



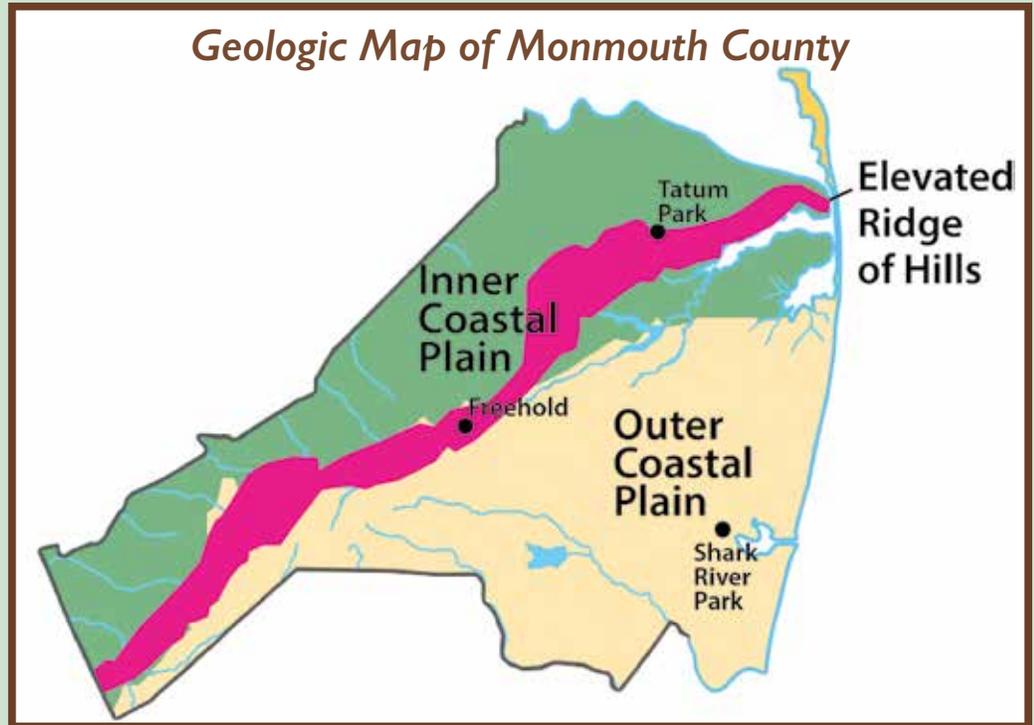
MONMOUTH COUNTY HEIGHTS

Geologically speaking, Monmouth County's shape presents a beautiful sample of the two different portions of the Atlantic Coastal Plain divided by an elevated ridge of hills. This terrain took shape over millions of years as the ocean deposited layers of rock and sediment during cycles of rising and falling sea levels caused by the melting and forming of glaciers.*

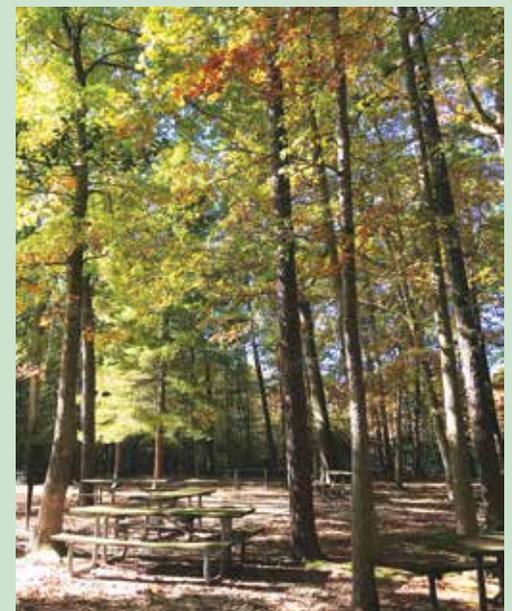
When the sea level was high, sediments from the ocean such as diatomite (fossilized algae) and marl (a rocky soil rich in lime and clay) were deposited.¹⁻³ When the sea level began to ebb, sand and gravel were deposited seaward. As this cycle repeated over and over, numerous layers of marl and sandstone were deposited along the Atlantic Coastal Plain.¹

In very general terms, this explains one obvious difference between the inner and outer coastal plains: the soil. Nutrient rich clay soil underlies the upland forests with beech, oak and tulip trees more common to the north and west (inner coastal plain). Porous sandy soil forms the shoreline and underlies the pine forests to the south and east (outer coastal plain).

The surface features of Monmouth County were formed by differential erosion over the last 10 million years—with rivers shaping the valleys, ridges and plains.^{2,4} The county's most prominent landform is a belt of hills running diagonally across the county, containing layers of erosion-resistant glauconite and iron-cemented sandstone.¹⁻³ This belt formed as rivers and ocean currents passed over the region and washed away the softer sediments.²⁻⁴



The Inner Coastal Plain (green) formed 60-140 million years ago. The Outer Coastal Plain (yellow) was more recently deposited, within the last 60 million years. The elevated ridge or belt of hills (pink) was formed during the past 10 million years as its layers withstood erosion better than the unconsolidated sand and gravel of surrounding areas.



