



WILDLIFE ON THE MOVE: Migration Across New Jersey and Monmouth County

Zack Karvelas, Assistant Public Information Officer

Seasonal wildlife travelers rely on New Jersey's diverse habitats — including the parks and natural areas of Monmouth County — to rest, feed, and continue voyages that span continents.

Each year, New Jersey becomes a junction of movement and wildlife activity. Songbirds, raptors, butterflies, fish, and marine mammals pass through, resting briefly before continuing journeys that span thousands of miles. Though New Jersey is the most densely populated state in the nation, it is also one of the most ecologically diverse. Coastlines, rivers, forests, meadows, and tidal marshes form a patchwork of habitats that migrating wildlife depend upon. In Monmouth County, our parks serve as safe harbors; places to feed, rest, and recover strength before the long journey continues.

Some of these migratory patterns are ancient, formed by seasonal cycles of daylight, temperature, and food availability. Yet what feels timeless and perfect is also extremely fragile. Each stopover site is crucial. The presence of suitable habitat here directly affects whether a Monarch butterfly reaches its breeding grounds or if a sea turtle survives a winter shift in temperature. Understanding New Jersey's role in global migration helps us appreciate the significance of our local landscapes and why conservation matters at every scale, especially here in Monmouth County.

The Atlantic Flyway: A Continental Highway

New Jersey lies along the Atlantic Flyway, a major migration route that stretches from the Canadian Arctic to South America. Millions of birds travel along this corridor from spring through fall. Some pass overhead in a single night, while others take residency for a few days or weeks to forage and gain strength.

One of the most dramatic and well-known events takes place on the Delaware Bay and beyond, where Red Knots, Dunlin, Semipalmated sandpipers, and Ruddy turnstones feed on the nutrient-rich eggs of spawning horseshoe crabs. This brief window of abundance fuels their final push toward Arctic breeding grounds.

Continues next page...



Each spring, the Delaware Bay supports thousands of migrating shorebirds refueling on horseshoe crab eggs before flying north to Arctic nesting grounds.

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Editor/Writer: Zack Karvelas
Photographer: Maribeth Gardner
Graphics: Michelle Scolletta
Questions/Subscriptions:
732-842-4000, ext. 4312;
info@monmouthcountyparks.com

While these large migrations may draw global attention, the journey does not begin or end there. A vast network of habitats throughout New Jersey, including those in Monmouth County, supports wildlife on the move.

Monmouth County: A Necessary Layover

From coastal shorelines to upland forests and freshwater wetlands, the Monmouth County Park System helps protect the diverse environments that migratory species rely on. During spring and fall, parks across the county become lively hotspots for seasonal movement.

Warblers, thrushes, vireos, and orioles move silently through wooded canopies at Holmdel Park and Huber Woods Park. Shorebirds and terns feed and rest along the coast at Bayshore Waterfront Park and Seven Presidents Oceanfront Park. As winter approaches, ducks, mergansers, and loons gather on larger waterbodies such as the Manasquan Reservoir and Shark River.



Many different types of birds travel to and from breeding grounds relying on forested or sandy stopovers in Monmouth County parks for food and shelter.

Sandy Hook: A Gateway for Migration

Situated at the northern tip of the Jersey Shore, Sandy Hook is one of the region's most important migratory junctions. Its beaches, dunes, thickets, and wetlands support more than 340 recorded bird species throughout the year. During peak migration, visitors may observe flocks of warblers in coastal vegetation, ospreys soaring overhead, and waterfowl rafting offshore in winter.

Beyond the Skies: Marine and Freshwater Migration

Migration is not limited to the air. Humpback whales, dolphins, and several species of sharks follow seasonal movements of fish along New Jersey's coastline. Juvenile humpback whales have become increasingly common along the Jersey Shore in recent years, drawn by abundant forage fish in shallower waters as well as dramatic improvements in water quality.

Out of the seven species of sea turtles found in the world, four tend to be found in or near the waters of New Jersey from late fall to spring to feed. They include Green, Kemp's Ridley, Loggerhead, and Leatherback, with the most common being the Loggerhead Sea Turtle. If temperatures drop suddenly before they return south, some may become "cold-stunned" and wash ashore, requiring rescue and rehabilitation.



What to do if you encounter a stranded marine mammal or sea turtle:

When encountering a stranded marine mammal or sea turtle, it is essential to contact the appropriate authorized organization immediately. For any sea turtle in New Jersey that appears cold-stunned, injured, entangled, sick, dead, or is being harassed, contact Sea Turtle Recovery at the Turtle Back Zoo in Essex County at 973-731-5800, ext. 290. If you see a seal or other marine mammal in New Jersey that appears injured, entangled, sick, or is being harassed by people, call the Marine Mammal Stranding Center (MMSC) 24-hour hotline at 609-266-0538. For marine mammal strandings in New York, call the Riverhead Foundation for Marine Research and Preservation at 631-369-9829. These organizations possess the necessary authority to intervene. Wildlife experts, aided by trained volunteers, will assess the animal to determine if it requires medical attention, needs to be relocated from a populated area, or simply needs time to rest.



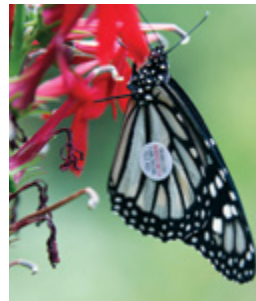
Other than sea turtles, another popular resident of our shores and jetties is several species of seals, or pinnipeds. The harbor seal is the most common to frequent New Jersey; however, gray seals are also frequently spotted, especially as juveniles, while harp seals and hooded seals are less common. Seals are most often spotted from late fall through early spring. Seals are classified as semi-aquatic animals, meaning they divide their time between land and water. They routinely engage in a behavior known as hauling out (leaving the water to come ashore), often coinciding with low tide. This unique rest is vital

for their survival, serving multiple biological needs: it allows them to rest and digest food, and importantly, to regulate their body temperature. Seals are unable to sustain their body metabolism if they remain perpetually in cold water. Additionally, hauling out facilitates the healing of wounds and occasionally serves as a method to avoid predators.

