

GUIDE TO THE STARS

PRACTICAL TIPS & TOOLS FOR GUIDED DARK SKY EXPERIENCES



The Importance of Dark Skies

A natural dark night is not only optimal for star gazing, it is also ecologically and culturally important. About 70% of mammals are nocturnal, and on average, nearly a third more insects are found at night compared to the day. Fascination of the night sky has inspired star lore, religions, art and literature, and science. Consider tours that offer a plethora of activities from before dusk to beyond astronomical twilight to create an immersive night experience.

Recommended Smartphone Apps



SkyView
free



Google Sky
free



Heavens Above
free



Stellarium Mobile
some paid features



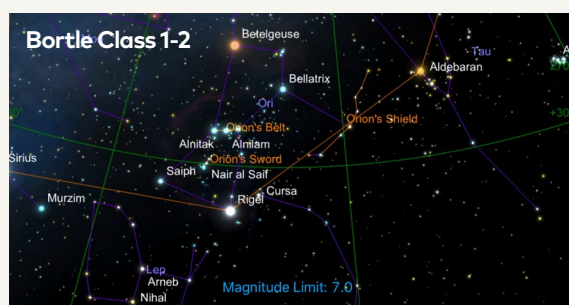
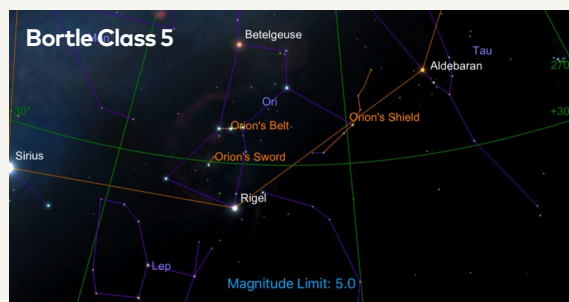
SKEye
free



Light Pollution Map
free

Night Sky Quality

When planning tours, consider the night sky quality of the site. The darker the site, the more naked eye-observable celestial objects and the more nocturnal wildlife to experience, particularly if near a water source. Night sky quality can be easily classified by using the Bortle Scale (1 - the most pristine, 9 - severe light pollution).



Shown is the constellation Orion under Bortle 5 skies (e.g., Bend, The Dalles, Klamath Falls) and Bortle 1 and 2 (e.g., Grass Valley, Oregon Outback, Wallowa Mountains).

Desktop Apps for Star Party Planning

For desktop and/or tablet with internet or Wi-Fi connections, consider the following:

- skymaps.com/downloads.html
- stellarium-web.org
- stellarium.org
- heavens-above.com
- in-the-sky.org
- skyandtelescope.org/interactive-sky-chart
- drifted.in/planisphere-app
- cleardarksky.com/csk/

Book Recommendations

There is a range of available books on dark skies, from celestial observation, to youth and adult dark sky programming, children's education, scientific studies, astrophotography, and more.

Dark Skies: A Practical Guide to Astrotourism by Valerie Stimac. 2019.

Dark Skies – In the Moment by Anna Levin. 2025.

Dark Skies: Places, Practices, Communities by Nick Dunn and Tim Edensor. 2025.

Incandescent: We Need to Talk About Light by Anna Levin. 2022.

Lights Out: A Movement to Help Migrating Birds by Jessica Stremer. 2024. (For children)

Night Magic: Adventures Among Glowworms, Moon Gardens, and Other Marvels of the Dark by Leigh Ann Henion. 2024.

Night Sky Photography: From First Principles to Professional Results by Adam Woodworth. 2021.

NightWatch: A Practical Guide to Viewing the Universe by Terence Dickinson and Ken Hewitt-White. 2023.

Save the Sky (Save the Earth) by Bethany Stahl. 2022. (For children)

Saving the Night: How Light Pollution Is Harming Life on Earth by Stephen Aitken. 2023.

The Darkness Manifesto: On Light Pollution, Night Ecology, and the Ancient Rhythms That Sustain Life by Johan Eklof. 2020.

