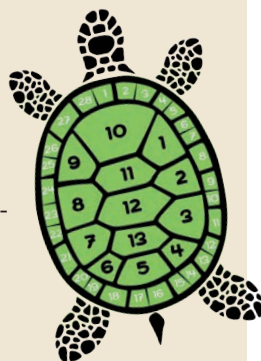


## 13 MOONS OF THE ANISHINAABE YEAR

by John Roterman

The Anishinaabe calendar uses a lunar-based system of 13 moons with 28 days each, totaling 364 days each year – unlike the Gregorian calendar, which uses a solar-based system of 365 days.

The month names signify natural observations and seasonal activities taking place. There are regional differences between Minnesota's Ojibwe Anishinaabe names of months due to the differences in location and climate that coincide with various seasonal activities. The Ojibwe Anishinaabe calendar also has the distinction of having 13 moons. The thirteenth moon of the year is sometimes called the Blue Moon, representing a fictional month named Undecember. These moons are often illustrated as the top shell of a turtle with 13 plates, surrounded by 28 smaller plates to represent days of the month.



### Examples of traditional moon names\*

English Month	Anishinaabemowin	Canadian Anishinaabemowin
January	Gichimanidoo-giizis (Great Spirit Moon)	Mnido Giizis (Spirit Moon)
February	Namebinini-giizis (Suckerfish Moon)	Mkwa Giizis (Bear Moon)
March	Onaaboni-giizis (Hard Crust on the Snow Moon)	Ziissbaakdoke Giizis (Sugar Moon)
April	Iskigamizige-giizis (Sap Boiling Moon)	Namebine Giizis (Sucker Moon)
May	Zaagibagaa-giizis (Budding Moon)	Waawaaskone Giizis (Flower Moon)
June	Odeimini-giizis (Strawberry Moon)	Ode'miin Giizis (Strawberry Moon)
July	Minike-giizis (Berry Harvesting Moon)	Mskomini Giizis (Raspberry Moon)
August	Manoominake-giizis (Wild Rice Harvest Moon)	Datkaagmin Giizis (Thimbleberry moon)
September	Waatabagaa-giizis (Leaves Changing Color Moon)	Mdaamiin Giizis (Corn Moon)
October	Binaakwii-giizis (Falling Leaves Moon)	Biinaakwe Giizis (Falling Leaves Moon)
November	Gashkadino-giizis (Freezes Over Moon)	Mshkawji Giizis (Freezing Moon)
December	Manidoo-giizis (Little Spirit Moon)	Mnidoons Giizis Oonhg (Little Spirit Moon)
Undecember	Ozhaawashko-giizis (Blue Moon)	Mnidoons Giizis (Big Spirit Moon)

\*These represent just a few of the vast array of monthly names originating from many different Tribal traditions across the region.

## OCTOBER PHENOLOGY

Jim Gilbert's Nature Notes

### First week of October

Any day, we can anticipate frost and ice on birdbaths. White-tailed deer wear their gray-brown winter coats. Muskrats build their mounded shelters in permanent ponds. More painted turtles are up sunning on logs now that the water temperatures are dropping. Southern Minnesota farmers have begun combining corn. Leaves of red maple and Ohio buckeye trees have turned red. A rough grouse may be seen fanning its tail, a territorial sign in the fall.

*October 10, 2024: High of 80 degrees in the Twin Cities and area. Zinnias, lantana, dipladenia, impatiens, black and blue salvia and more continued blooming nicely in gardens.*

### Second week of October

Look for first white-tailed deer buck rubs on small trees. Short-tailed weasels are turning from brown to white, as are snowshoe hares in northern Minnesota.

John Burroughs, 19th century American naturalist and writer, described October as "the time of the illuminated woods." There may not be an illuminated woods near you, but all throughout Minnesota and the Upper Midwest you can find illuminated trees and pockets with fall colors. Some people feel a sense of urgency to get out into the country before the colors fade and the deciduous trees drop their leaves.