In freshwater systems, species such as American Shad, River Herring, and Striped Bass undertake crucial seasonal migrations, which are primarily triggered by specific water temperatures and the demands of their spawning cycles. As anadromous fish, meaning they are born in freshwater, migrate to the ocean to grow, and return to their birth rivers to spawn, American Shad and River Herring spend their adult lives at sea but rely on the warming waters of spring to signal their upstream return to freshwater rivers to reproduce. Similarly, migratory populations of Striped Bass move into rivers during the spring to spawn in ideal conditions before returning to coastal areas to feed.

Monarchs on the Wind

Each fall, the mighty Monarch butterflies undertake their incredible, long-distance journey toward their wintering grounds. Those east of the Rocky Mountains, which include the butterflies seen in New Jersey, travel up to 3,000 miles to overwinter in the high-elevation fir forests of central Mexico. This massive southern migration is not completed by a single insect; instead, it's made by a single "super generation" of monarchs that lives for several months to complete the trip, which can take up to two months. While Cape May is widely recognized as a major funnel point in New Jersey, these insects are also frequent visitors to Monmouth County's meadows, pollinator gardens, and wildflower fields. Their movement is particularly concentrated in areas where milkweed is present, as this plant is essential to supporting these iconic pollinators; it is the only host plant for their eggs and provides the food source for their developing caterpillars during the vital journey south.

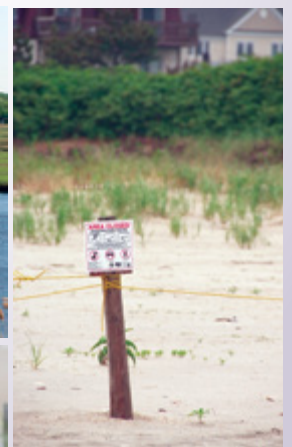


Monarchs depend on native nectar plants and milkweed found in restored meadow habitats within the Park System and beyond.

Challenges and Stewardship

Migration depends entirely on having intact, connected habitats. However, the success of these seasonal journeys is currently threatened by a myriad of modern-day factors, including climate change, general habitat loss, artificial lighting (which can disorient nocturnal migrants), window strikes, coastal erosion, and overfishing. As an example of ecological adaptation, rising sea levels are causing tidal marshes, including those along the Bayshore, to gradually shift inland. This is a key factor in sustaining the health of the ecosystem and providing necessary support for migratory species.

The Monmouth County Park System plays a critical role in addressing these challenges. Through ongoing efforts in land preservation, habitat restoration, and active stewardship, the Park System helps ensure that wildlife can continue these necessary seasonal journeys. Key components of maintaining successful migration routes for generations to come include the preservation of trails, meadows, nesting platforms, pollinator gardens, and protected wetlands.



Coastal marshes in Monmouth County provide critical feeding and resting habitat for migrating species.

THE PACE OF NATURE: Improving Field Habitat in the Monmouth County Parks

Maggie Cookley, Environmental Specialist

Native Americans had the earliest human influence on Monmouth County’s landscape. They prescribed regular burns to encourage grasses and herbaceous plants to grow for humans and animal consumption. They converted forests into fields for cultivation of wild crops such as nuts, fruit, maize, beans, and squash. Field conversion increased into the early 19th century as European colonists met increasing demand for timber, charcoal, and agriculture. As native people and colonists converted Monmouth County to an agrarian landscape over hundreds of years, native wildlife species adapted to both forest and field habitats.

Thanks to the conservation efforts of numerous individuals and organizations, many fields, forests, and wetlands have been restored in New Jersey. However, urbanization and residential development still pose a threat to biodiversity and natural habitats, including fields.

What is a field?

Field habitat includes areas like wildflower meadows or grasslands that are comprised of native vegetation. In nature, fields exist in the early stages of succession – the dynamic process in which fields develop into forests over time. Fields are created after a disturbance to the landscape that removes trees and shrubs. Natural occurrences such as wildfires, windstorms, and flooding events can cause these natural areas to “reset” back to open field habitats. Since humans aim to prevent these extreme disturbance events, we mimic these conditions to maintain our field areas through annual mowing regimes.