Note the upland forest with its tall tulip trees at **Tatum Park in Middletown (left)** and how it differs from the lowland pitch pine and oak species of **Shark River Park in Neptune (right)**.

*The cause of rising and falling sea levels in the more distant past is still under debate, since the Earth may have been too warm to form glaciers during the late Cretaceous/early Tertiary, when parts of the coastal plain were forming. Other mechanisms that may have caused rising and falling sea levels include: major long-lasting volcanic events; pulses in tectonism (movement of continental plates/earth crust); or massive comet/asteroid collision with earth.¹

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SUMMITS OF MONMOUTH COUNTY

The highest point in Monmouth County (375 ft.) is located along the elevated ridge at Crawford Hill in Holmdel, a private site. The highest point in Monmouth County on public land is in Phillips Park on Telegraph Hill, also in Holmdel (349 ft.).

If you really want to experience this elevated topography firsthand, you can visit nearby **Holmdel Park** where trails in the Hilltop Section approach similar heights (304 ft.). While these elevations don't offer significant views because they are heavily wooded, they do offer a beautiful and challenging place to hike or run. Follow the Highpoint Trail to the Marsh Trail, and scale the steps behind the Activity Center (pictured). Park maps are available online at www.MonmouthCountyParks.com.

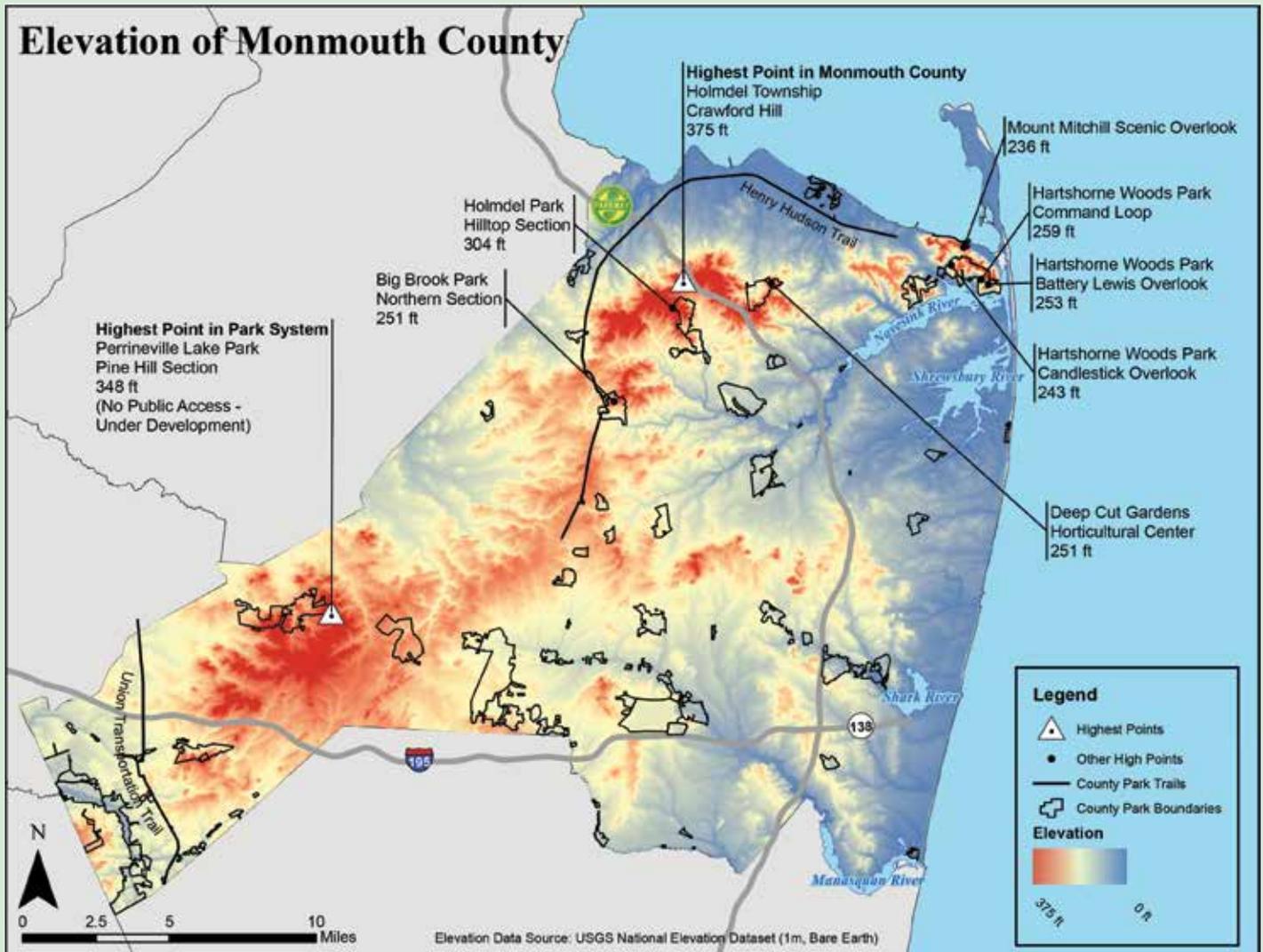
The highest point inside a county park is in the Pine Hills section of **Perrineville Lake Park** (348 ft.). This recently acquired section of the park is not yet open to the public, but trail development is underway. Believe it or not, parts of the NYC skyline, including One World Trade Center Tower, are actually visible to the naked eye from this vista on a clear day—that's a distance of about 41 miles (as the crow flies).



