaging** Showcase target at 1000–2000mm; central dust lane visible in long exposures**C40 · NGC 3626**

●●●● DIFFICULT

Spiral Galaxy · Leo · 11h 20m +18° 21' · **mag 11.0** · size 2.7'x1.9'**Visual** Faint round spiral; difficult visually**Imaging** Long focal length**C45 · NGC 5248**

●●●○ CHALLENGING

Spiral Galaxy · Bootes · 13h 38m +8° 53' · **mag 10.3** · size 6.2'x4.5'**Visual** Faint barred spiral; round soft glow in 8"**Imaging** Long focal length**C48 · NGC 2775**

●●●○ CHALLENGING

Spiral Galaxy · Cancer · 9h 10m +7° 02' · **mag 10.1** · size 4.5'x3.5'**Visual** Compact spiral; small bright nucleus**Imaging** Long focal length

C53 · NGC 3115 · Spindle Galaxy ★ FEATURED

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Lenticular Galaxy · Sextans · 10h 05m -7° 43' · mag 8.9 · size 8'x3'

Visual Cigar-shaped lenticular galaxy; bright, visible in 4". Different from M102 which is also called Spindle**Imaging** Showpiece edge-on lenticular at 1000–2000mm

SUMMER

Jun — Aug · 20 objects

Summer is loaded with planetary nebulae (Cat's Eye, Blue Snowball, Saturn, Helix), the Veil Nebula complex (C33/C34) in Cygnus, and the bright Iris reflection nebula in Cepheus. Cepheus and Cygnus are particularly rich. The Crescent (C27) is the same as Sh2-105 in the bright nebulae guide.

C2 · NGC 40 · Bow-Tie Nebula

●●●○ CHALLENGING

Planetary Nebula · Cepheus · 0h 13m +72° 32' · mag 11.4 · size 1'

Visual Small planetary; needs 8" and OIII filter for the bow-tie shape

Imaging Long focal length 2000mm+; OIII reveals lobes

C4 · NGC 7023 · Iris Nebula ★ FEATURED

●●○○ MODERATE

Reflection Nebula · Cepheus · 21h 01m +68° 12' · mag 6.8 · size 18'

Visual Bright blue reflection nebula around a 7th-mag star; visible in 4" with intricate structure

Imaging Showcase reflection at 800–1500mm; long integration brings out the surrounding faint dust web

C6 · NGC 6543 · Cat's Eye Nebula ★ FEATURED

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Planetary Nebula · Draco · 17h 59m +66° 38' · mag 8.1 · size 0.3' (core)

Visual Bright compact planetary with intricate inner structure visible in 8"+. The core is small but very bright

Imaging Long focal length 2000mm+; the outer halo (3') extends much further than the bright core. OIII reveals the eye structure

C15 · NGC 6826 · Blinking Planetary ★ FEATURED

●○○○ EASY

Planetary Nebula · Cygnus · 19h 45m +50° 31' · mag 8.8 · size 0.5'

Visual Famous 'blinking' effect — direct vision shows the central star, averted vision shows the bright nebula. Best demo of averted vision in the sky

Imaging Long focal length; central star is a magnitude-10 white dwarf

C16 · NGC 7243

●○○○ EASY

Open Cluster · Lacerta · 22h 16m +49° 53' · mag 6.4 · size 21'

Visual Loose open cluster; pretty in binoculars

Imaging Wide field

C17 · NGC 147

●●●○ CHALLENGING

Dwarf Galaxy · Cassiopeia · 0h 33m +48° 31' · mag 9.5 · size 13'x8'

Visual Faint companion of M31 Andromeda; needs dark skies

Imaging Often included in M31 wide-field captures

C18 · NGC 185

●●●○ CHALLENGING

Dwarf Galaxy · Cassiopeia · 0h 39m +48° 20' · mag 9.2 · size 11'x9'

Visual Companion to NGC 147 (C17), both M31 satellites

Imaging Frame both C17 and C18 together in wider field

C19 · IC 5146 · Cocoon Nebula ★ FEATURED

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Emission Nebula · Cygnus · 21h 53m +47° 16' · mag 7.2 · size 12'

Visual Small emission nebula at the end of the long dark dust lane B168. Visible in 4" from dark skies**Imaging** Iconic emission + dark combo at 800–1200mm. The dust lane is the 'fuse' approaching the bright Cocoon**C22 · NGC 7662 · Blue Snowball ★ FEATURED**

●●○○ MODERATE

Planetary Nebula · Andromeda · 23h 26m +42° 33' · mag 8.6 · size 0.6'

Visual Blue-green planetary; visible in 4" as a bright disc, with annular structure in 8"+**Imaging** Long focal length; OIII bright**C27 · NGC 6888 · Crescent Nebula ★ FEATURED**

●●○○ MODERATE

Wolf-Rayet Bubble · Cygnus · 20h 12m +38° 21' · mag 7.4 · size 18'x12'

Visual Wolf-Rayet wind bubble; visible in 8" with OIII filter showing the crescent shape**Imaging** See bright nebulae guide for full imaging notes (also Sh2-105)**C33 · NGC 6992 · Eastern Veil Nebula ★ FEATURED**

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Supernova Remnant · Cygnus · 20h 56m +31° 43' · mag 7.0 · size 60'x8'

Visual Eastern half of the Veil supernova remnant — bright filaments visible in 6" with OIII filter**Imaging** Standard target. 600–1000mm; SHO or HOO. Pair with C34 Western Veil for full Cygnus Loop**C34 · NGC 6960 · Western Veil (Witch's Broom) ★ FEATURED**