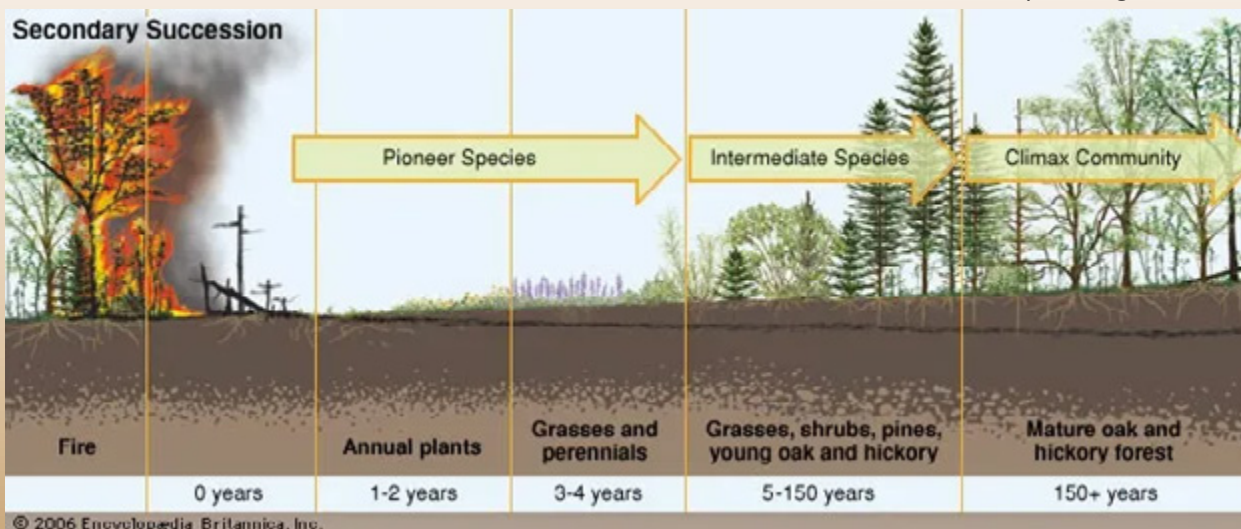
The Park System intentionally maintains a diverse array of field types to preserve native plant and wildlife biodiversity in our field habitats, but also to provide areas for recreational opportunities and ecosystem services. The three main types of fields in the park system are turfgrass, agricultural, and natural fields.

Turfgrass fields are ideal for many types of recreation, including sports, picnicking, and other activities. Although they are an important component to our park system, they can require frequent mowing, irrigation, insect and disease control, and fertilizers to maintain. Turfgrass fields consist of non-native plants and therefore do not provide many benefits to our local wildlife. An example of a turfgrass field is the picnic area at Shark River Park.

Agricultural fields, such as those along Newman Springs Road in Thompson Park, preserve a pastoral landscape, offering scenic views and a traditional way of life. These fields are leased to local farmers, reducing staff maintenance, and more importantly, growing our county’s agricultural industry. Farmers are required to follow sustainable practices to ensure these fields remain valuable to local wildlife.

The Monmouth County Park System manages many types of natural fields, including warm-season grass, cool-season grass, and herbaceous fields. Due to their high density of native plants, these fields provide essential resources for wildlife such as food, shelter, and camouflage. Natural fields, such as the sprawling meadows in Big Brook Park,

are mowed one to two times per year based on the plant species composition. These mowing schedules are carefully chosen by Park System ecologists to minimize harm and benefit the greatest diversity of wildlife species utilizing the fields.



Succession is the natural process in which open areas convert into forests over time.



Wildflower meadows, like this one in Holmdel Park, provide wildlife habitat and beautify our parks.

The benefits of natural field habitat

Natural field habitat provides many ecosystem services, the numerous and varied benefits provided by a healthy environment. For example, natural fields feature tall plants with deep roots, which stabilize the soil. These deep roots filter pollutants out of our waters, prevent erosion, sequester carbon, and absorb water during storm events, preventing our homes and businesses from flooding. Additionally, natural fields are beautiful and provide unique recreational opportunities such as bird and wildlife observation, and diverse trail experiences.

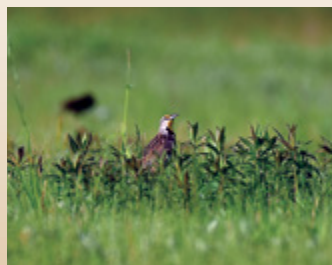
Natural field habitat also provides innumerable resources for wildlife. Native pollinators such as bees, butterflies, and hummingbirds are essential to the reproduction of flowering plants and crops around the world. However, many species



Pollinators and migrating butterflies depend on native meadow species for food and completing their lifecycles.

of pollinators are in decline due to several factors, primarily habitat loss. Pollinators require a variety of native flowering plants with different bloom times to feed on. They also need shelter, camouflage, sun, and foraging sites, all of which natural fields provide.

Many species of birds require field habitat and are referred to as grassland species. Like pollinators, grassland bird species are in decline due to habitat loss. Habitat for threatened and endangered grassland bird species consists of large fields with short and medium-height grasses. Grassland birds nest on the ground and rely on large, contiguous fields with minimal woody plants to protect their young from predation. By actively managing grasslands, the Park System provides nesting sites, cover, and diverse foraging opportunity for some of the most sensitive wildlife species found in New Jersey.



Threatened bird species, like the eastern meadowlark, require grassland habitat for nesting.

Declining amphibian and reptile species such as Eastern box turtles live in fields and open woodlands. When fields flood in the spring, they may also provide frog breeding habitat. Many species of frogs breed in large numbers during the

warm spring and summer months in temporary freshwater pools. The mosaic of habitats that Monmouth County parks offer is integral for the preservation of these unique species in New Jersey.

How the MCPS Protects Field Habitat

The Monmouth County Park System protects field habitats by creating and maintaining areas of natural vegetation. Natural fields provide significant resources and benefits that turf fields do not. The Park System has reduced the amount of turf fields by converting them to natural fields, thereby reducing the amount of mower emissions, chemical input, water input, and gasoline used to maintain them. While turf grass fields are important for recreation, the Park System aims to increase the acreage of natural fields and thereby increase available habitat for wildlife and ecosystem services for the citizens of Monmouth County.

There are many threats to field habitat, including development and invasive species encroachment. Invasive species - plants and animals whose introduction from a foreign location causes harm to the environment - can alter an environment and outcompete native species for resources, reducing overall biodiversity. The Park System manages invasive species in fields using integrated pest



Park System ecologists applying native seed to a field restoration site at Fisherman's Cove Conservation Area.

management, which often includes several mechanical, chemical, cultural, and biological methods. Park System ecologists use the most up-to-date research to restore natural fields, coordinate mowing cycles, and manage invasive species to benefit humans and wildlife.