Marsh Trail, Holmdel Park



Perrineville Lake Park vista with NYC skyline (inset)



PARK VIEWS & VISTAS

Some of the county's most interesting views occur in parks located along the elevated ridge of hills (red sections on map). The most well-known region for views is the Highlands, where the hills rise abruptly from sea level to around 250 ft. There are two county parks nearby that overlook the water. Named for its view, at 236 ft. **Mount Mitchill Scenic Overlook** is considered the highest point along the eastern seaboard south of Maine. In the past it served as a natural landmark for sailing into NY Harbor because of its height. Overlooking picturesque Sandy Hook, visitors may study its lighthouse or cast a further eye to the NYC skyline. Views from Mount Mitchill include the Empire State Building (~23 miles, pictured) and One World Trade Center (~21 miles).



Empire State Building and Sandy Hook lighthouse from **Mount Mitchill** (236 ft.)

Water views from an elevation are also abundant from **Hartshorne Woods Park**. We recommend a visit during early spring or late fall when leaf cover is at a minimum. Please keep in mind that some steep elevations can be a challenge to hike, even on the paved trails.



Atlantic Ocean, from atop **Battery Lewis Overlook** at Hartshorne Woods Park (253 ft.)

- The *Rocky Point Section*, recently designated as the Navesink Military Reservation Historic District because of its preserved batteries and bunkers, features new comfort amenities including a restroom building, water fountain, and plaza.
 - Take a short hike to the top of **Battery Lewis Overlook** (253 ft.), if you don't mind the climb, for these soaring views of the Atlantic Ocean.
 - The Command Loop (259 ft.) offers a remote glimpse of the Navesink River and Oceanic Bridge from on high. NOTE: even in winter, there's heavy brush obscuring the view--for a clearer view, hike down to the lower Navesink Overlook on the **Rocky Point Trail** west-side (180 ft.).
- The *Buttermilk Valley Section* has its own high point on the **Candlestick Trail Overlook** (243 ft.). From this heavily wooded site, you can see another high ridge in the background to the northwest—that's Atlantic Highlands.

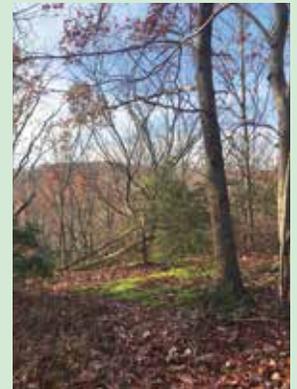
PARK ELEVATIONS WITH LOCAL VIEWS

What makes a view isn't just the elevation. It's the difference between the high and low points and what features, if any, add to the visual drama of the landscape.

- The view from **Deep Cut Gardens Horticultural Center** (251 ft.) is styled after a stepped, Italianate garden and overlooks the rose parterre and pergola. On a clear day, in the very far distance (about 7 miles) you can also see the white water tower next to Hartshorne Woods Park (NOT the one at Rocky Point, but a second one off the Grand Tour Trail).
- Because of its hills, **Big Brook Park** used to host a ski slope for beginner skiers. More recently, the Park System connected this site to the Henry Hudson Trail and added a seasonal cross-country running trail, hosting its first meet last fall. Noncompetitive runners and anyone else will feel the changing elevation on a run or walk through the park's main loop (251 ft.). In general, the gentle rolling terrain is visually pleasing, and the fields are an attractive site for local birds.



View of Navesink River and Oceanic Bridge from **Rocky Point Trail** (180 ft.), Hartshorne Woods Park



View of Atlantic Highlands from **Candlestick Trail Overlook** (243 ft.), Hartshorne Woods Park



View from **Deep Cut Gardens** (251 ft.)



Big Brook Park's rolling terrain (251 ft.)

—Special thanks to *Environmental Specialist Kevin Corrigan* for his extensive assistance with background research on Monmouth County's geology and geography, and for designing the beautiful elevation map on p.2

References: 1. USGS: Geology of National Parks/Atlantic Coastal Plain. (Last Updated: May 3, 2017). <https://3dparks.wr.usgs.gov/nyc/coastal-plain/coastalplain.htm> 2. Monmouth County Planning Board/Environmental Council. Natural Features Study (1975, Reprinted 1988). <https://rucore.libraries.rutgers.edu/rutgers-lib/36838/PDF/1/play/> 3. NJ Geologic Survey/NJDEP. Geology of Monmouth County, in Brief. (1977) https://www.state.nj.us/dep/njgs/enviroed/county-series/Monmouth_County.pdf 4. NJ Geologic Survey/NJDEP. The Geologic History of New Jersey's Landscape. From Unearthing New Jersey Newsletter (2005) <https://www.state.nj.us/dep/njgs/enviroed/newsletter/v1n2.pdf> 5. NJ Geologic and Water Survey, Technical Memo 17-1 Highest Elevations in NJ. NJDEP <https://www.nj.gov/dep/njgs/pricelst/tmemo/tm17-1.pdf>

