Getting Ready to Visit the Dike 14 Nature Preserve

Field Guide

Dike 14 Environmental Education Collaborative

Field Guide
Getting Ready to Visit the
Dike 14 Nature Preserve

Key


US Endangered Species


Ohio Endangered Secies


Ohio Threatened Species


Ohio Species of Concern


Ohio Special Interest


Audubon Watch List


Spring/Fall Migration


Winter Resident


Summer Resident (breeding)


Year Round Resident


Diurnal (day active)


Nocturnal (night active)


Crepuscular (dawn and dusk active)


Native


Non-Native


Invasive

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THE 1525 FOUNDATION

Cleveland Museum of NATURAL HISTORY

Cuyahoga Soil and Water Conservation District

Sea Grant
OhioSeaGrantCollegeProgram

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Getting Ready to Visit

Introduction to the Dike 14 Nature Preserve

The Dike 14 Environmental Education Collaborative encourages you to use this Field Guide and to look, listen, explore and enjoy the Dike 14 Nature Preserve. In a very short time you will be able to walk the paths of the Nature Preserve, listen to the sounds of the wind, waves and wildlife, learn from interpretive signage and discover and celebrate the diverse wildlife treasures at Cleveland's Lakefront.

This easy-to-use guide has been formatted to include beautiful illustrations, historical, habitat and natural history notes, ecology links and additional resources for you to explore. The following sections will give you a snapshot of the remarkable natural resources that can be found at the Dike 14 Nature Preserve:

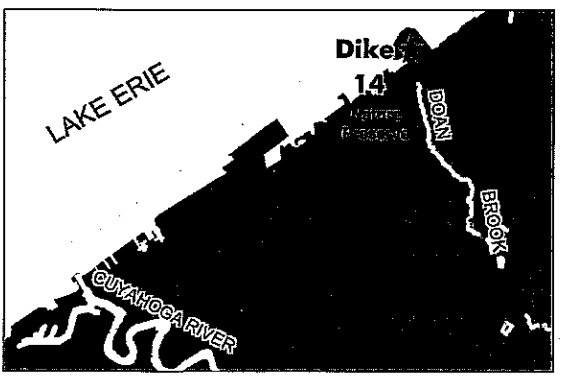
Introduction to Dike 14 Nature Preserve

Welcome to the Dike 14 Nature Preserve. One of Cleveland Ohio's hidden treasures, this truly wild place on the shores of Lake Erie, lies just a few miles east of the heart of downtown Cleveland Ohio. Environmental education programs are offered through the Dike 14 Environmental Education Collaborative.

The Dike 14 Nature Preserve is located on Lake Erie near Cleveland, Ohio

This unique collaborative - composed of some of Cleveland's leading environmental and educational institutions - was formed in 2003 to provide environmental education for students, teachers and families, and to promote environmental stewardship of the Dike 14 Nature Preserve. The Dike 14 Environmental Education Collaborative offers events and special tours to share the wonders of the preserve before it offically opens to the public. See the back cover for more details and Collaborative member contact information.

The 88-acre nature preserve is located next to Gordon State Park-Cleveland Lakefront State Park at the north end of Martin Luther King, Jr. Boulevard and North Marginal Road. Numerous local schools are located nearby and there is strong community interest in the historical, cultural, scientific and environmental significance of the preserve.