Adopt the Pace of Nature: Create Field Habitat at Home

The Monmouth County Park System prioritizes field management for both recreation and habitat. We encourage our neighbors to do the same. Converting turf lawns partially into meadows could provide wildlife with the native plants they need to survive in the suburban landscape and preserve natural resources by reducing water use and improving air quality. To begin, check out nwf.org/native-plant-habitats to learn how you can do your part to bring essential field habitat to your yard! Conservation practices should not be limited to park land – we can all participate in caring for our environment.



Many Park System trails, like this one at Dorbrook Recreation Area, meander through scenic meadows that are perfect for birdwatching.

Deep Cut Gardens Home Gardener

152 Red Hill Road
Middletown, NJ 07748

GS Parkway Exit 114, to Red Hill Road
732-671-6050

Let's Rethink English Ivy (*Hedera Helix*)

Kate B. Lepis, Ph.D. Horticulturist

English ivy (native to Europe, Western Asia, and Northern Africa^{1, 2}) was introduced into the U.S. by European immigrants as early as 1727. Its dark, lustrous, and evergreen leaves and ability to form a dense, shady ground cover are some of the attributes cited as reasons to use this plant in the landscape. "First it sleeps, then it creeps, then it leaps" – this is the saying long used to describe its growth pattern. However, this exact behavior is why the species is listed as an invasive/noxious weed in 18 states (including NJ) and D.C.²

Even though the problems caused by this plant in North America are well documented, it is still commonly available for sale. Let's take a closer look at this species to get a better understanding of why it should not be purchased and, better yet, eliminated from our yards.

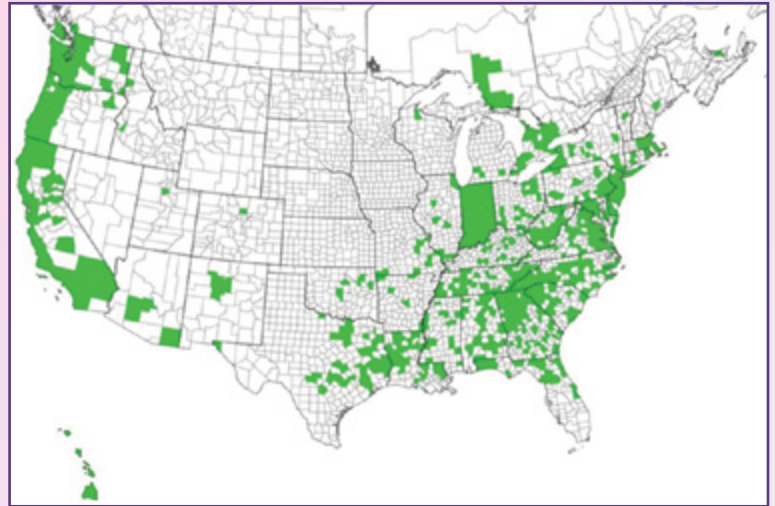
Plant Description

The woody vine can grow up to 90 feet tall with the use of adventitious roots that secrete a glue-like substance, adhering it to vertical supports. Interestingly, it has two distinct types of leaves. Stems that creep on the ground and climb up structures produce leaves described as palmately (shaped like a hand) lobed, with three to five lobes. Once these immature stems reach a height where they receive considerable sun, they produce fertile shoots that are shrubby in nature, hanging from the support, and no longer producing roots for climbing. In September, the mature stems produce clusters of inconspicuous flowers followed by blue-black, berry-like fruit.

Some describe English ivy as having "wildlife value" because birds feed on the fruit, and bees and wasps can be seen buzzing around the flowers, but do those pros outweigh the cons? The berries are a food source for birds, just not a very good one. The slight toxicity contained within the flesh limits birds' ability to fully satiate themselves. Eating only a small amount at a time restricts its usefulness in the avian diet but maximizes the dispersal function for the plant. Birds carry seeds long distances, helping this exotic invasive species escape the garden and establish itself in areas preserved for nature. You will find articles online that sing praise of the ecological merits of *Hedera helix*. However, the authors are frequently British or European and therefore reflect the behavior of this species in its native ecosystems – interacting with a living community it evolved with over a geological timescale. *Hedera helix* does not behave the same way in the U.S.

English Ivy's Ecological Role or Lack Thereof in North America

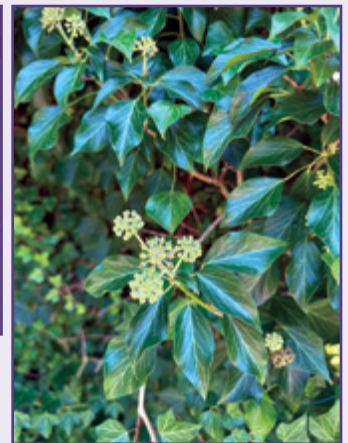
Virtually all life, including our own, is fueled by the sun. When you blink, breathe, talk, or run, the ultimate source of energy fueling those activities is the sun. Animals and other non-photosynthetic creatures can't access solar energy on their own. Rather, they must eat plants or eat herbivores to obtain their energy needs.



Distribution of *Hedera helix* in U.S. and Canada.³



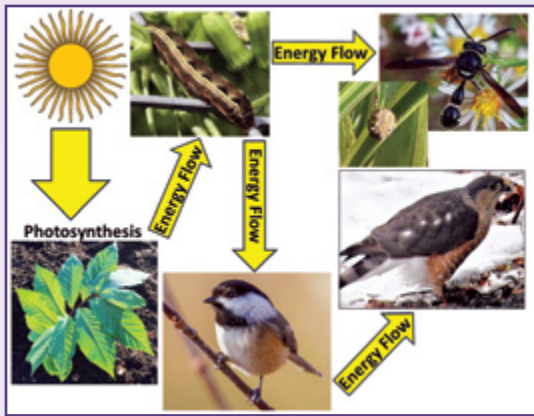
Juvenile stem with lobed leaves and aerial roots.