ANOTHER SUCCESSFUL YEAR FOR MUNICIPAL OPEN SPACE GRANTS

Spring has arrived, and along with the blooming bulbs and returning of song birds the annual Municipal Open Space Grant Awards are announced. Since this program began in 2003, \$32 million has been awarded for local land acquisition and park development projects. In 2018, we received 20 eligible applications seeking \$4.28 million. Congratulations to this year's award winners:

2018 Grant Award Winners

Millstone	Barnegat Bay Conservation Area Acquisition	\$180,000
Keansburg	Bay Walk West Boardwalk Improvements	\$85,000
Neptune City	Memorial Park Playground & ADA Improvements	\$200,000
Little Silver	Challenger Field Parking, Bathrooms, and ADA Improvements	\$125,000
Long Branch	Jackson Woods Trail Improvements	\$200,000
Wall	Community Park South Improvements	\$125,000
Union Beach	Helen Hayes Park Improvements	\$125,000
Tinton Falls	Walz Property Acquisition	\$250,000
Howell	Soldier Memorial Park Multi-Use Building	\$250,000
Allenhurst	Railroad Plaza Park Gazebo Improvements	\$50,000
Deal	Harry Franco Park Phase II Improvements	\$125,000
Spring Lake	Divine Park Phase III Improvements	\$125,000
Spring Lake Heights	Ocean Road Park Improvements	\$125,000
Highlands	Snug Harbor Park Improvements	\$125,000
Keyport	Kearney Street Park Improvements	\$140,000

About The 2018 Awards

Two land acquisition projects will create new community parks.

- **Millstone** plans to acquire 13 acres of wooded upland and wetland located at headwaters of the Toms River (pictured). This is a significant natural resource affecting water quality and wildlife habitat in Barnegat Bay.



- **Tinton Falls** plans to acquire 59 acres of old farmland (Walz property) between Shark River and Shafto Rd, with a small pond and farm buildings. This project would create a sizable new park for a section of town that is quickly becoming developed.

More than half of the park development projects are continuations of previous grant projects.

- **Keansburg** will proceed with rehabilitation of Bay Walk West Boardwalk, after completing Bay Walk East.
- **Neptune City** is planning its third project at Memorial Park to upgrade the playgrounds and provide ADA access. They previously repaired the bulkhead and waterfront access ramps and upgraded the pavilion.
- **Little Silver** purchased a property on Parker Ave. to provide access to Challenger Field last year, and will use the grant to build a parking lot and restroom.
- **Wall Township** continues to develop its facilities at the Municipal Complex; their fourth grant will focus on parking and upgrading the restroom with an open pavilion.
- **Spring Lake** continues to improve Divine Park; their third grant will improve waterfront access, lighting and landscaping.
- **Deal** is following a project at Harry Franco Park from 2012 with a second playground structure this year.
- **Allenhurst** is continuing their work at Railroad Plaza Park with repairs to its historic gazebo.

Municipal Open Space Grants help local governments meet the day to day needs of their community. Most of this year's park development grants are for small, local parks in walking distance to surrounding neighborhoods—exactly as the program intended. Do you have some ideas for your own town? Get a copy of the current application form and Policy and Procedures Manual on the Park System website at www.monmouthcountyparks.com. Click "About Us," then "Municipal Open Space Grant Program." If you have questions, please call 732-842-4000, ext. 4472.

Success Stories: Completed Grant Projects

While some projects are straight-forward and completed within the 2-year time frame, others have run into delays and needed more time. Here are some recently completed projects that have received their grant reimbursements.



Keansburg received \$80,000 to construct three new tennis courts at Collins Field Park.



Oceanport received \$150,000 to construct an ADA-compliant pavilion for refreshments, storage and restrooms at Blackberry Bay Waterfront Park, and \$25,000 for a one mile walking trail at Maria Gatta Park.



Spring Lake received \$120,000 for continued improvements to Marucci Park, including new platform tennis courts and an equipment shed.



Asbury Park received \$750,000 in grant funds to transform an empty lot into Springwood Ave. Park featuring a pavilion, playground, fountain, and open grassy areas.



Wall received \$157,000 for a bike path connecting Hospital Road to Allaire State Park and \$175,000 for basketball courts.



Ocean received \$85,000 for four acres at Poplar Village, a senior affordable housing facility that was flooded during Hurricane Irene. The area is now a passive park and spillway for Poplar Brook that runs adjacent to the area (no photo) and \$147,610 for phase three of work at Colonial Terrace Golf Course, to reconstruct the fourth hole.



Union Beach received \$66,000 for completion of the seventh phase of improvements to Scholer Park.



Neptune received \$232,000 to construct a walking trail at Sunshine Fields.