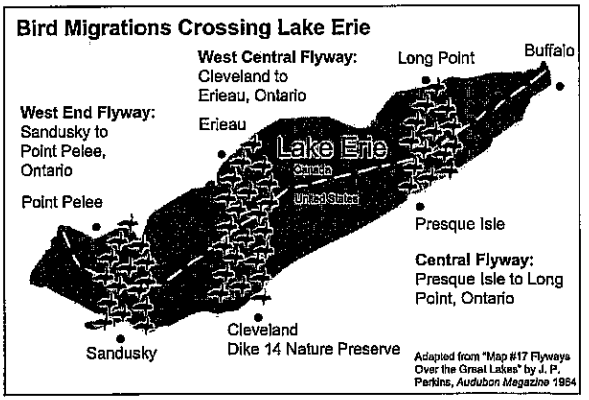


Doan Brook is culverted and flows through the Dike 14 Nature Preserve

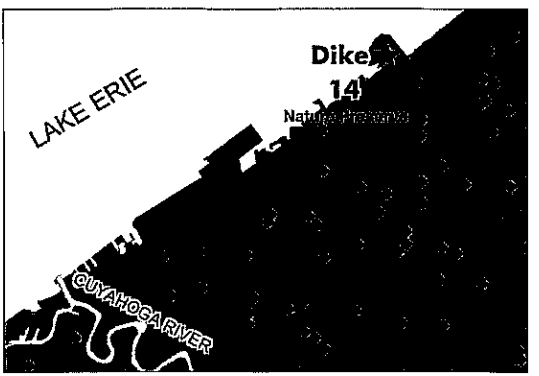
The Dike 14 Nature Preserve exists on a former dredge disposal site. From 1979 to 1999 sediments dredged from the Cuyahoga River and Cleveland Harbor were deposited in Dike 14. Now closed as a disposal site, the dike has become naturalized and sustains a remarkable diversity of plants and animals. The Dike 14 Nature Preserve provides a

unique opportunity for the public to access Lake Erie and to protect and promote this unique green space for Cleveland's families.

During its history, this nature preserve on our city's lakefront has become a significant attraction for birds. It is identified as a "high performance" migratory site because of the significant number and diversity of birds that use it. In October 2004 Audubon Ohio dedicated the Dike 14-Doan Brook Important Bird Area (IBA) as one of the 63 IBAs in the state of Ohio. IBAs are critical sites for bird conservation. Birds use the preserve as a migratory stopover site because of its size, strategic coastal location and diverse wildlife habitats which include grasslands, forest, meadows, mudflats, shrublands, and wetlands. The preserve is located at the intersection of four migratory bird routes: Lake Erie, the shore of Lake Erie, the Cuyahoga River Valley and the Doan Brook Valley. There is no other high quality stopover site along Cleveland's 100-mile expanse of urbanized shore. The closest other sites are Mentor Marsh State Nature Preserve to the east and the Old Woman Creek State Nature Preserve in Huron to the west.



Over 280 species of birds have been documented at the Dike 14 Nature Preserve (out of the 431 species recorded for Ohio) along with 29 butterflies, 26 native plant species, 16 mammals, 9 native tree and shrub species, and 2 reptiles. This field guide will give you a short introduction to the amazing diversity of this nature preserve.



Numerous local schools are located near the Dike 14 Nature Preserve

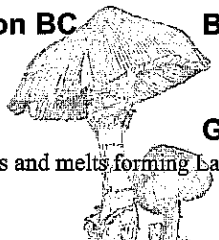
Whether you are discovering the Dike 14 Nature Preserve in the field, your classroom or at home, this guide will help you learn about the natural world. Enjoy!

History of the Dike 14 Nature Preserve

Introduction

History

about 6 million BC **Bird migrations begin**

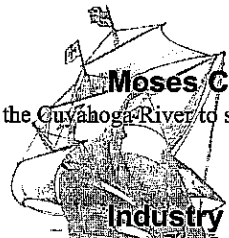


14,000 BC **Glaciers form Lake Erie**

Last glacier retreats and melts forming Lake Erie and its shoreline cliffs.

12,000 BC to Late 1700s **Native Indian Cultures**

Diverse flora and fauna evolve throughout the Lake Erie Basin. Native American Indian cultures inhabit the land.

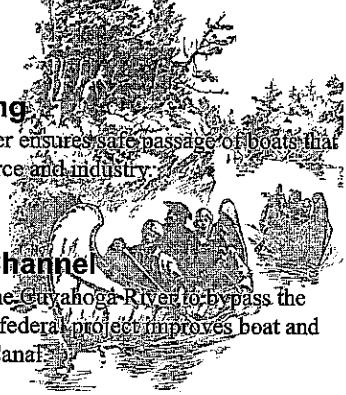


1796 **Moses Cleaveland**

Moses Cleaveland arrives at the Cuyahoga River to survey the land and plot the new town.

1796 to Present **Industry and commerce**

Native American cultures are displaced by the spread of European culture throughout the Lake Erie shoreline with the establishment of new towns and cities, new transportation routes, commerce and industry.



