Advent: Hope December 2024

Ecosystem: Prairie

Prayer: Creative one, we give thanks for the delicate balance of the natural world. Kindle in us a spirit of caring strength in the preservation of habitats, food availability, and centers of refuge, that all wildlife may thrive. Source: Prayers of Intercession, *Sundays and Seasons*.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 **Big Bluestem** *Andropogon gerardii* These grasses are the dominant grass in the tallgrass prairie. They have deep root systems and fluffy seed heads. They provide excellent forage grass for livestock. Gen. 1:1-2:4	**2** **Western Prairie fringed orchids** *Platanthera praeclara,* most fragrant at night to attract sphinx moths, their only pollinators. The sphinx moths, as caterpillars, rely on the presence of particular larval food plants. Endangered. Gen 9:8-17	**3** **Sphinx Moth** Family: Sphingidae Tube shaped flowers attract sphinx moths, which are interesting due to their ability to hover. Ps 24: 1-2	**4** **Eastern Meadowlark** *Sturnella magna* have strong, sharp bills to pry open grasses and soil for insects. Song is often a pair of clear, descending whistles: tsee-you, tsee-yer. Call is a harsh dzzzzzert and they sing from fence posts and telephone lines. Ps 104	**5** **Greater Prairie Chicken** *Tympanuchus cupido* Endangered because they require wide open sweeps of permanent, diverse grassland. Known for their booming calls in the spring during mating season. Endangered. Job 38-39	**6** **Prairie milkweed, *Asclepias hirtella*** The silky floss of the seedpods has been used for stuffing pillows and life preservers. Milkweeds have a long list of historic folk medicinal uses. Endangered. Col. 1:15-20.	**7** **American bison** *Bison bison* once ranged in the prairie in enormous herds. Overhunted by white settlers to the point of extirpation. For Native Americans, provided food, shelter, clothing, and utensils, and “buffalo chips” served as fuel. Species of conservation concern. Mt 6:25-34

As we Journey through Advent, this calendar is designed to raise awareness of specific parts of God’s creation with an emphasis on our duty as stewards to do our best to protect it and care for it. Great or small, we all leave an impact wherever we go. Let us all leave the world a better place than we found it. We are going to focus on the ecosystems found in our state and the plants and animals found in those ecosystems. This Creation Care Advent Calendar was created by Janet Cooper, All Saints Lutheran, Blue Springs, MO. With Janet’s permission Michael Wilker, First Lutheran, Decorah, IA, modified it with Iowa references.

Weekly Quote: "We cannot escape the interconnectedness of the earth's fabric of life. Creation is the matrix of all our activities, both as human beings and as Christ's church. God gives us and all creatures life through the water, air, food, and all the other gifts that come to us from the earth. Everything we do both depends on these gifts and has some kind of impact upon them. If these gifts are treated with contempt and abused, people, animals, and plants suffer together. If they are graciously received and cherished, people will flourish with the rest of creation. We cannot love God or our human neighbor without caring for creation. The question is not *whether* the church will engage what our society calls the environment, but *how*." Mark S. Hanson on 10th Anniversary of ELCA social statement Caring for Creation.

This week's ecosystem is the prairie. In Iowa, less than one-half of 1 percent of our native prairies remain. Prairies once covered most of Iowa. Prairies are characterized by hot summers and cold winters with between 9-29 inches of rainfall. The rainfall is enough to keep the grasslands from becoming desert but not enough rain to support trees. Prairies function as Carbon sinks, absorbing an immense amount of carbon from the environment. Lack of rain, wildfires and heavy grazing have been checks on tree growth. They are home to a great diversity of plants and animals as well as pollinators such as butterflies and bees. They have built up deep-roots in the ground which has created high quality soils which soak up rainwater like a sponge and aid in Carbon sequestration. They are great places to watch birds, view wildflowers and photograph wildlife.

Why are Prairies important? Prairies serve as sponges to help control flooding. A seven-inch rainstorm can be absorbed by prairie with no runoff. Prairie soil hosts the most diverse communities of microorganisms of any terrestrial ecosystem. They are important in Carbon sequestration absorbing more than a ton of carbon in one year. And Prairies can host the most diverse community of native pollinators. With more than 1/3 of our food crops requiring pollination, these insects play a major role in food security.