Mature stem with egg-shaped leaves and clusters of flowers.

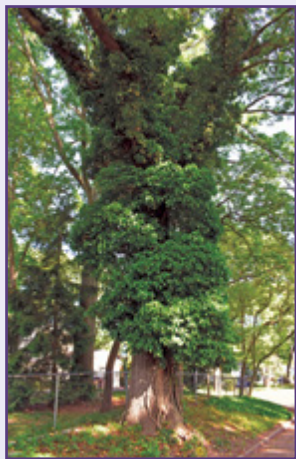


Berry-like drupes (fleshy fruit with a pit)⁵



The flow of energy from the sun through plants (pawpaw) to herbivores (yellow-striped army worm), to parasites (fraternal potter wasp), or to carnivores (black-capped chickadee⁵), and onto top predators (sharp-shinned hawk).

Like other non-native plants, English ivy fails at performing the ecological role plants must play – funneling the sun’s energy onto the rest of the living community. As mentioned earlier, this species provides some food to North American ecosystems but is truly anemic when compared to the countless native species it outcompetes and replaces in this region.



An oak tree (*Quercus* sp.) smothered in English ivy.

When you walk around your neighborhood, look for trees covered in English ivy. So many of our shade trees are smothered. *Hedera helix* is not a parasite; the roots cling to the bark, but do not steal nutrients from the tree. It’s the sheer weight of the vines that causes damage. Large branches succumb to the weight, especially with the addition of snow and ice. Limb by limb, the ivy hastens the death of our beautiful shade trees by centuries.



Many trees that come down end up looking like this – a tree stump surrounded by the ivy stumps that facilitated its demise.

When the vine transforms into its adult form, it balloons out in growth from its host’s trunk – acting like a sail on windy days and greatly increasing the chance that trees will be blown over in a storm.

What We Have to Lose

Consider the oak choked by ivy in the photo. Should that tree come down, it will probably take out other trees nearby. The homeowner will lose a shaded part of the backyard and the privacy screen that the grove of trees created. People walking down the street on the hottest of days will no longer find a shady respite from the intense sun. That large native oak is very effective in funneling solar energy to other life in the system. Here in the mid-Atlantic region of the U.S., oak trees support 557 species of insect herbivore. That translates into countless “Energy Flow” arrows emitting from an oak.

If the tree is lost, that highly productive plant will be replaced by another that provides virtually no food – a mound of juvenile English ivy (no flowers or fruits produced).

Many gardeners have experience with English ivy. If it’s growing in a bed surrounded by lawn with the goal of complete ivy cover, there is little maintenance required. If the goal is a garden bed of plants with an array of foliage types and flowering times, regular trimming is required to keep the ivy in the designated spot. If the maintenance schedule lapses for a couple of growing seasons, one would find the ivy overcrowding its neighbors. Even if the goal is to keep the yard free of ivy, seedlings dispersed by birds must be removed every time you weed.



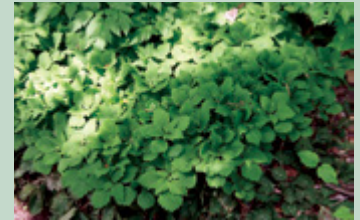
Wooded area of Deep Cut Gardens, the forest floor dominated by ivy.

What We Can Do

If we eliminate English ivy (and other exotic invasive species) from our yards and replace them with native plants, we can greatly increase the ecological health of our neighborhoods, lessen the invasive pressure felt on our preserved land, and safeguard the street trees that add value to our homes.

Native Plant Substitutes

All are deer-resistant, but nothing is deer-proof. For a larger list of native plants, look to the Jersey Friendly Yards website.



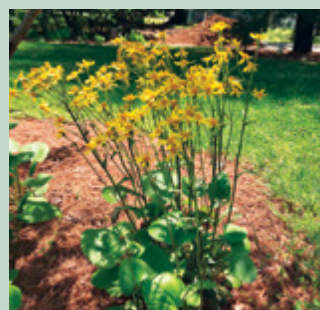
Allegheny spurge (*Pachysandra procumbens*) ground cover is good for shade⁵.



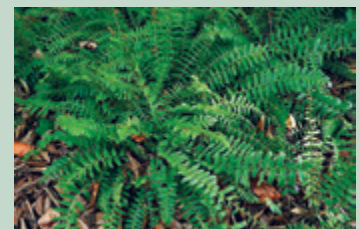
Wild ginger (*Asarum canadense*) ground cover is good for shade.



American Alumroot (*Heuchera americana*) is a perennial for shade or partial shade⁵.



Golden Ragwort (*Packera aurea*) is a perennial for sun or partial shade, and flowers in May.



Christmas fern (*Polystichum acrostichoides*) is a clump fern for shade and partial shade⁵.

Mechanical Controls

Pulling out young seedlings is the easiest way to manage ivy and prevent it from taking hold. Dedicating an afternoon in spring and fall to weeding out all invasive seedlings is the best way to prevent the aggressive weeds from gaining ground. If you can commit two days per year, you'll be able to remove unwanted plants without the use of a shovel.