In the Twin Cities area, find great views of autumn colors on a drive from Highway 95 into Stillwater and to Taylors Falls, or Highway 7 from Hopkins to St. Bonifacius, or through the University of Minnesota Landscape Arboretum.

*October 15, 2024: In fringe areas of the Twin Cities metro area, the temperature hit 30 degrees or a bit lower, and steam fog was rising from lakes and ponds. There was frost in low areas and on rooftops, and the first ice on birdbaths.*

### Third week of October

Sugar maples display burnt-orange, red and yellow leaves, eastern cottonwoods show golden-yellow foliage and wild grape vines have sunny-yellow leaves. Autumn Blaze maple trees are a hybrid red and maple/silver maple known for their gorgeous bright red leaf color, now seen from Grand Marais and Duluth to southern Minnesota.

*October 18, 2024: In Pine City and north to Ely, tamarack trees showed smoky-gold fall foliage color at its peak.*

*October 20, 2024: Overall peak for fall colors in Lake Waconia, Lake Minnetonka and the Twin Cities area, along with Northfield and Faribault, St. Peter, Taylors Falls and west to St. Cloud.*

### Fourth week of October

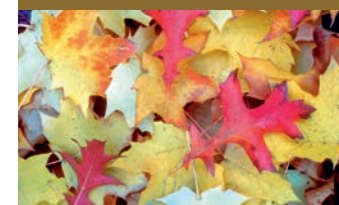
Deciduous forests have started to look bare but some areas still have great fall colors. Quaking aspens, eastern cottonwoods and honey locust trees still have much golden-yellow foliage. American bittersweet vines have lost their leaves but have very attractive clusters of bright orange fruit.

Watch for big rafts of migrating American coots on some lakes. Franklin's gulls and ring-billed gulls follow farmers doing fall tillage. The gulls pick up worms and other small animals in the soil. Orchardists are still picking Fireside, Haralson, Honeygold, Regent and SnowSweet apples.

*October 30, 2024: Last of year snowy tree crickets calling.*

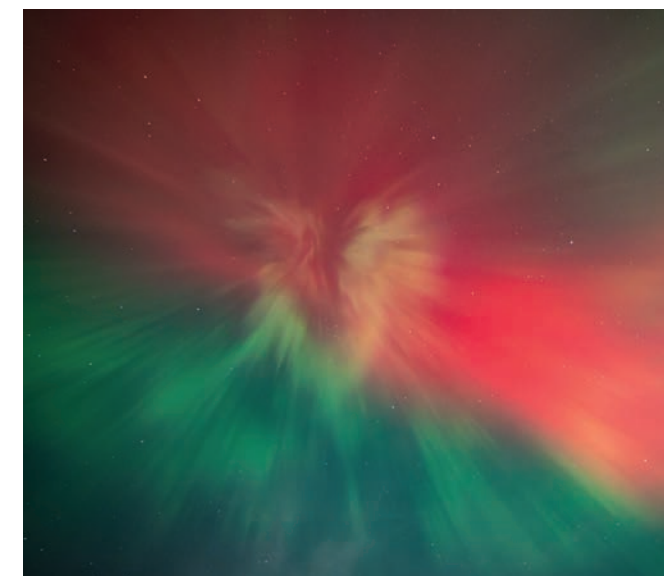
*October 31, 2024: First snowfall in Twin Cities and area. It rained early, and then two to four inches of snow turned the landscape white.*

### LOOK FOR ...



Peak day for autumn foliage colors (Twin Cities):

2024	Oct. 20
2023	Oct. 17
2022	Oct. 7
2021	Oct. 21
2020	Oct. 8
2019	Oct. 17
2018	Oct. 14
2017	Oct. 14
2016	Oct. 14
2015	Oct. 14



ANDREA BERNHARDT | AURORA'S HEART | NORTHFIELD, MN



Then there's always that chance of early season snowfall, which will inevitably lead to conversations that bring up the Halloween Blizzard of 1991, a historical benchmark for early winter storms in Minnesota.