1800 to Present **Dredging**

Dredging the shallow waters of the Cuyahoga River ensures safe passage of boats that support Cleveland's maritime economy of commerce and industry.

1825 **Entry Channel**

A straight entry channel is cut from Lake Erie to the Cuyahoga River to bypass the tight curves of the natural mouth of the river. This federal project improves boat and barge access into the river and the Ohio and Erie Canal.

1877 to 1892 **Breakwall**

The federal breakwater, a stone wall engineered to stop wave action, is built in Lake Erie parallel to and one mile north of Cleveland's shoreline cliff. The breakwater provides a safe harbor for boats, docks and man-made land.

1950s — Bird migration routes

J.P. Perkins, a Great Lakes ore boat captain, documents three major bird migration routes across Lake Erie including the 55-mile route from Cleveland, Ohio to Erieau, Ontario.

1970s — US River Harbor Act

In order to protect the fish populations, the U.S. River & Harbor Act disallows open lake disposal of polluted sediments. Confined Disposal Facilities (CDFs) are required.

1969 to 1970s — CDFs built

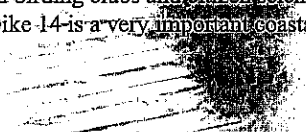
Three federal CDFs (Dike 13, Dike 9 and Dike 12) are built in Lake Erie and filled with dredged sediments creating new land for runways and safety areas at Cleveland's Burke Lakefront Airport.

1977 to 1978 — Dike 14 built

The outer stone walls of CDF Dike 14 Nature Preserve are built in Lake Erie north of Gordon State Park.

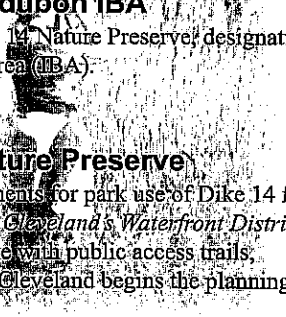
1979 to 2003 — Dike 14 filled

CDF Dike 14 is filled with dredged sediments. As the new landmass builds up, it becomes fully vegetated with plants and trees, attracting birds and other wildlife. Cleveland birding clubs and citizen scientists begin bird surveys. A scientific bird count reveals Dike 14 is a very important coastal site for migratory birds.



2000 — Audubon IBA

Audubon Ohio assigns conservation status to the Dike 14 Nature Preserve, designating the 88-acre site a National Audubon Important Bird Area (IBA).



2000 to 2005 — Nature Preserve

Public input to state, county and city planning departments for park use of Dike 14 favors protection of the site's wildlife functions. In 2004, the *Cleveland's Waterfront District Plan* identifies the use as: The Dike 14 Nature Preserve with public access trails, boardwalks and environmental education. The city of Cleveland begins the planning process.