If you already have an infestation that was years in the making, physically pulling out the ivy can be very labor-intensive. Here are strategies that make the job a bit easier:

1. Mow the area where ivy is growing on the ground to weaken the plants.
2. Use collected cardboard and cover the entire area. Make sure the cardboard overlaps (ivy will take advantage of cracks in this barrier).
3. Cover the cardboard in a very thick layer (several inches) of wood chips or mulch. Now is the perfect time of year to install this barrier.
4. Allow this dual-layer barrier to smother the ivy for an entire growing season. Keep an eye on the area throughout the spring and summer and weed out any tenacious stems that found their way to the light.
5. By next fall, the cardboard should be nearly decomposed, but if some remains, simply cut through it to install new native plants.
6. Weed the area at least twice per year.

Chemical Controls

The use of pesticides should be considered a last resort and used only in a limited, direct manner. Broadcast spraying has limited effectiveness due to the waxy coating on the leaves, making English ivy somewhat resistant to herbicide applications. It is not advised to spray ivy growing on a tree because the herbicide will undoubtedly impact the health of the tree as well. For vines growing up into a tree:

1. Use a large screwdriver to pry a section of vine away from the trunk.
2. At a comfortable height, cut a section of vine away from the tree – do this to all vines, creating a vine-free band around the trunk. Don't damage the tree bark.
3. Leave the upper portions in place; these will die and slowly fall away from the tree. By the time this happens, the vines will be light in weight and won't be hazardous.
4. Use a paint brush to apply concentrated herbicide to the cut stem, making sure to apply to the outer portion where the living tissue exists. Visit the website noted in reference 7 for specific herbicide recommendations.

References: 1. Swearingen, J. 2010. NPS, USDA. Plant Invaders of Mid-Atlantic Natural Areas, 4th ed., pg.105. <https://www.invasive.org/alien/pubs/midatlantic/midatlantic.pdf> • 2. Plant Conservation Alliance. 2006. Fact Sheet: English Ivy. <https://www.invasive.org/alien/fact/hehe1.htm> • 3. EDDMaps. 2025. Early Detection & Distribution Mapping System. The University of Georgia - Center for Invasive Species and Ecosystem Health. <http://www.eddmaps.org/> • 4. Okerman, A. 2000. Combating the "Ivy Desert": The Invasion of *Hedera helix* (English Ivy) in the Pacific Northwest United States. Restoration & Reclamation Review. U. of Minnesota. • 5. Wikimedia Commons. Public Domain. Free Art. Creative Commons 2.0, 3.0, 4.0 • 6. <https://creativecommons.org/licenses/by-sa/2.0/deed.en>; <https://creativecommons.org/licenses/by-sa/3.0/>; <https://creativecommons.org/licenses/by-sa/4.0/deed.en> • 7. Tallamy, D. 2019. Nature's Best Hope. Timber Press Inc. Portland, OR. • 8. Bacaks, M. 2023. October Invasive Plant of the Month: English ivy. Rutgers Environmental Stewards. <https://envirostewards.rutgers.edu/2023/10/23/october-invasive-plant-of-the-month-english-ivy/>

How Snowdrops Bloom In Winter

Stephanie Horton, Recreation Leader

When the gray hush of late winter blankets Deep Cut Gardens and most plants lie dormant, a tenacious flower breaks through the cold and snow in the forest understory: the snowdrop (*Galanthus* spp.). These delicate, white, bell-shaped blooms were aptly named from the Greek gala (milk) and anthos (flower). There are roughly 19 species of *Galanthus*, which are in the Amaryllis family (Amaryllidaceae). In North America, most species of snowdrops thrive in USDA zones five and colder.⁴ Here in New Jersey, you can typically find *Galanthus nivalis* blooming from late February to mid-March.



Snowdrops thrive in the moist, cool conditions of a forest understory in winter.

You may be wondering how these small flowers are able to thrive during the coldest months of the year. It all begins underground, in the bulb. Built up during the previous growing season, these bulbs store starches and sugars, giving the plant the energy to sprout, bloom, and even seed, before warmer temperatures awaken competing vegetation. Early blooming works to the flower's ecological advantage since there is a lack of competition for resources like sunlight and soil nutrients.



*A cross section shows the bulb of *Galanthus nivalis* which gives the plant energy to sprout in the winter months.*

It isn't just stored energy that makes the early show possible. Snowdrops require a spell of cold, called stratification, which signals to the bulb that it's safe to bloom. Without this seasonal cold, flowering can falter.⁵ Beyond that, snowdrops are adapted to endure low temperatures using physical and chemical adaptations. Their leaves, typically two or three dark green blades, stand stiff with thickened tips that help push through frozen soil.⁴ Their tissues are packed with protective compounds called "anti-freeze" proteins that reduce ice crystal formation and guard delicate floral parts from frost damage³. Scientists cannot confirm whether or not snowdrops produce their own heat through

the process of thermogenesis. A well-known thermogenic plant is Eastern skunk cabbage (*Symplocarpus foetidus*, which can emerge from a layer of snow by melting it through this self-generated heat, clearing the way for photosynthesis and pollinators. Some people believe snowdrops are also thermogenic, but there is no scientific evidence to prove this.



Snowdrops use anti-freeze proteins to protect their floral parts from frost damage.

With few other flowers around, the sparse pollinators of late winter, like early-emerging bees, are drawn to snowdrops, providing a food source during scarce pollen months. In gardens, snowdrops often naturalize slowly, forming drifts through expanded clumping over time.¹



An entire drift of snowdrops can develop under bare trees and shrubs over time, like this space next to the gardener's cottage at Deep Cut Gardens.

