



Aldo Leopold Nature Center throughout the seasons.

# Digital Docent: Climate Change Impacts A Self-Guided Walking Tour

Use this guide to learn about local species and discover how changes in climate affect ALNC's seasonal environment!

To try the digital interactive version of this tour, scan the QR codes or ask ALNC staff for more info!

## How it works!

Use this map to locate sign posts throughout our grounds indicating observation points to try spotting local species. Learn identification and seasonal information, fun facts, climate change impacts and more!

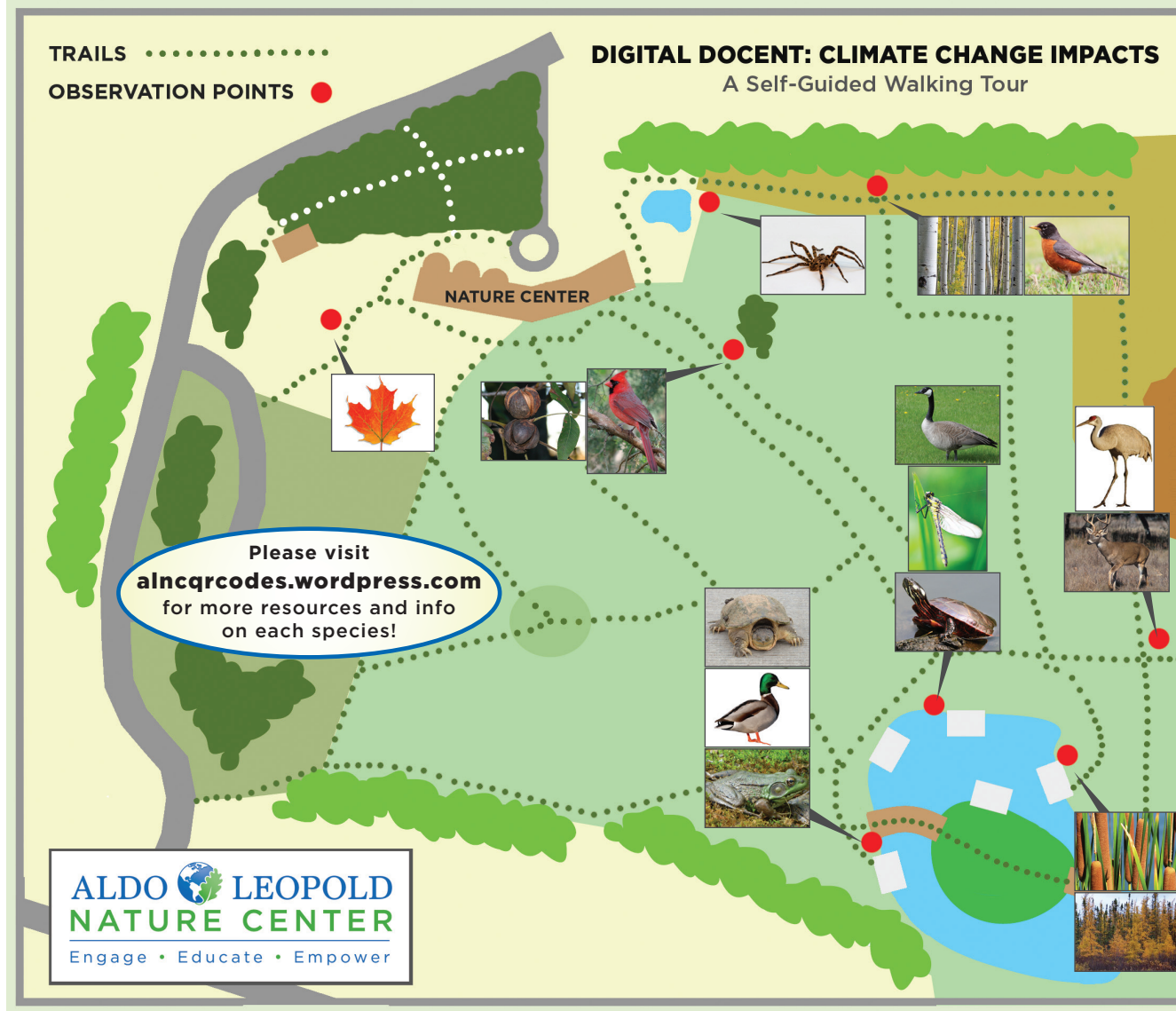
## Seasonal Phenology at ALNC

**Phenology:** the study of changes in the natural world through time

“Phenology” literally means “the science of appearance” and involves observing and recording nature over time. This can include anything you observe in nature, but especially happenings such as when leaves start to turn, when the pond freezes over, the first bloom of plants, or the arrival of migrating birds – in other words, **tracking plants, animals, weather and nature through the seasons.**

Using our senses to make observations and keep records of the world around us helps us connect with our local area, understand different ecosystems, and have a better idea of how things work on our planet. **Nature's cycles and seasons are shaped by Earth's climate**, and phenology can tell us a lot about **local climate and ecosystems**, and also how changes in climate affect the wildlife around us. Aldo Leopold, his family, and many naturalists, climate scientists and citizens practice phenology... You can too!