Middletown received \$200,000 for a new overlook area, increased parking, and improved lighting and landscaping at Ideal Beach, after damage from Superstorm Sandy.



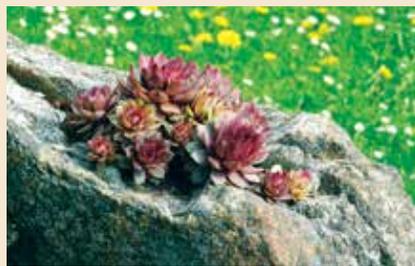
Allenhurst received \$140,000 to create a public patio area and improve beach access at the beachfront on Allen Avenue.

Successful Succulents

Ruth Carll, Naturalist & Horticulturist

In the book *A Botanist's Vocabulary*, a “succulent” is defined as “a fleshy, water-storing plant.”¹ Succulents are plants that have evolved mechanisms to store water during dry times. They are relatively rare in the plant kingdom, making up only 3–5% of all flowering plants.² Succulents have some strange features that make them fascinating to grow. Books have been written about them, yet their care is relatively easy. Usually when we lose a succulent, it's due to over-care rather than not enough.

Because of their water storing features, many people logically assume that all succulents are desert plants. Cacti, for example, are a type of succulent. But instead, most succulents have evolved in semi-arid areas with regular but infrequent rainfall. The North American deserts (Sonoran, Mojave, Chihuahuan and Great Basin), Madagascar, North Africa and the Irano-Turanian region are all semi-arid regions with a high diversity of succulents.³



Sempervivum tectorum, a popular local succulent.



Cacti of the Sonoran Desert that runs from southern California across southern Arizona and into Mexico. Photo: Nicholas Hartmann

While most plants contain approximately 70% water, succulents can reach 95%.² Getting water out of a succulent, however, would be like trying to squeeze it out of an apple – you might get a drop of a sticky fluid but nothing drinkable. You can find many sources that state you can do this but none are true, and the “cactus water” sold in stores is highly processed and nothing like the fluid stored in the plant.

Getting, Holding and Keeping Water

Succulents need to collect as much water as possible during infrequent rains. In dry times their roots are fibrous and tough, serving mostly to anchor the plant to the ground. When the soil becomes wet, it prompts the plant to rapidly grow extensions, called rain roots, vastly increasing the surface area of the root system and optimizing absorption. Rain roots fall off when the soil dries out.

Once they have taken up enough water, succulents convert it into something easier to store. Free-flowing water would run out if the plant was injured and animals would eat them for a drink! Therefore, water is converted to a gelatinous substance called “mucilage” and stored in spongy tissue in the stem, like in most cacti, or leaves, like in most other succulents.

GROWING TIP #1: Succulents are so well-adapted for taking up any available water that they have difficulty stopping when there is too much to store. This can lead to splitting skin and rot. Let your succulents dry out in between watering so they can use up stored moisture and avoid becoming waterlogged.



The Jade plant (Cressula ovata) is a common succulent favored as a houseplant. Note the fleshy, waxy leaves. You can see the water storing cells in the cross section of one jade leaf.



Like many succulents, the Jade plants found in stores are almost all the same species, bred to have different forms. Here's a variant of Cressula ovata called “Gollum”.

Most succulents are soft and without wood or bark allowing them to be flexible and expand when taking up water and shrink as it is used. The lack of wood, however, limits the size of most succulents as they have no support for their weight as they grow.

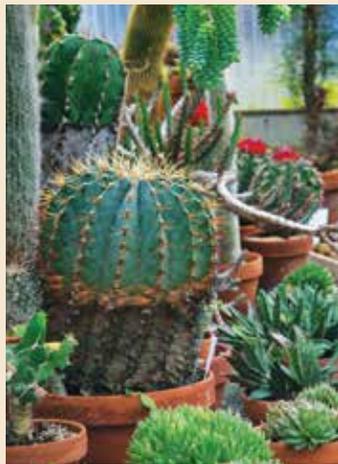
The outside of a succulent is coated with wax to reduce water evaporating out through their skin and there may even be a layer of hairs that also reduce evaporation. Even the light coloring found on many succulents is for light reflection to avoid sunburn and reduce evaporation.



The hairs on this *Kalanchoe tomentosa* block airflow from the surface of the leaves which reduces evaporation loss through the leaf's skin.

GROWING TIP #2: The skin of succulents is thin and susceptible to sunburn. They do best in bright but indirect light. If adapted to direct sunlight, do not change their orientation as they have grown thicker skin on their sunny side and can still burn on their shady sides. If you need to move a sun-adapted succulent, be sure to provide it with shade by covering with a thin, white sheet for about a week prior to exposing it to direct sunlight again.

After the succulent has taken up and stored water, it must protect itself from animals which would eat it for food and water. Cacti have evolved spines as one form of protection. Almost all succulents taste bad or have toxic chemicals in the mucilage to prevent animals from eating them.



The Barrel Cactus (*Ferocactus glaucescens*, center), surrounded by succulents in this photo from the Deep Cut greenhouse, was once believed to hold drinkable water. However, eating this cactus would only induce vomiting.