Jamie Kagol  
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Paul Huttner  
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*Chief Meteorologist*  
Weather Blog:  
[mprnews.org/  
updraft](http://mprnews.org/updraft)

## MPRnews

[mprnews.org/podcasts/climate-cast](https://mprnews.org/podcasts/climate-cast)

## Fall color peak moving later

Fall is the second fastest warming season in Minnesota. And our fall nights in Minnesota are warming quickly. On average, fall nights in the Twin Cities have warmed 5.7 degrees since 1970 according to data from NOAA and Climate Central. That's pushing our fall foliage color to change later into the fall season. So, our warm season is lingering longer into autumn most years.



Image by Climate Central.

## MY NATURE NOTES

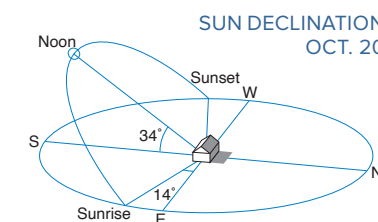
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## ASTRONOMY

Ron Schmit

## Morning sky

Find Mars near the Moon on 10/5, and then sailing through the Beehive Cluster on 10/11. The cluster, also known as Praesepe or M44 (from the Messier Catalogue), is a lovely object in binoculars, holding about a thousand stars. On 10/6, the Moon will actually pass in front of Jupiter, creating an Occultation. Mars continues its movement toward Jupiter, closing to within  $6^\circ$  by 10/31. By that time, Venus is visible low in the east-south-east.



## Evening sky

Saturn is at Opposition on 10/4. As the Earth passes Saturn in its orbit, it will appear the closest and brightest all year. Mercury reaches Greatest Eastern Elongation at 19.6° from the Sun and also gets a visit from the Moon on 10/12, although both will be tough to pick out of twilight. Venus reaches Inferior Conjunction on 10/23, finally leaving the evening sky. Saturn appears next to the Moon on 10/23.

## Highlights

The Moon's orbit is tilted 5° to the ecliptic. If it wasn't, every full Moon would give us a lunar eclipse. Instead, the tilt makes the Moon pass above or below the Earth's shadow each month. About every 18 months, they line up and we get an eclipse. It's the same for solar eclipses: the Moon's shadow is above or below. This even applies to the stars and planets. Each month, the Moon moves past the planets, but if the tilt is lined up just so, the Moon will pass right over the top of them. This is called an Occultation. We will experience a Lunar Occultation of Jupiter this month in the early hours of 10/6. The Moon will rise at 2:34 a.m. in the east-north-east, and just behind it, rising at 2:39 a.m. will be Jupiter. At 3:27 a.m., Jupiter will start to disappear behind the Moon. Although you can see Jupiter with the naked eye, a pair of binoculars will allow you to see its Galilean Moons: Europa will disappear first, then Callisto, then Io. Jupiter is next, and finally Ganymede. Jupiter will reappear at 4:14 a.m.

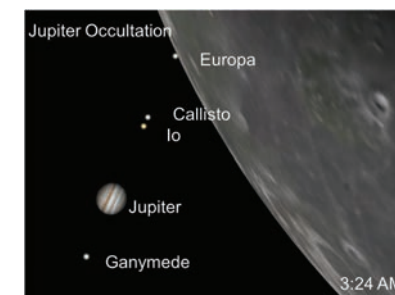


Image: Stellarium

## SPECIES HIGHLIGHT by Jim Gilbert



EDWARD JONES | PLAYING POSSUM | CAMBRIDGE, MN

**Virginia opossum (*Didelphis virginiana*)**

Being nocturnal, after resting all day the opossum goes out at night to feed on anything from earthworms and insects to rotting fruits or carrion. Yes, they are omnivores. An opossum uses its long tail for balance and to grasp as it climbs trees. They are about the size of house cats but newborns are only about a half-inch long and live in a pouch, feeding on milk from their mother for about 70 days, before beginning to explore by climbing in and out of the pouch. After another month the young, three to about a dozen in number, cling to their mothers back and ride along as she searches for food. Opossums, a distant relative of kangaroos, have made themselves at home in Minnesota since about 1900. Minnesota's winters are getting warmer, which is causing the opossum to move north in the state.