Aldo Leopold said, “keeping records enhances the pleasure of the search.” Share your observations & photos with us inside ALNC or at [siftr.org/alnc/](http://siftr.org/alnc/)!



## AMERICAN ROBIN (*Turdus migratorius*)



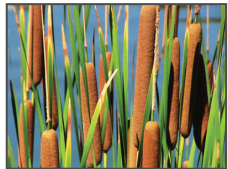
- Wisconsin's state bird, the robin is the 2nd-most common bird in North America after the red-winged blackbird.
- Robins are a notorious “sign of spring” in the north, returning earlier than other birds from winter migrations. They can be especially affected by ecosystem impacts from changes in early spring temperatures and precipitation.

## CANADA GOOSE (*Branta canadensis*)



- Listen for honks or look near the pond for tracks, droppings or even the large black and brown birds themselves.
- Despite their iconic flying Vs indicating seasonal changes, geese's food resources are now available longer, and they are migrating months later than normal - if at all.
- Because they are becoming year-round residents, humans encounter more pesky geese and their begging, territorial attitudes and droppings—just 50 geese can produce up to 2.5 tons of excrement a year... watch your step!

## COMMON CATTAIL (*Typha latifolia*)



- This iconic wetland plant has hotdog shaped seed clusters that turn to fluff and blow away in the autumn wind.
- Humans have many uses for them, including cooking, fuel, weaving & insulation - even diapers, bedding & pancakes!
- A notoriously hardy plant, cattails provide wetland nesting habitat and remove toxins from waterways.

## COMMON SNAPPING TURTLE (*Chelydra serpentina*)



- The largest of all WI turtles, snappers can live up to 30 years in the wild, with shells over 11 inches long.
- These opportunistic omnivores will eat anything they can get their strong claws or beak on (including human body parts -- so don't get too close!)
- Like other turtles, egg incubation temperature greatly affects the sex of offspring. How might this impact the future of this and other turtle species?



**DRAGONFLY**  
(*Ahisoptera*, etc.)

- Look for adult dragonflies flitting around the pond and prairie. Peer into the pond to search for large juvenile dragonfly nymphs scuttling through spring and summer, or spot their casings clinging to plants along the shore.
- With their lives split between water and land, dragonflies are great creatures to study for effects of climate change.



**GREEN FROG**  
(*Rana/Lithobates clamitans*)

- Green frogs can actually be green, brown, yellowish, tan, or even blue. Look for the large, round tympanum (external ear) on the sides of their heads.
- Shallow wetland is important habitat, necessary for keeping frogs’ soft-shelled eggs moist.
- Frogs are ecological indicator species — how might their permeable skin clue us into toxins in an ecosystem?



**MALLARD DUCK**  
(*Anas platyrhynchos*)

- Watch closely as mallards feed: these “dabbling ducks” use their bills to scoop into the water, with tooth-like notches filtering and trapping edible plants and critters in their mouths.
- The most common species of waterfowl, males are recognized for bright green heads while females are a mix of brown and white feathers.
- Like many migratory American birds, mallards’ routes are changing. It’s predicted that they will lose 75% of their summer range by 2080 due to climate change.



**NORTHERN CARDINAL**  
(*Cardinalis cardinalis*)

- Male cardinals are bright red and much easier to spot — but if you are skilled and lucky, you might be able to see a brownish female nearby, too!
- Once a pair of cardinals mates, they are together for life. They live mostly in woodlands, shrublands, swamps and people’s gardens.



**PAINTED TURTLE**  
(*Chrysemys picta*)

- Do you see their pointy noses sticking out of the water, taking a breath of air into their lungs as they swim? These cold-blooded reptiles warm up on rocks in the sun and cool down by heading to deeper, shady water.
- Painted turtles seem to prefer living in waterways polluted with fertilizer runoff and increased vegetation, but suffer when water levels fall or shorelines get destroyed.
- Like snapping turtles, their numbers will likely decrease as air temperature around their eggs affects the sex of their offspring, with warming temps leading to more females.