Deep Cut Gardens has a special history with succulents. Marjorie Whithol, who was the last resident to live on the property before it was purchased by the Park System, was a succulent enthusiast. Her extensive collection filled what is now the display greenhouse and her legacy is visible in the large variety of succulents currently on display.



Senecio vitalis is a sprawling succulent with long, narrow leaves.



String of Pearls (*Senecio rowleyanus*) is a vining succulent with small, pea-sized leaves.

GROWING TIP #3: If the skin of a succulent is broken, treat the crack with a powdered fungicide. Provide good air circulation to ensure that the wound dries and scabs over as quickly as possible in order to avoid infection.

Succulents for the Local Landscape

Since there is only one native cactus to New Jersey, Prickly Pear (*Opuntia humifusa*), Monmouth County isn't your typical succulent habitat. But you can easily grow succulents as perennials in your landscape. When I asked the garden staff at Deep Cut for their favorite succulents, their response was surprisingly uniform: *Sempervivum* and *Sedum*.



NJ's only native cactus, Prickly Pear (*Opuntia humifusa*) can be found at Fisherman's Cove in Manasquan (pictured) and other sandy sites, like Weltz Park (Ocean Twp.) and Bayshore Waterfront Park (Port Monmouth). It's easy to spot when it's in flower in June, but other times you'll need to scan the shrubs to find it growing in low clumps.

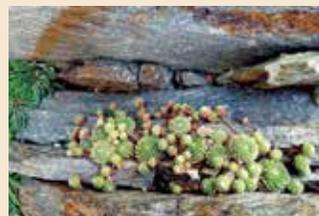
Sempervivum. These hardy plants are from the genus "semper" meaning "always" and "vivum" meaning "alive." Almost all the varieties found in our nurseries are the same species, *Sempervivum tectorum*, but they have been "tweaked" by growers into different shapes and colors. Historically they have been used as ground cover to accents. They excel in rock gardens where they fill nooks and crannies and cascade over edges.

These plants deserve all their names.

- "Houseleeks" is thought to stem from the use of *sempervivum* as roofing by the Welsh. This plant forms dense, evergreen mats and will cover and seal a roof and, in folklore, ward off lightning. "Tectorum" means "on roofs" and that makes their true name "ever-living roof."⁵
- "Hens and Chicks" is thought to have stemmed from their resemblance to partridges surrounded by their chicks.
- "Liveforevers" likely stems from their evergreen growth and because new plants are constantly replacing those that die, giving the plant the appearance of immortality.



Sempervivum tectorum: "Houseleeks"



Sempervivum tectorum: "Hens and Chicks"



Sempervivum tectorum: "Liveforever"

Continues next page...

“Hens and Chicks” appreciate full or part sun, although their succulent leaves will be most colorful with more light. Propagate by cutting the runner that connects the chick to the hen and transplanting to a new location. Sit the cutting on the surface of the soil and only bury the runner enough to anchor the cutting. Roots will grow from the base of the chick into the ground, but the chick itself should not be buried as this may cause it to rot. Adult plants will flower after a few years. These plants are monocarpic, which means that they die after flowering, shrivel and can easily be removed for appearance purposes.

Other than occasionally dividing to provide room for the chicks, these plants like nutrient poor conditions and rocky, well drained soil; they need almost no care. In pots they appreciate crowding making transplanting unnecessary. They are also deer resistant.

Sedum. *Sedum* is a large genus, containing approximately 600 species, commonly known as Stonecrops. They originate in Europe, Africa and South America.⁴ While they all have succulent leaves, sedums come in two distinct forms: carpeting ground covers and clumping mounds. Both work wonders in the landscape as they are perennials and some are evergreen.

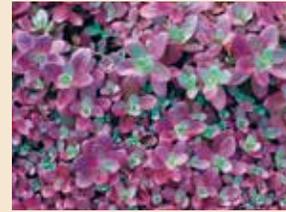
Sedums like drier conditions, well-drained soils and are happy surviving on rainfall. They are easily pruned and rooted from stem cuttings as their succulent leaves sustain cuttings until new roots sprout. They are one of the first perennials to come up in the spring and different species bloom at different times, providing flowers from spring through fall.

- **Carpeting sedums** purchased as “tiles” or squares of established plants growing on mesh can be placed directly on the ground where they will root into the soil. Look for a good variety of colors and shapes in the tile when shopping. Carpeting sedums can replace lawns in areas difficult to access, and can be walked on and even mowed. There are many carpeting sedums, some ideal for full sun or shade and an array of colors. Once established, they will grow amongst other plants creating a perfect backdrop.
- **Clumping sedums** are landscape standouts due to leaves that range from blue to yellow, their dense mounds create lushness with sturdy texture and large flower heads. Their flowers are erect on stalks above the mound and often are a contrasting color to the leaves making them a striking accent plant. Their flowers are long-lasting and are excellent for cutting.

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Sedum is one of the first plants you will see upon arriving at Deep Cut, growing on the sides of the rockwall near the parking lot.



Sedum groundcovers (Clockwise) come in a variety of colors “Gold Leaf”, “Sunset Cloud”, “Bithynicum” and “Firecracker”. Photos: Courtesy of Plant Delights Nursery.