Snowdrops' journey from history to modern gardens is also fascinating. The flowers were originally moved across Europe by midwives and monks for their reputed medicinal value. Because of that human intervention, snowdrops gained a foothold outside their native range and have become widespread in temperate landscapes.⁴ *Galanthus nivalis* (AKA the common snowdrop) is the most well-known species here in New Jersey, but it is not native to the region. The flower originates from regions like eastern Turkey, the Caucasus, northern Iraq, and western Iran. Its cousin, the giant snowdrop (*Galanthus elwesii*), is similar in appearance, only larger and more robust, with broader leaves (up to 1") and flowers ranging from 1¼ to 2 inches.⁴

If you are interested in growing snowdrops at home, you will be happy to know they are pleasantly undemanding. Planting them in the fall (when night temps fall into the 40-50 °F range) is ideal. Plant them by placing bulbs about three inches deep and spaced closely to encourage forming drifts.^{4,5} They thrive in humus-rich, well-drained soil and adapt to part shade or even full sun in winter before deciduous trees leaf out. After flowering, their foliage naturally fades; leaving it undisturbed allows the bulb to replenish its reserves for the next year's performance. These plants are also deer resistant; however, if you have pets or children, be aware that the bulbs are poisonous if ingested. Some gardeners also reported having skin irritation from planting, so gloves are recommended when handling these plants.⁵

Beyond their biological feats, snowdrops carry cultural weight. Once seen as symbols of ill-omen and even death — partly because of their presence in graveyards — they have come to represent purity, renewal, and quiet perseverance.⁵ In today's gardens, they offer a dependable, early pop of life. With minimal fuss, they expand into gentle carpets of white, delivering a subtle but powerful reminder that spring and hope always follow winter.

References

1. In Defense of Plants. (2015, April 14). Snowdrops. <https://www.indefenseofplants.com/blog/2015/4/14/snowdrops>
2. Murdock, M. (2023, July 5). Snowdrops. Penn State Extension. <https://extension.psu.edu/snowdrops>
3. Phipps Conservatory and Botanical Gardens. (2023, February 23). Snowdrops – Where winter meets spring. <https://www.phipps.conservatory.org/blog/detail/biophg-blog-snowdrops-where-winter-meets-spring>
4. University of Wisconsin Extension. (n.d.). Snowdrops, *Galanthus* spp.. <https://hort.extension.wisc.edu/articles/snowdrops-galanthus-spp/>
5. Penn State Extension. (2021, January 18). January Birth Flower: Snowdrop. <https://extension.psu.edu/programs/master-gardener/counties/luzerne/news/january-birth-flower-snowdrop>

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CORNER

NATURE

The Life Sustaining Role Of Winter

Veronica Puza, Park Naturalist

Admittedly, winter has never been my favorite season. The biting cold, shortened days, and dormant landscape leave me longing for lush greenery, the sun's warmth, and the abundance that comes with warmer months. Still, my personal feelings won't stop winter from coming – and it's just as fundamental as any other season.

Winter plays a vital and dynamic role in maintaining the health and balance of ecosystems. Rather than a time of complete inactivity, it serves as a season of rest, protection, and renewal – essential to the life cycles of plants, animals, and insect populations.



Snow Covered Landscape

Nature's Blanket

Snow is something to marvel at – a landscape quickly transformed into something cinematic and surreal. Yet beyond its visual beauty, snow quietly provides essential benefits to both nature and people. Snowpack acts as both a natural reservoir and protective blanket, gradually releasing water to sustain ecosystems while insulating the ground beneath, shielding soils, roots, and microorganisms from the harshest winter temperatures.

Building on this protective role, beneath the snowpack lies a narrow zone between snow and soil – known as the subnivean – where an entire ecosystem thrives. Small mammals, reptiles, amphibians, and insects find refuge from predators and cold winds, while microorganisms continue the slow but vital work of breaking down organic matter.

Among the many creatures that depend on this hidden world, mice, voles, and shrews benefit especially from the protection snowpack provides. These small rodents do not hibernate and must constantly meet the demands of their extremely high metabolisms. Beneath the snow in the subnivean zone, they find a hidden world rich with seeds, nuts, grasses, fungi, and insects – resources that are scarce on the surface during winter. They race through intricate tunnel systems that not only provide access to food but also serve as escape routes and highways connecting nests, latrines, and food caches. In the subnivean zone, these species enjoy the essentials of survival—warmth, food, and safety—allowing them to breed longer and stay hidden from predators.



Meadow Vole Emerging from Underground Tunnel!

Winter's Quiet Garden

Winter's role in sustaining life extends beyond the animal world. For many plant species, the cold season is not merely a time of dormancy, but a critical phase in their life cycle. Many of New Jersey's native plants benefit from the cold temperatures of winter, which play a key role in their successful germination.

Cold stratification is a natural process that signals to certain seeds when conditions are right for sprouting. In nature, this begins when seeds fall to the ground in late summer or autumn and remain through the full winter cycle. As they lie beneath fallen leaves, soil, or snow, the seeds are exposed to cold, moist conditions for weeks or months. This exposure mimics a kind of "winter sleep" that many seeds require before they can germinate. The cold either softens the tough outer coating of the seed or triggers internal chemical changes that "unlock" its ability to grow. Then, as temperatures rise and daylight increases in spring, the seed senses that the time is right for growth, avoiding the risk of sprouting too early and being killed by frost.

Several native plant species in Monmouth County depend on cold stratification to complete their life cycles.

One example is milkweed (Asclepias), well known as the host plant for the Monarch butterfly. In late summer and early fall, its seed pods open, releasing seeds that are carried by the wind.



Wherever they land, the seeds *Milkweed Seed Pod²*

remain through the winter months, exposed to cold, moist conditions until they are ready to germinate in late spring.



Oak Sapling³

Another example is the oak tree, which also disperses its seeds (acorns) in the fall. While many acorns serve as a vital food source for squirrels and other small mammals, some manage to avoid being eaten and remain on the forest floor through the winter. In the spring, these surviving seeds may take root, continuing the regeneration of oak forests throughout the region.

