REYNOLDA GARDENS *of* Wake Forest University

SUMMER 2004 • VOLUME 01, ISSUE 03

the Naturalist's Notebook

for K-5 Educators

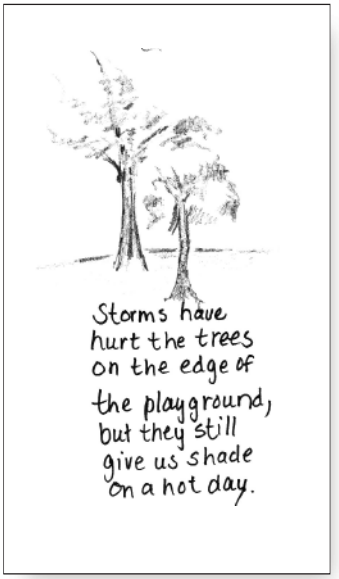
Young Naturalist's Notebook: Nature Writing and Color Pencil Landscapes

Each season, students learn skills in art and writing that help them become better observers of plant life. Keeping a collection of their work helps them build understanding of the variety of plant life in the Piedmont and around the world.

Over the past four centuries, writers, scientists, artists, and explorers have come to the Piedmont to study nature, record their findings, and practice creative arts.

Illustrators served an important function for scientific expeditions before the advent of photography. They made quick sketches of landscapes in the field and finished them later in their studios. Explorers described nature in their diaries. Collections of landscape pictures and anthologies of nature writing are available in libraries and bookstores. Students examining the art and hearing selections of writing learn about different ways to record their own observations.

A page in the summer Young Naturalist's Notebook begins with an exploration of the schoolyard or nearby park, where students use drawing pencils to make quick sketches of landscape features and to make notes on the environmental conditions of the day. Back in the classroom, they use color pencil to fill in details. To accompany the drawing, they expand their notes to create a paragraph in the style of a nature writer.



Interdependence of Plants and Animals

Plants and animals adapt to the geology, climate, and other conditions of an area. Temperatures must not be too cold or hot for them; they must be able to obtain sufficient water and nutrients; and there must be shelter to protect them and their offspring from weather, predators, and other threats. If they cannot adapt, they migrate to other areas or die.

Plants provide food for animals, and animals aid in plant reproduction. Insects spread pollen among plants, resulting in seed production. Seed is dispersed by animals in several ways: by passing through their bodies; by sticking to their fur; and by being buried in holes and tunnels.

Conditions in the Piedmont support a wide range of plant and animal life. See page 3 for regional information.

Naturalist's Notebook

for K-5 educators, a quarterly publication of Reynolda Gardens of Wake Forest University, enriches teachers' understanding of plant life of the Piedmont and around the world. Lesson plans designed by teachers to accompany each issue integrate plant science, art, and writing.

Evolution and Ecology of Lake Katharine Wetland

Lake Katharine, which was created at Reynolda in the early 1900s, covered about fourteen acres of land that had previously been farmed. To build the lake, a basin was dug out and scraped clean, and a dam was built to hold back the flow of streams. Streams continued to deposit silt and sediment, however, and the lakebed began to fill, particularly in the center. Concurrently, changes occurred in vegetation. Aquatic plants appeared first, followed by vegetation such as cattails, which emerged from boggy soil at the water's edge. As these plants became established and soils began to dry out, silt and sediment deposited by streams and nutrient-rich soil created by cycles of plant growth and decomposition began to support low-growing terrestrial plants such as vines and shrubs; their presence in turn provided favorable conditions for tree species to become established. Now, the center of the lakebed, where the most soil has collected, is covered with mature trees.

Once, ecologists would have described this area as a climax community because it has passed through several stages of growth and supports trees that have reached maturity. Now, however, they might call it "relatively stable" or a "mature community" because they have come to recognize that even such small areas cannot always be described within a single category. Any number of events, such as strong wind, lightning strikes, animal activities, or fire, could arise that would change all or part of the community, creating multiple ecological niches within the larger community.

Plants for the Summer Garden

The plants recommended here can grow in well-prepared garden soil or in large flowerpots. Plants should receive the equivalent of an inch of rain each week. A liquid fertilizer applied each month promotes vigorous growth.

BUSH BEAN/*Phaseolus vulgaris*
Plant every 3 weeks,
1" deep, 1' apart.
Harvest regularly.

MINIATURE PUMPKIN/
Cucurbita pepo
Plant 1" deep, 6' apart.
Most not edible.

SUNFLOWER/*Helianthus annuus*
Plant 1" deep, 2' apart.
Dwarf varieties good for pots.

CHERRY TOMATO/
Lycopersicon esculentum
Do not cover seeds when planting. Good for pots; provide trellis.

Throughout the Piedmont, there are woods, meadows, and wetlands like those at Reynolda Gardens. They're in parks, playgrounds, and neighborhoods. Plants from all parts of the world grow in the formal gardens and greenhouses at Reynolda Gardens, just as they grow in home and school gardens and on home and classroom windowsills. The places and plants of Reynolda Gardens serve as examples that help us observe and learn about the plants we see every day.