The large mounding Sedum “Class Act” is a reliable bloomer with large bright pink flowers. Photo courtesy of Plant Delights Nursery.

VOLUNTEER WITH US!

Join us for an Open House on one of the following dates in 2019. There will be a tour of Deep Cut Gardens – Monmouth County’s only formal botanical garden. Opportunities include indoor and outdoor options, and working with people or plants or both! New Docent, Ambassador, and Gardening Assistants needed. Training available for volunteers that sign up (ages 18 & older).

10 a.m.-12 p.m.:
March 23, April 11 & 14, May 18



Volunteers at Deep Cut assist us with events, teach visitors about the park, help out in the gardens, and so much more!



The Keys to Succulent Soil

Succulents do very well in containers if provided with the right soil. There are commercial brands that claim to be perfect, but all experienced succulent growers have their own recipes. Combine these four elements to make a healthy container home for almost all succulents (all are inexpensive and readily available in nurseries or online).



Good succulent soil has nutrients, drainage and weight.

1 Organic matter.

Decomposing plant matter provides the nutrients for new plants to grow.

Most potting mixes contain peat as this component because it retains water and provides nutrients, but peat is not ideal for plants that need to dry out between watering. Also, once it dries, peat is very difficult to rehydrate. A better alternative for succulents is coir, made from decomposed coconut husks. It breaks down easily and rehydrates much more readily than peat.

2 Drainage.

Your succulent mix needs a component that allows water to drain easily and prevents water-logging. The best additive for this is perlite, the white pebbles commonly found in potting soil. Perlite is a super-heated rock that has been puffed like “rock popcorn” and provides aeration and drainage.

3 Weight.

This is the component that is often overlooked in succulent mixes. Succulents are top heavy and require a soil that can stabilize them. If the succulent is loose or moves around too much, its roots will tear or crack. Course sand, such as builders sand or even play box sand, will add weight to your mix and allow plants to sit firmly in place.

Mix these three ingredients together in a 2:1:1 ratio for ideal succulent soil: 2 parts coir, 1 part perlite and 1 part sand.

4 Top Dressing.

The final ingredient for your succulent container is top dressing. While all plants appreciate top dressing, succulents will appreciate the added weight and stability. Top dress a planter with a layer of any inorganic material such as pebbles, sand or even decorative glass.



Top dressing can be made with any material that doesn't break down such as pebbles, glass, gravel, shells or sand.

It's Time To... Divide!

Perennials are coming up and it is time to divide them.

Here are some tips.

- Start with the least disruptive method first – **your hands!** Gently pry plants apart at the base and remove a clump with roots attached. Plants that divide well this way include bleeding hearts, coral bells, cranesbill, hellebores, pulmonaria and yarrow.



coral bells

- If the plant remains firmly attached, **cut with a spade.** Start at the crown (top) where you would like to separate the plant. Then quickly and firmly chop down, severing the plant underground. Plants that can be divided in this manner are black-eyed susan, catmint, coneflower, daylilies, grasses, hostas and ferns.



grasses

- If the plant is too woody to separate in a single swift chop, don't hack at the roots. Rather, **use a fine-toothed saw** to divide the roots. Plants that do well using this method are astilbes, meadowsweet, rhubarb and irises.



astilbe

- Some plants do not take well to dividing, these include: alyssum, candytuff, euphorbias, foxglove, geranium, lavender, Russian sage and rosemary.



Don't divide lavender

A divided plant needs time to heal before re-planting to avoid infection. During this healing time the plant still needs water. Trim some of the top of the plant back to help withstand wilting, and put the roots in a bucket of water in the shade. When the top of the plant appears to be recovering, plant it in its new location and water heavily. Cover with a thin sheet or shade cloth until it perks up.

If you are unsure if your plant will tolerate dividing or are unsure of the plant's identity, take a picture and stop by Deep Cut Gardens for advice. We are here to help! Finally, don't forget to divide some plants into pots for the Annual Spring Plant Swap on May 5th! Details about the swap as well as instructions can be found on the Deep Cut Gardens webpage.

CORNER

NATURE

The Moths Of Monmouth County



Red-lined Panopoda (*P. rufimargo*)

Paul Mandala, Park Naturalist

Moths are one of the best kept secrets of the natural world, because they are beautifully hidden all around us. Unlike their elegant and showy counterparts (the butterflies), this little studied group of insects is often overlooked. Moths are fascinating, diverse, and can be visually striking; but because they are nocturnal, they go mostly unnoticed.

There are more than 1,500 species of moth in New Jersey, but only about half have been confirmed. There are 194 confirmed moth species in Monmouth County (www.butterfliesandmoths.org).