Threats to the prairies: Much of the prairie has been destroyed for growing crops or grazing cattle. In most states, very little of the original prairie habitat remains. Other threats to the prairies include invasive and non-native plants which can choke out native plants and let trees and shrubs grow and take over the prairie.

How to help: Find and visit a local prairie via the Iowa Prairie Network. Near Des Moines, learn about the Neal Smith National Wildlife Refuge. In NE Iowa, visit Hayden Prairie State Preserve, near Lime Springs. Hayden Prairie is home to more than 200 plant species, 20 types of butterflies and 46 different bird species. This 240-acre National Natural Landmark, five miles south of the Minnesota state line, is a rock star in the prairie community.

Reflection of the Week: Thoughts on species from E.O. Wilson's *Half-Earth*: "Each species is a wonder to behold, a long, brilliant history in itself to read, a champion emerged in our time after a long struggle of thousands or millions of years, best of the best, an expert specialist in the niche of the natural environment in which it lives." p. 27

"There is a deeper meaning and long-term importance of extinction. When these and other species disappear at our hands, we throw away part of Earth's history. We erase twigs and eventually whole branches of life's family tree. Because each species is unique, we close the book on scientific knowledge that is important to an unknown degree but is now lost forever." p. 45

Hymn: All Earth Is Hopeful (v. 1) by Alberto Taulé, Catalunya, Spain, translated by Madeleine Forell Marshall
All Earth is hopeful, the savior comes at last! Furrows lie open for God's creative task:
This the labor of people who struggle to see How God's truth and justice set ev'rybody free.

Advent: Hope December 2024

Ecosystem: Forest and Woodlands

Prayer: Your love and power burst forth in the flashes of lightning, the dance of the wind, and the deeply rooted trees of the forest. Sustain fragile and interconnected ecosystems, that they flourish for generations to come. Source: Prayer of Intercession, *Sundays and Seasons.*

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8 **Oaks** *Quercus* spp. Oaks are the most important group of trees in Iowa, in both human and ecosystem value. They dominate most of the forests, woodlands, and savannas in the state. Gen 2:8-9	**9** **Shagbark Hickory** *Carya ovata* Shagbark hickory has many uses. Its wood makes excellent, slow-burning charcoal, its nuts are edible, and its wood is used for many implements. Wildlife from moths to squirrels to bats appreciate shagbarks, too! Ez 31:1-9	**10** **Opossum** *Didelphis virginiana* feed on insects and carrion. Famous defensive behavior is "playing dead". It is the only native marsupial in North America as it carries its young in a pouch. Ez 31:10-14	**11** **White-tailed Deer** *Odocoileus virginianus* Deer live in timbered areas, especially at the borders of clearings, where they obtain a variety of foods. It is named for its bright white flaglike tail. Job 14:7-9	**12** **Barred Owl** *Strix varia* Barred owl is identified by its call "Who cooks for you, who cooks for you all?" Prey includes small rodents, rabbits, frogs, snakes, insects, crayfish, and occasionally fish. Deut. 20:19-20	**13** **Black-capped chickadee** *Poecile atricapillus* nest in cavities. Food source is insects, spider eggs and pupae. Aldo Leopold said of the chickadee: "Everyone laughs at so small a bundle of large enthusiasms." Mt 13:31-32	**14** **Zebra Swallowtail** *Eurytides marcellus* have black and white stripes and long tails. Paw Paw trees are the food plant of the zebra swallowtail. Rev. 22:1-2

Quote attributed to Martin Luther: "Even if I knew that tomorrow the world would go to pieces, I would still plant my apple tree."

This week's ecosystem is the Forest and Woodlands. Trees essentially form bookends in the Bible, with the tree of life in Eden in Genesis 2:8-9 to the tree of life in Revelation at the end (Rev. 22:1-2). Iowa's woodlands are almost all privately owned, with the majority still owned by farmers as