**PAPER BIRCH**  
(*Betula papyrifera*)

- Birch bark is flexible with high oil content, making its surface waxy and water resistant. Native people like the Ojibwe have been using it for centuries to make storage containers, canoes, and other vessels.
- These northern trees do not tolerate heat and humidity well and rarely live in temperatures higher than 70°F. As Earth warms, birch trees will have shorter lifespans and begin to disappear from southern edges of its range. How might this affect Ojibwe or other Wisconsin traditions?



**SANDHILL CRANE**  
(*Grus canadensis*)

- These enormous, ancient birds can have wingspans of up to 7ft!
- Look for them in pairs as they mate for life. Males and females look similar, but identify both by the red patch on their heads and a loud croaking call.
- Now protected, once dwindling numbers are on the rise; however, warming climates may force changes to sandhills’ migration patterns and breeding grounds.



**SHAGBARK HICKORY**  
(*Carya ovata*)

- The shagbark hickory tree, known for its loose “shaggy” bark, can grow to 100ft tall at maturity, when the bark begins to take on its iconic appearance. Some of these trees have to lived for over 350 years!
- Hotter temperatures are a problem for many plants and animals, but these trees prefer humid conditions and are expected to have increased habitat with warmer climates.



**SPIDER**  
(*Aranea*)

- Unlike insects, arachnids (spiders, mites, ticks & scorpions) have 2 body parts instead of 3, and 8 legs instead of 6.
- Spiders don’t use muscles to get around, but instead move their limbs with fluids. As temperatures increase, fluids move more easily and spiders can better crawl, scuttle, weave, and jump.
- They generally avoid humans and are helpful in curbing increasing numbers of mosquitoes and flies.



**SUGAR MAPLE**  
(*Acer saccharum*)

- Wisconsin’s state tree can reach 115ft and live up to 400 years! Leaves are identified by U-shaped notches between their lobes.
- Maples’ sweet sap is used to make syrup sold worldwide, but it is produced in just a small part of North America.
- The process depends on springtime temps fluctuating just above and below freezing – this specific window is shifting northward, allowing Canada to take the lead on maple syrup production.



**TAMARACK**  
(*Larix laricina*)

- Identify this tree by soft needles, pinkish bark, delicate cones and gold autumn coloring. It is the only Wisconsin conifer to lose its leaves in the winter.
- Also known as the American Larch, it can reach 30 to 60 feet and is often found in swampy environments or areas recently burned by fire.
- The eastern larch beetle, on the rise with warmer temps, is invading this hardy tree. Although tamarack trees don’t like these beetles, woodpeckers do (yum!)



**WHITE-TAILED DEER**  
(*Odocoileus virginianus*)

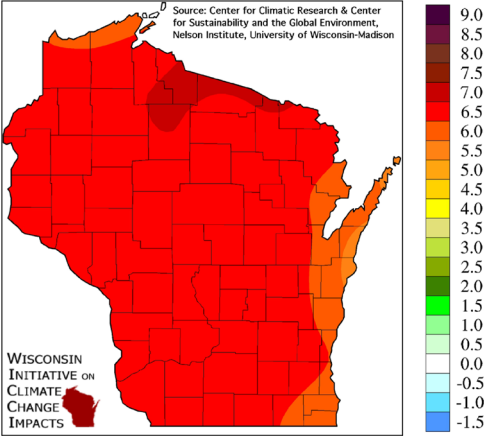
- With over 30 million living across North America and huge appetites, Wisconsin’s State Wildlife Animal can be damaging to its environments.
- With fewer natural predators and milder winters, they are continuing to increase in number – will they be curbed by increases in pests and diseases?



**Climate Change in Wisconsin**

**Studies show Wisconsin has been the 4th-fastest warming US state since 1970.** Between 1950-2006, Wisconsin **winters warmed** an average of 2.5°F across the state. Annual **precipitation has increased** by about 10% since 1950 - we now receive 3+ inches more rain per year. By the close of the 21st century, temps will have risen such that the Midwest feels more like the South. **Statewide, the annual average temperature is likely to increase 4-9°F, compared to the approx. 1°F average increase we’ve seen so far.** We can expect a 25% increase in heavy storms, increased precipitation in winter and spring, and greater evaporation in the summer, leading to floods and droughts.

Projected Change in Annual Average Temperature (°F) from 1980 to 2055



This has been having countless impacts on our ecosystems, communities and livelihoods. **Migration patterns** of animals and **bloom-times** of plants are changing due to warmer temperatures and shorter winters: 1/3 of the species observed by the Leopold family in South-Central Wisconsin are arriving 2-3 weeks earlier in the spring than they did in Aldo Leopold’s time (1935-45). **Walk around the Nature Center grounds to learn more about the species around you and how they are impacted by these changes in our climate.**

Head inside and **check out our Climate Education Center** to learn more about what climate is, how and why it is changing, and what we can do about it.