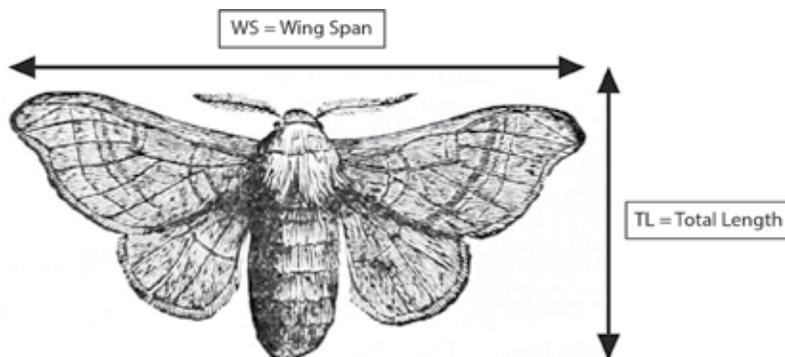
This article is a brief introduction to a few of our local species. The photos are part of an ongoing research project to inventory and document the moths of Monmouth County's parks. Unless otherwise noted, they were taken by Naturalist Paul Mandala overnight at the Manasquan Reservoir in Howell, between June-September 2018.



Night-time Moth Attractant Apparatus: The screen is a basic full white sheet mounted on a rack made of PVC pipe. In front, the top light is a regular, non-LED desk lamp with a clamp mounted to a tri-pod. The bottom is a regular ground stake garden light. Finally, as part of the research, we wanted to see which type of moth might be attracted to ultraviolet light, so we added a black light to the backside.

Moths are arranged here according to size, beginning with our smallest, micro species (the ones that more difficult to spot and identify), followed by the larger and more apparent or macro species. To get a sense of size, TL = total length and/or WS = wing span. In addition to the common and scientific

name of the moth, the family name is provided at the end so you can pick up on similarities between different species within the same family.



Micromoths



Psychedelic Jones Moth (*Thaumatographa jonesi*)
TL 8-11mm, Tortricidae



Orange-headed Epicallima Moth (*Epicallima argenticinctella*)
TL 6-7mm, Oecophoridae



Raspberry Signatalis (*Pyrausta signatalis*) TL 8-11mm, Crambidae

Small Moths



Smaller Parasa (*Parasa chloris*)
TL 10-14mm, Limacodidae



Eastern Tent Caterpillar Moth (*Malacosma americanum*)
TL 15-24mm, Lasiocampidae



Brown Scoopwing (*Calledapteryx dryopterata*) TL 10-12mm
WS 18-22, Uraniidae

Medium Moths



Green Cutworm Moth (*Anicla infecta*) TL 17-20mm, Noctuidae



White Dot - Armyworm Moth (*Mythimna unipuncta*) TL 20-25mm, Noctuidae



Dark Spotted Palthis Moth (*Palthis angularis*) TL 18mm, Erebidae



Unspotted Looper Moth (*Allagrapha aerea*) TL 16-22mm, Noctuidae



Arge Tiger Moth (*Grammia arge*) TL 20-26mm, Erebidae



Rosy Maple Moth (*Dryocampa rubicunda*) TL 26mm, Saturniidae



Can you tell the difference between the Beautiful Wood Nymph (*Eudryas grata*) TL 21mm, Noctuidae and the Pearly Wood Nymph (*Eudryas unio*) TL 24mm, Noctuidae? Beautiful Photo by Mothman27, Wikicommons.



Clymene Moth (*Haploa clymene*) TL 22-28mm, Erebidae

Large Moths



Large Maple Spanwood Moth (*Prochoerodes lineola*) TL 20-25mm, WS 43-46mm, Geometridae



Pink-striped Oakworm Moth (*Anisota virginensis*) TL 20-35mm, WS 42-66mm, Saturniidae



Robin's Carpenterworm Moth (*Prionoxystus robiniae*) TL 27-45mm, Cossidae



Eastern Buck Moth (*Hemileuca maia*) WS 50-70mm, Saturniidae. Photo by Naturalist Heather Smith-Reinhart, Turkey Swamp Park.



IO Moth, New Jersey State Moth (*Automeris io*) TL 30-35mm, WS 50-80mm, Saturniidae

Extra-large Moths



Imperial Moth (*Eacles imperialis*) WS 80-174mm, Saturniidae. Photo by Jeremy Johnson, www.meddlingwithnature.com, Wikicommons.



Cecropia Moth (*Hyalophora cecropia*) WS 110-150mm, Saturniidae. Photo by Linda Tanner at Gaps Mills WV, Wikicommons.



Walnut Regal Moth (*Citheronia regalis*) WS 95-155mm, Saturniidae. Photo by Naturalist Heather Smith-Reinhart at Allaire State Park.

From the nearly invisible to the largest and most vibrant, all moths play an important role in our ecosystem. Now you may be able to recognize and appreciate some of the more common local species.

References: Butterflies and Moths of North America (species profile). www.butterfliesandmoths.org/learn · Peterson Field Guide to Moths of Northeastern North America. David Beadle and Seabrooke Leckie. 2012, Houghton Mifflin Harcourt, New York. · Digital Guide to Moth Identification, North American Moth Photographers group at the Mississippi Entomological Museum at Mississippi State University. www.mothphotographersgroup.msstate.edu/WalkThroughIndex.shtml · NABA – North America Butterfly Association, NJ moths page <https://www.naba.org/chapters/nabanj/moths.html>



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