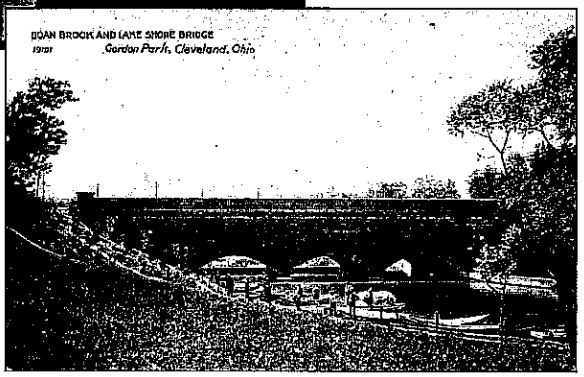
Postcards from the Past
Introduction

History

Bathing Beach, Gordon Park, Fifth City

Boating in Gordon Park

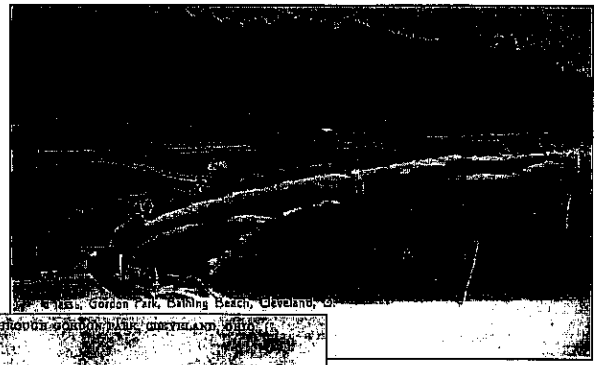
Scene in Gordon Park



Doan Brook and Lake Shore Bridge, 1919

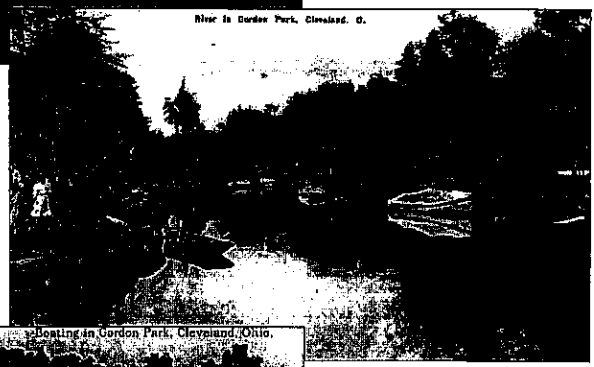
Looking Back at Gordon Park
Introduction

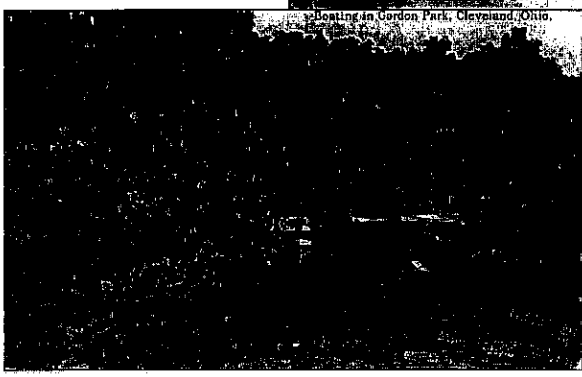
Bathing Beach,
Gordon Park, 1853



Drive Through
Gordon Park

River in
Gordon Park





Boating in
Gordon Park

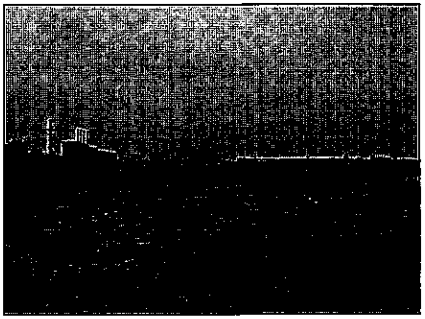
Historic Postcard Collection:
Courtesy of Tony Zajac

Habitat Diversity

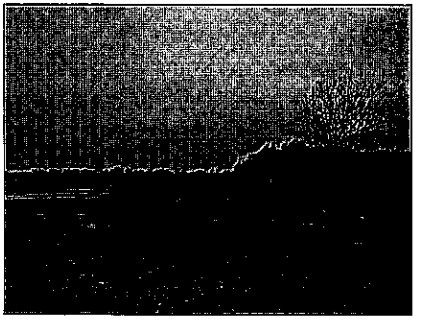
Introduction

History

Habitats - the place plants and animals live - are constantly changing. Ecological succession is the process by which ecosystems - the interaction between living organisms and their environment - change and develop over time, anywhere from a few days to many years. In the photographs on the next two pages you can see how the biodiversity and the variety of life on the Dike 14 Nature Preserve has changed dramatically.