Understanding Piedmont Ecology

Ecology is the science of the interaction and relationships between living organisms and their environment. Animals and plants that live in a region are adapted to the local conditions. The geology and climate of the Piedmont are favorable for a wide range of plant and animal life.

The climate is considered mild, with short periods of very cold and very hot temperatures. The average yearly temperature is 58°F, with an average temperature of 39°F in January and 77°F in July. The region averages 44.3 inches of rainfall each year. Usually, there are no long periods of drought or overabundance of rain. There are many creeks and streams, and low-lying areas flood after heavy rain.

The landscape is characterized by rolling hills and several types of rock formations. Most rock in the local area is located far below the surface, so soils are not rocky. Soil types vary throughout the Piedmont; the most common is well-drained loam over a base of clay. This soil holds moisture well, so plants that need moist or wet growing conditions are able to grow here; there are very few native succulent plants because water is so abundant.

With easy availability of water and a wide variety of plant life providing nesting sites, food sources, and shelter, there is a diverse animal population. Although the natural landscape has been disturbed by human activity, distinct habitat types can still be recognized; in fact, some habitats have been created by human activity in locations where they might not have occurred naturally.

- Forest habitat supports squirrels, deer, and birds. Trees provide nesting sites and protection from predators.
- Edge habitat, where forest meets open area, hosts raccoons, opossums, some snakes, and rabbits. Shrubs and vines provide food, nesting sites, and protection.
- Open habitat of farm fields, meadows, and lawns is home or hunting grounds for rodents, birds, and insects.
- Wetland or aquatic habitat supports muskrats, frogs, dragonflies, amphibians, and some snakes.

Medicines from Plants

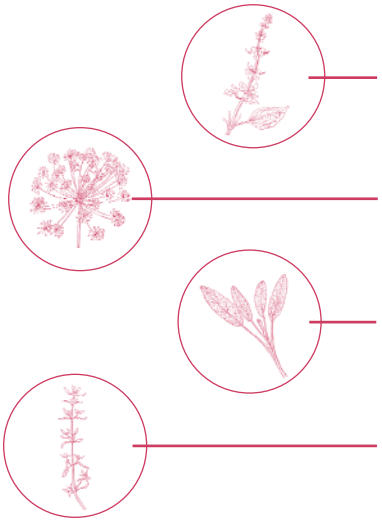
Annual vinca, *Catharanthus roseum*, a Madagascar native, has been cultivated around the world and used medicinally for centuries. In the 1950s, scientists isolated its alkaloids and began creating medicines that are used to stop bleeding and treat diabetes, high blood pressure, and cancer.

Origins of Summer Blooming Garden Flowers

Our favorite summer garden plants are native to warm, tropical, and subtropical regions. Cosmos, dahlia, marigold, morning glory, and zinnia—Mexico and Central America. Canna and begonia—Central and South America. Impatiens—Asia and Africa. Annual vinca—Madagascar.

Growing Garden Herbs

Garden herbs produce aromatic oils that make them useful for cooking and medicines. These plants grow well in a sunny spot, either in a garden or in flowerpots, in well-drained soil that is allowed to dry between waterings.



Basil Start this annual from seed; cover seeds lightly when planting. Cut plants by one-third when established to delay seed production. *Ocimum basilicum*

Dill Start this annual from seed; do not cover seeds when planting. Sow in peat pots; plant in the garden when roots are established. *Anethum graveolens*

Sage Purchase young plants of this perennial. Once the plant is established, small quantities of leaves can be harvested any time. *Salvia officinalis*

Thyme Purchase young plants of this perennial. Place them in the front of the garden or between stepping-stones. *Thymus vulgaris*

Preserving the Harvest

The best preservation method depends on the type of plant being preserved.

Air-drying

Many herbs, such as thyme, retain their fragrance and taste when dried. Cut small branches to approximately the same length and bundle them together with rubber bands. Hang them from a coat hanger in a warm, dry place for about two weeks.

Pressing

Herb leaves and flowers can be preserved by pressing them in an old telephone book. Place a tissue on each side of the leaf or flower to prevent ink transfer.

Saving Seeds

Leaves of some herbs, such as dill, do not retain their flavor when dried, so it's better to save seeds instead. Cut flower heads immediately after blooming and place on a tray; seeds will fall off when they are ripe. They can be packaged and saved for planting next year or for adding flavor to food.

Freezing

Basil can be dried, but it loses much of its taste in the process. To preserve flavor, fresh leaves can be torn or blended into small pieces, mixed with a small amount of water or olive oil, and placed in covered ice cube trays in the freezer.

Reynolda Gardens of Wake Forest University is located within the boundaries of the 1,067-acre estate that was established by Mr. and Mrs. R. J. Reynolds in the early twentieth century. Today, RGWFU consists of 125 acres of woodlands, open fields, and wetlands; four acres of formal gardens; and a greenhouse range with conservatory. Student visit times are limited. Reservations are taken only in early August for the following school year. ***Call the education office (336.758.3485) for information on programs and scheduling.***

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