part of the farm operation. Public ownership including the major state forests (Shimek, Yellow River, Shephens, and Loess Hills), state parks, and the county park system accounts for only 8% of all Iowa woodlands. Iowa's forests are mostly deciduous or hardwood trees; the only significant softwoods or conifers native to the state are redcedar found throughout the state and white pine and balsam fir in northeast Iowa. Deciduous trees shed their leaves in winter to minimize water and nutrient loss. These forests are characterized by warm rainy summers and cold winters and receive between 31-55 inches of rain or snow. Forests typically have a closed canopy with a dense, multilayered, mid- and understory consisting of trees, shrubs, and herbs. Plants that thrive in the forest mid- and understories can tolerate heavy shade. Hardwoods refer to deciduous broad leaf trees such as oaks, walnut, basswood and cottonwood and softwoods refers to confer or evergreen species. Iowa's climate and soils contribute to some of the best hardwoods in the world, including black walnut, white and red oak, white ash, and black cherry. Several oak and other trees dominate woodland canopies, grasses and sedges flourish in the understories, along with smaller shrubs and wildflowers. Forests provide nesting, shade, cover and feeding areas for wildlife. They also provide recreational activities and wood products.

Why are Forests and Woodlands important? Forests and woodland contribute to healthy soils and streams as they prevent erosion, encouraging water to seep into the ground. Trees play a major role in moderating earth's climate by reducing CO_2, a major greenhouse gas. Trees produce oxygen and improve air quality by filtering out pollutants. Forests support over 150 species of plants and animals in an interdependent web of life.

Threats to Forests and Woodlands include deforestation, invasive species, climate change, clearing and fragmentation due to commercial and residential development, introduced diseases and non-native species and poor timber harvest practices. In a recent study by the International Union for Conservation of Nature, of the 47,282 species of trees, 16,425 are in danger of extinction or about 1/3 of all tree species.

How to help: Learn more about Iowa Woods at the Iowa State University Extension. Visit a nearby Iowa State Forest.

Reflection of the week from *Braiding Sweetgrass* by Robin Wall Kimmerer

Trees constitute the environmental quality committee—running air and water purification service 24-7. They're on every task force, from the historical society picnic to the highway department, school board and library. When it comes to civic beautification, they alone create the crimson fall with little recognition. We haven't even mentioned how they create habitat for songbirds, and wildlife cover, tree forts and branches for swings. Centuries of their falling leaves have built this soil, now farmed for strawberries, apples, sweet corn and hay. How much of the oxygen comes from our maples? How much carbon is taken from the atmosphere and stored away? These processes are what scientists term ecosystem services, the structures and functions of the natural world that make life possible. P. 169, kindle edition.

Hymn: All Earth is Hopeful v. 2

People of Israel, you heard the prophet tell: A virgin mother will bear Emmanuel:

She conceived him, "God with us," Our brother, whose birth restores hope and courage to children of this earth.

Advent: Hope December 2024

Ecosystem: Wetlands

Prayer: O God of creation, you have founded your world on rivers and seas. Preserve freshwater sources and the creatures who call them home. Heal places of pollution and nourish places of drought. Source: Prayers of intercession, *Sundays and Seasons.*

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
15 **Cattails** *Typha angustifolia* Cattails are important wetland plants, providing food, shelter, and nesting places for a variety of animals, including insects, young fish, frogs, muskrat, beaver, many bird species, and more. They also help stabilize soil. Gen 2:4-25	**16** **Southern blue flag** *Iris virginica* Irises provide nectar for bumblebees. Few mammals eat this species because the plant irritates the digestive tract. They play an important role in cleaning water and stabilizing soils. This species is poisonous. Exo 23:10-13	**17** **Freshwater Mussels** Secretive and rarely seen,they are important as a food source, improving water quality thru filtration and play an important role cycling nutrients and energy in streams and lakes. 1 Chr 28:8-9	**18** **Fathead minnow** *Pimephales promelas* It is most abundant in pools of small prairie creeks because it tolerates rather high temperatures, extreme turbidity, and low oxygen. They feed on algae, aquatic insects and small crustaceans. Lev. 25:1-7, 23-24	**19** **Spring peeper** *Pseudacris crucifer* Small slender frogs with an X shaped mark on their back. Their clear, high-pitched peep, with a slight rise in pitch at the end is a sign that winter is over. They help control insect populations and are preyed upon by other larger species. Rev. 11:15-19	**20** **Red-eared sliders** *Trachemys scripta elegans* Herbivores play a role in plant seed dispersal and are mid-level carnivores. The “slider” name comes from their habit of sliding quickly into the water from their basking spots. Ps. 65	**21** **Red-winged Blackbird** *Agelaius phoeniceus* Males are all black, with a bright red shoulder patch bordered with yellow. Song is a loud “konk-o-REEE. They keep the populations of insects in check and as seed-eaters, they aid in the dispersal of various plants. Is. 11:6-9

Weekly Quote: God must be present in every single creature in its innermost and outermost being, on all sides, through and through, below and above, before and behind, so that nothing can be more truly present and within all creatures than God with God’s power. (Luther’s Work, 37:58). This week’s Bible verses demonstrate that we are meant to live in an interconnected, interdependent relationship with God and all creation.