In this way, winter serves not as a pause in the life cycle of plants, but as a vital season of preparation, quietly setting the stage for renewal and growth in the spring.

Resetting the Ecosystem

While cold stratification ensures that certain seeds are ready for spring, winter's chill also acts as a natural check on insect populations, preventing imbalance in the seasons ahead. As temperatures plummet and the days shorten, countless insect species face the quiet severity of winter. Some, like native bees and butterflies, enter a state of suspended development, tucked into tree bark, soil, or leaf litter. Others, less prepared, simply do not survive. Prolonged cold snaps, especially during winters with little



A native species in New Jersey, mourning cloak butterflies hibernate as adults, finding sheltered spots such as under loose tree bark, in rock crevices, or in leaf piles to survive the winter.⁴

insulating snow, can sharply reduce populations of pests such as ticks, aphids, and invasive beetles. These seasonal reductions in population are not coincidental, but ecologically necessary. Without them, many ecosystems would be overwhelmed by unchecked insect growth come spring.

Winter imposes a natural pause on reproduction, slowing the pace of life in a way that benefits the whole ecosystem. It also acts as a filter: native species, adapted to the rhythms of freezing and thawing, tend to endure, while more vulnerable or non-native species often falter. In this way, winter quietly reinforces ecological balance, favoring resilience and slowing the advance of invasives. Even frost plays its part, cleansing the soil and plant surfaces of lingering eggs, overwintering larvae, and pathogens. By thinning populations and curbing unchecked growth, winter strengthens the balance of the ecosystems that reawaken in spring.

What Winter Does for Us

Of course, winter's value isn't limited to wildlife and wild places—humans benefit from its quiet work, too. Snowpack slowly feeds the rivers and reservoirs that supply our drinking water and irrigate our crops. Cold temperatures reduce agricultural pests, slow the spread of disease, and give forests, wetlands, and soils time to rest and recharge. Winter shapes the health of the environments we rely on every day, whether we realize it or not.

In addition to its ecological importance, winter possesses cultural and emotional significance. It brings moments of stillness and reflection, traditions that revolve around slowing down, gathering in, and appreciating warmth. The season draws us outdoors in different ways, such as cross-country skiing through a quiet woodland, skating on frozen ponds, or walking beneath snow-laced branches that quiet the world's noise.



Ice Skating at Shark River Park.

But these seasonal gifts aren't guaranteed. As global temperatures rise, winters are becoming shorter, warmer, and less predictable. Without prolonged cold, insect populations may surge unchecked, native seeds may struggle to germinate, and the insulating snowpack that shelters both ecosystems and water supplies may dwindle. Culturally, we risk losing traditions and recreational experiences rooted in cold weather. Ecologically, we risk losing the natural balance that winter so carefully upholds.

If we overlook winter—or let it slip away—we don't just lose a season. We lose the quiet systems it sustains, the species it shelters, and the sense of rhythm it brings to both landscape and life.

So, while I may never fully cozy up to winter's chill, I can't deny it's quietly working wonders all around us.

Works Cited

1. Photo by Chuck Homler / FocusOnWildlife.Me https://commons.wikimedia.org/wiki/File:Eastern_meadow_vole_%28Microtus_pennsylvanicus%29_emerging_from_a_runway_in_the_snow_in_Kennebunk,_Maine,_USA.jpg
2. Public Domain - National Park Service - [https://commons.wikimedia.org/wiki/File:Milkweed_seed_pod_\(23819049894\).jpg](https://commons.wikimedia.org/wiki/File:Milkweed_seed_pod_(23819049894).jpg)
3. Public Domain - https://commons.wikimedia.org/wiki/File:Oak_sapling.jpg
4. Public Domain - https://commons.wikimedia.org/wiki/File:Nymphalis_Antiopa_Oulu_20220814_03.jpg



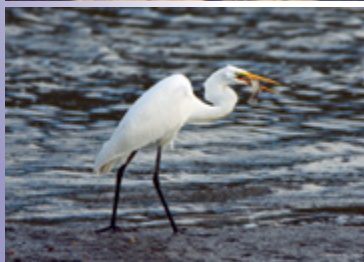
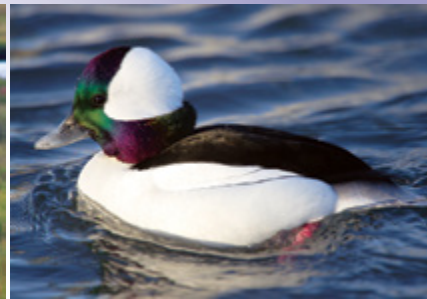
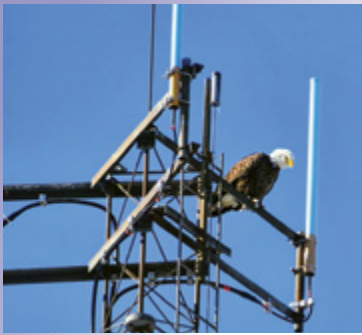
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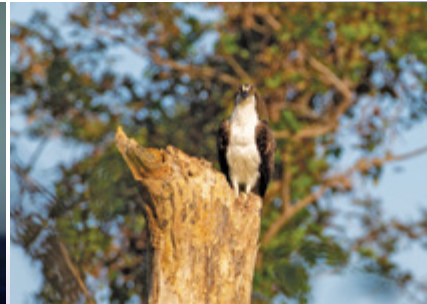


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Animal migration is a global phenomenon that intrinsically links the health of ecosystems to the fabric of human existence. These journeys sustain biodiversity, pollinate our crops, and provide essential food sources, reminding us that we share a single, interconnected planet. The preservation of these natural wonders is not just a moral imperative, but critical to our own survival.



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