The End of Night: Searching for Natural Darkness in an Age of Artificial Light by Paul Bogard. 2014.

Wild Nights Out: The Magic of Exploring the Outdoors After Dark by Chris Salisbury. 2021.





Katie Falkenberg

Helpful Field Tools

- **Planisphere** - *Guide to the Stars* (latitude 30-60 degrees North; 16-inches) by Ken Graun
- **Binoculars** - 10x50 are most practical; best with a tripod
- **Telescope** - Astronomers Without Borders One Sky 130mm Newtonian reflector is quite practical
- **Red dimmable flashlight** - Celestron 93588 Astro Night Vision Flashlight; Rigel Starlite, 2-RED LED Flashlight
- **Binocular Guidebook** - *Binocular Highlights Revised & Expanded Edition: 109 Celestial Sights for Binocular Users* by Gary Seronik. 2017.
- **Star Atlas** - *Observer's Sky Atlas: The 500 Best Deep-Sky Objects With Charts and Images* by Erich Karkoschka. 2023.

Astronomical Charts and Event Calendars

It's helpful to provide star chart handouts for guests. Many charts, particularly [SkyMaps.com](https://www.skymaps.com), include a calendar of events for the month. Other charts can be found at the desktop app sites provided in this handout.

Stargazing Etiquette

- Dress warm and bring extra layers.
- Drive very slowly and carefully after dark in the parking area.
- Park with your vehicle's headlights pointing away from the observing field. Ask someone to guide you if you feel you cannot drive safely in a darkened parking area.
- Avoid using white light whenever possible. Use a dimmable, red flashlight or cover your flashlight with red cellophane or red tape to help protect everyone's night vision.
- Set your cell phone or tablet app to "night mode" to damp down the white light, and keep it pointed away from other people's eyes. To take a picture, turn off the flash first.
- Ask for permission before touching anyone's viewing equipment.
- Avoid green laser pointers. They present a hazard to airplanes.
- Pets are best left at home, but if necessary, make sure they are on a leash, under control and quiet at all times.
- Smoking and consuming alcohol disrupt night vision and are best avoided or minimized.
- Yes it's called a 'star party', but respect the stillness of the night and keep voices low.

Optimal Stargazing Tips

- Higher and drier, dark sky sites with broad horizons are best.
- Avoid artificial lights after dusk for best night vision adaptation.
- Get oriented with the site before dark and note "silhouettes" for evening wayfinding. Note locations of ditches, rocky patches, and trees.
- For casual stargazers, select an evening when a partial moon is above the horizon early in the evening. Everyone loves seeing craters through binoculars and telescopes. Avoid the full moon when no terminator is present.
- For serious stargazers, select an evening when the moon is below the horizon all evening long (i.e., new moon and last quarter).
- Observe a group of constellations that tells a story (e.g., Orion/Canis Major/Taurus/Lepus/Canis Minor; Perseus/Andromeda/Cepheus/Cassiopeia/Pegasus/Cetus; Ursa Major/Ursa Minor) and use the story to star-hop and find deep space objects and interesting stars.
- Start observing in the western sky before certain constellations set for the evening. Work your way east.

Nocturnal Wildlife Viewing Tips

- Use red light instead of white light. Red light preserves night vision and white light disturbs animals.
- Listen for distinct calls. Each species has its unique vocalizations.
- Use a red flashlight or headlamp to scan for eye shine in larger animals.
- Keep noise and disturbances to a minimum. Be patient and allow time for wildlife to appear.
- Utilize night vision technology for enhanced sightings (e.g., UV flashlight for spotting scorpions; night vision binoculars for mammals).
- In general, Oregon bats are more often observed when near a water source (i.e., stream, pond, marsh) and near tree roosting habitat.
- Use sound recording equipment to identify animals by their calls (e.g., smartphone apps: Merlin Bird ID; Song Sleuth; Wildlife Acoustics ultrasonic Echo Meter Touch 2 device for identifying bats).

For more information, request a free dark sky tourism consultation through Travel Oregon's 'Ask an Expert' program.



Joey Hamilton