Our ecosystem this week is the Wetlands. Approximately 25% of Iowa’s land area was once in some form of a wetland ecosystem, a number that today has been reduced by upwards of 95%. Although extensive efforts have been made to restore these vital ecosystems, substantial work

remains to regain the ecological function they once provided. These ecological functions include flood abatement and attenuation, water purification, groundwater recharge, and provisioning of habitat for a rich diversity of plants and animals endemic to the state and often tied closely with wetland ecosystems. Despite the loss of wetland ecosystems in Iowa, a remarkable diversity remains and more are restored or created across the state each year. Among extant wetlands today we find a wide range of sizes, management, wildlife habitat, use by humans, and functions for other ecosystem goods and services like flood abatement and water quality.

What good is a wetland? Wetlands, ponds, and streams all provide valuable functions to a healthy ecosystem. Besides absorbing runoff and helping to prevent damaging floods and soil erosion, native tree and plant roots also filter water and organic waste from pets and other animals, fertilizers, chemicals, and sediment in stormwater runoff, to help keep stream water cleaner and healthier. Wetlands serve as home to over 200 plant and animal species.

Threats to aquatic ecosystems include system alteration through draining, filling, and land conversion for residential and agricultural development.

How to help: Explore Iowa's Wetlands from the Air, via videos produced by Iowa State University. To care for wetlands, we can reduce the three biggest pollutants: dirt from erosion, bacteria from sewers and animal waste, and excess nutrients from fertilizers. Learn more about wetlands as a water quality practice in this article from the Iowa Watershed Approach project. If you own a farm, discover if a wetland is right for you with this Whole Farm Conservation Best Practices Manual. Visit a local wetland like Cardinal Marsh State Wildlife Area near Decorah, the Upper Mississippi River National Wildlife and Fish Refuge, or the Owego Wetland Complex near Sloan, IA.

Reflections of the week: Water is one of the mysterious gifts of nature that supports and holds life on Earth. Many indigenous communities knew the value of water a long time ago and to them, water was considered to be the source of life. On the surface water can be seen as food, a means of transport, a ground for recreation, or an element for cleansing, purification, and initiation in cultural ceremonies. But a deeper analysis of the value of water reveals that water is a sacred being that holds life on earth; a seed in the soil does not germinate until it receives water, which demonstrates that it is the spirit of water that ignites the production of life. From: Listening to the Spirit of Water, by Chief Tamale Bowya,Center for Humans and Nature https://humansandnature.org/listening-to-the-spirit-of-water/

For just as water was given certain responsibilities for sustaining the world, so were the people. Chief among their duties was to give thanks for the gifts of the earth and to care for them. *Braiding Sweet Grass*

Hymn: All Earth is Hopeful v. 3

Mountains and Valleys will have to be prepared New highways opened, new protocols declared
Almost here! God is nearing, in beauty and grace! All clear ev'ry gateway, in haste, come out in haste!

Advent: Hope December 2024

Ecosystem: Cave

Prayer: Lord, grant us the wisdom to care for the earth and till it. Help us to act now for the good of future generations and all your creatures. Help us to become instruments of a new creation, Founded on the covenant of your love. Source: Xavier Univ., Prayers for Sustainability.