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Supernova Remnant · Cygnus · 20h 46m +30° 43' · mag 7.0 · size 70'x6'

Visual Western half of the Veil — passes through the bright star 52 Cyg. Beautiful broom shape with OIII**Imaging** Pair with C33 in single wide field at 300–400mm. The complete Cygnus Loop is one of the prettiest SHO targets**C37 · NGC 6885**

●○○○ EASY

Open Cluster · Vulpecula · 20h 12m +26° 29' · mag 5.7 · size 7'

Visual Open cluster around 20 Vul; bright field star dominates**Imaging** Tight cluster; long focal length**C42 · NGC 7006**

●●●○ CHALLENGING

Globular Cluster · Delphinus · 21h 02m +16° 11' · mag 10.6 · size 2.8'

Visual Distant compact globular; faint, soft ball in 4"**Imaging** Long focal length**C43 · NGC 7814**

●●●○ CHALLENGING

Edge-on Galaxy · Pegasus · 0h 03m +16° 09' · mag 10.5 · size 6'x3'

Visual Edge-on spiral with prominent dust lane; visible in 8"+**Imaging** Long focal length; dust lane visible in long exposures**C44 · NGC 7479**

●●●○ CHALLENGING

Barred Spiral · Pegasus · 23h 05m +12° 19' · mag 10.9 · size 4.4'x3.4'

Visual S-shaped barred spiral; faint round glow in 8"**Imaging** Beautiful structure at long focal lengths

C46 · NGC 2261 · Hubble's Variable Nebula ★ FEATURED

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Reflection Nebula · Monoceros · 6h 39m +8° 44' · mag 9.0 · size 2'x1'

Visual Variable nebula; shape changes over weeks. See bright nebulae guide (vdB 38) for imaging**Imaging** 1500–3000mm; first object photographed with 200-inch Mt. Palomar**C47 · NGC 6934**

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Globular Cluster · Delphinus · 20h 34m +7° 24' · mag 8.9 · size 5.9'

Visual Compact globular; resolves outer members in 6"**Imaging** Standard globular at 1000mm+**C55 · NGC 7009 · Saturn Nebula ★ FEATURED**

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Planetary Nebula · Aquarius · 21h 04m -11° 22' · mag 8.0 · size 0.4'

Visual Bright planetary with extension 'rings' resembling Saturn. Visible as an oval in 4"; the ansae (Saturn-like extensions) need 10"+**Imaging** Long focal length 2000mm+; OIII filter shows the ring structure crisply**C63 · NGC 7293 · Helix Nebula ★ FEATURED**

●●○○ MODERATE

Planetary Nebula · Aquarius · 22h 30m -20° 48' · mag 7.6 · size 16'

Visual Largest and closest planetary nebula. Big ring shape in 8"+ with OIII filter. Low altitude from Canada**Imaging** Iconic ring/eye shape at 600–1200mm; OIII bright. Worth chasing during peak fall altitude

FALL

Sep — Nov · 7 objects

Fall is sparser for distinct Caldwells — most fall targets are also in the bright nebulae guide (Cave, Bubble, North America). The standouts are C65 Sculptor Galaxy (low from Canada) and C5 IC 342 (face-on but dust-extinguished). Several fall objects are cross-referenced rather than re-described.

C5 · IC 342 ★ FEATURED

●●●○ CHALLENGING

Spiral Galaxy · Camelopardalis · 3h 47m +68° 06' · mag 8.4 · size 21'x20'

Visual Big face-on spiral but very low surface brightness due to interstellar dust extinction (it sits behind the Milky Way's dust). Visible only from dark sites

Imaging Stunning at 800–1500mm with long integration; the dust extinction reddens it noticeably

C8 · NGC 559

●●○○ MODERATE

Open Cluster · Cassiopeia · 1h 30m +63° 18' · mag 9.5 · size 4.4'

Visual Compact open cluster; modest in any scope

Imaging Tight cluster; long focal length

C10 · NGC 663

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Open Cluster · Cassiopeia · 1h 46m +61° 13' · mag 7.1 · size 16'

Visual Bright rich cluster in Cassiopeia; binocular target

Imaging Wide field 600–1000mm

C65 · NGC 253 · Sculptor Galaxy ★ FEATURED

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Spiral Galaxy · Sculptor · 0h 47m -25° 17' · mag 7.1 · size 27'x7'

Visual Bright tilted spiral; large and elongated, easily visible in 4" from dark sites. Low altitude from Canada (peaks ~20° from southern Canada)

Imaging Showcase target at 800–1500mm if you can get reasonable altitude. Rich detail in arms

C9 · Sh2-155 · Cave Nebula ★ FEATURED

●●○○ MODERATE

Emission Nebula · Cepheus · 22h 56m +62° 37' · mag 7.7 · size 50'x30'

Visual See bright nebulae guide. C9 = Sh2-155.

Imaging Cross-reference: Bright Nebulae Imaging Guide for full imaging notes

C11 · NGC 7635 · Bubble Nebula ★ FEATURED

●●○○ MODERATE

Emission Nebula · Cassiopeia · 23h 21m +61° 12' · mag 11.0 · size 15'x8'

Visual See bright nebulae guide. C11 = Sh2-162.

Imaging Cross-reference: Bright Nebulae Imaging Guide for full imaging notes

C20 · NGC 7000 · North America Nebula ★ FEATURED

●○○○ EASY

Emission Nebula · Cygnus · 20h 59m +44° 32' · mag 4.0 · size 120'x100'

Visual See bright nebulae guide. C20 = Sh2-117.

Imaging Cross-reference: Bright Nebulae Imaging Guide for full imaging notes