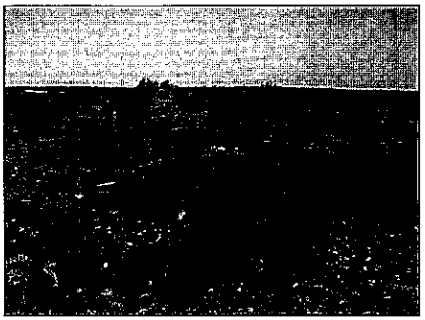
October 11, 1999, bare soil



October 11, 1999, additional image

August 21, 2000, old field

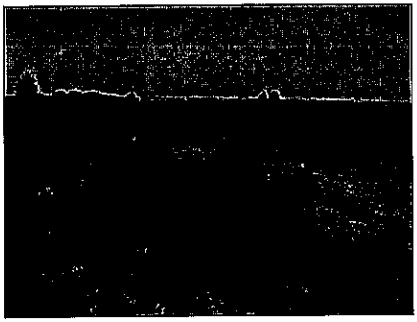
August 21, 2000, additional image



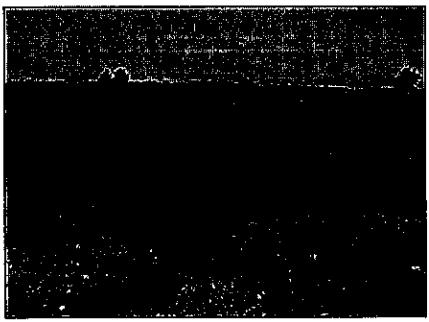
June 10, 2001, vernal pool

June 10, 2001, additional image

Plants began to grow on bare soil. Beginning in early 1980s, the gradual process of change continued as plants competed for nourishment, water and space. Changes in plants meant changes in animals that feed on them or use them for shelter. Changes are continuing to this day.



August 17, 2002, old field



August 17, 2002, additional image

May 22, 2004, young forest

October 2, 2004

May 21, 2005

June 11, 2005

Great Lakes Dredging

CDFs

The history of the Dike 14 Nature Preserve shows the success stories of the maritime transportation systems that support Cleveland industry and commerce, and improved water quality in the Great Lakes and Lake Erie. The future of the Dike 14 Nature Preserve will provide stewardship of significant wildlife habitats, public access to nature and the Lake Erie shore, and environmental education for Cleveland communities.

Dredge boats near the Dike 14 Nature Preserve

For over 150 years - since the early years of Great Lakes shipping - rivers and tributaries along the lakes have been dredged for safe passage of commercial and recreational boats and ships. The act of dredging involves the removal of excess bottom sediments in order to deepen navigation channels and harbors. The Army Corps of Engineers oversees over 130 such federal navigation projects. Dredging for safe passage of freighters and ships that move between ports along the St. Lawrence Seaway through the Great Lakes to Lake Superior is currently federally mandated at 27 feet.

Common practice, prior to 1960, was to dump dredged materials into open waters or to utilize the material as artificial fill or beach sand. Many of the sediments being dredged were polluted and affected the biological, chemical and physical health of the Great Lakes. The rising concern about Great Lakes water quality and its possible connection to polluted sediments resulted in a shift of policy on disposal of dredged material toward construction of Confined Disposal Facilities (CDFs). To further protect the health of the Great Lakes, the need to identify sources of pollution would also result in methods to reduce pollution.

When polluted materials or chemicals are released into an ecosystem from a specific entry point, it is called 'point source' pollution and may be controlled or regulated. Point sources of contaminated sediments are industries or factories along the waterways that drain contaminated water directly into the rivers and lakes, or that have smokestacks that send polluted particles directly into the atmosphere. For many years, factories and sewage plants in Cleveland drained a solution of waste product and water (effluent) directly into the Cuyahoga River. In Cleveland, point sources of atmospheric pollution are associated with steel mills and coal-fired plants that emit polluted particles through smokestacks.

When the pollution cannot be associated with a specific entry point, it is called 'non-point source' pollution. Non-point sources of pollution come from many different sources, such as exhaust from cars, grease and salts from roads and parking lots, as well as lawn care products such as fertilizers and pesticides. The contaminants from these sources are collected and carried in rainwater or

History of the Dike 14 Nature Preserve

snowmelt in surface runoff, and drain directly into streams, rivers and lakes. (See Water Quality for more information.) Due to the persistence and tendency of the pollution to magnify and cause potential health risks as it moves up a food chain, it is necessary to isolate this material in order to restore the Great Lakes water quality and ecosystem. Under the River and Harbor Act of 1970 (P.L. 91-611) engineered structures called Confined Disposal Facilities were constructed in the Great Lakes for dredged materials unsuitable for open water disposal because of contamination. The U.S. Army Corps of Engineers constructed 45 CDFs around the Great Lakes; 16 on land and another 29 built as in-water facilities or shoreline underwater facilities. Each CDF site differs depending on methods of sediment removal, the nature and amount of sediment and the functionality of the site after its role in disposal has been concluded.