Sunday	Monday	Tuesday	Wednesday	
22 **Grotto salamander** *Eurycea spelaea* are pale tan or pink and blind. Adults lack lungs and most lack gills; oxygen is taken from their environment through the skin and mucous membranes so they are sensitive to chemicals that drain from land into caves. Food source: small aquatic and terrestrial invertebrates 1 Kings 19: 11-12	**23** **Ozark Cavefish** *Amblyopsis rosae* are small, colorless and blind. They live in caves or springs with gravel bottoms and are considered a top underwater predator but cannot survive outside the cave environment. Food Source: Plankton, crayfish and bat guano. Endangered. Mic 5:2-4	**24** **Little brown bat** *Myotis lucifugus* Bats are probably the most reviled animal. They fly with their hands and see with their ears. Food source: Agricultural pests. Also beneficial as pollinators and in seed dispersal. Bat guano in caves brings in nutrients to feed small organisms. Is. 11:1-9	**25** **Human** *Homo sapiens* For early humans, caves offered protection from predators. In Jesus' time, caves were used for stabling of animals, hence the belief that Jesus was born in a cave. Human's presence in a cave is usually detrimental to the wildlife in the cave since the ecosystem is very fragile. Jn 1:10-14	Following a visitor carelessly tossing away a bag of Cheetos in Carlsbad Caverns, the Carlsbad National Park posted the following on their Facebook page. Great or small we all leave an impact wherever we go. How we choose to interact with others and the world we share together has its effects moment by moment. And we feel it. Other impacts are completely avoidable. Like a full snack bag dropped off-trail in the Big Room. To the owner of the snack bag, the impact is likely incidental. But to the ecosystem of the cave it had a huge impact. The processed corn, softened by the humidity of the cave, formed the perfect environment to host microbial life and fungi. Cave crickets, mites, spiders and flies soon organize into a temporary food web, dispersing the nutrients to the surrounding cave and formations. Molds spread higher up the nearby surfaces, fruit, die and stink. And the cycle continues. Rangers spent twenty minutes carefully removing the foreign detritus and molds from the cave surfaces. Some members of this fleeting ecosystem are cave-dwellers, but many of the microbial life and molds are not. At the scale of human perspective, a spilled snack bag may seem trivial, but to the life of the cave it can be world changing. Lk 10:25-37. Who is my neighbor?

Quote of the week: God writes the gospel not in the Bible alone, but also on the trees and in the flowers and clouds and stars. -- Martin Luther

Our ecosystem this week is caves. Our Advent calendar ends with a look at the ecosystem found in Caves. A popular assumption is that Jesus was born in a barn or stable because he was laid in a manger, a feeding trough for animals. However, there is archeological evidence of caves being used to house animals in Jesus' time. Early church fathers such as Justin Martyr, Jerome and Origen believed Jesus was born in a cave and in 335 A.D. the emperor Constantine approved a grotto in Bethlehem as the holy site where Jesus was born, now the site of the Church of the Nativity. Iowa boasts over 1,000 caves. Caves are fragile ecosystems, and to protect the many species that live in them, it is recommended that people refrain from entering caves. Also, teach yourself about groundwater ecology, groundwater and runoff pollution, and learn ways to protect caves, springs, sinkholes, and other underground habitats. Caves are important museums of natural history and provide geological, archaeological and paleontological features from the past.

Threats to Caves – Groundwater pollution and sedimentation, human disturbance and vandalism, and invasive species and diseases such as white-nose syndrome, which is devastating to the little brown bat population in Indiana where it was introduced by spelunkers from Europe. Remember the caver's motto: "Take nothing but pictures, leave nothing but footprints, kill nothing but time." Groundwater and water in caves and springs are inter-related. What we do to groundwater and water in caves, we ultimately drink.

Visit a Cave: With more caves than any state park, Maquoketa Caves is one of Iowa's most unique outdoor attractions. Read this Des Moines Register article about other caves including Ice Cave in Decorah.

Reflection: Even a wounded world is feeding us. Even a wounded world holds us, giving us moments of wonder and joy. I choose joy over despair. Not because I have my head in the sand, but because joy is what the earth gives me daily and I must return the gift. From: Braiding Sweetgrass, By Robin Wall Kimmerer, p. 327 (Kindle edition)

Final thought from C.S. Lewis in *Mere Christianity*: "Either this man was, and is, the Son of God: or else a madman or something worse. You can shut him up for a fool, you can spit at him and kill him as a demon; or you can fall at his feet and call him Lord and God. But let us not come with any patronizing nonsense about his being a great human teacher. He has not left that open to us. He did not intend to." p. 52, Kindle Edition.
Jesus asked " Who do you say that I am?"

Hymn: All Earth is hopeful. v. 4

We first saw Jesus a baby in a crib This same Lord Jesus today has come to live in our world;
He is present, in neighbors we see Jesus is with us, and ever sets us free.