Dike 14 is a CDF, built in compliance with federal law (River and Harbor Act of 1970) to permanently hold and confine polluted dredged sediments. After passage of this act, 'open lake disposal' of sediments, a practice that dates back to the early 1800's, was limited to non-polluted sediments only. The intent of this law is to protect Lake Erie from pollutants for the benefit of fish, shellfish and wildlife populations.

While the Dike 14 Nature Preserve might look like a natural peninsula of land jutting into Lake Erie, it is actually a man-made structure made of stone and steel, a CDF, that was filled - like a giant cake pan - for twenty years with sediments taken from the navigation channels of Cleveland Harbor and the Cuyahoga River. CDF Dike 14 was built as a near shore, in-water facility and its walls were constructed in layers. The outside utilizes heavy stones and steel sheets in the dike walls. The inside is layered with smaller stones. The dredged sediments settle to the bottom inside the dike walls, and the associated water either evaporates or flows through structures called weirs.

CDFs

As the landmass in the dike built up, it became fully vegetated with plants and trees, thus attracting diverse species of migratory birds and other wildlife. In 1999, the Army Corps closed Dike 14 to dredge disposal, and the 88-acre landmass became available for park planning.

Public planning meetings for the Dike 14 Nature Preserve were held by the state, the county and the city. The public overwhelmingly favored protection of Dike 14 and asked that the dike be protected as a nature preserve - with public trails and boardwalks - where urban children, families and schools could learn about the natural world.

Web References and Links

www.glc.org/dredging/lakes/lakes.html

Dredging and the Great Lakes, October 1999

www.glc.org/dredging/dredgingBooklet.pdf

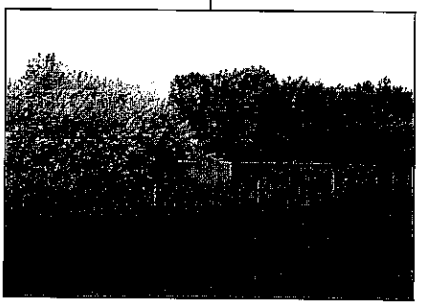
Dike 14 Quick Facts

Perimeter: 5,400 feet
Height: 39 feet
Capacity: 6,130,000 cubic yards of sediment
Modification: +880,000 cubic yards in 1994
Cuyahoga River Watershed: 813 square miles

Watersheds, Water Quality

Watersheds

A watershed is the geographic region that drains into a body of water such as a stream, river, lake or ocean. Each hill and valley directs water downhill toward a drainage basin. Surface runoff is created from the rainfall and snowmelt that flows overland into streams and rivers and eventually to an endpoint at the lowest elevation. Topographic maps, showing contours of the landscape and the stream valleys are used to identify the boundaries of a watershed.



Doan Brook Concrete Twin Box Culvert on Dike 14

Doan Brook Outfall into Lake Erie

Doan Brook

Dike 14 Nature Preserve sits at the endpoint of the Doan Brook Watershed. Doan Brook is approximately 8.4 miles long and drains 11.7 square miles (7500 acres). From the headwaters, Doan Brook runs through woods, recreation areas and urban development in three cities: Shaker Heights, Cleveland Heights, and Cleveland and drops 480 feet in elevation. The brook can be seen throughout the Shaker Lakes. As the area around the brook in University Circle was developed, the stream was diverted into underground pipes called culverts. It is visible again in University Circle at Wade and Rockefeller Parks along Martin Luther King, Jr. Boulevard. At Interstate 90 (Route 2) the brook returns underground to run through the culvert then through the center of CDF Dike 14 where it finally drains into Lake Erie.

Water Quality

Watersheds are dependent on geology, soils and vegetation. Human impact upon the physical environment, such as the construction of farms, towns, and transportation systems influences watersheds. Natural ground surfaces may absorb rainwater and snowmelt, filter out impurities or store ground water. As a community converts a natural landscape into a cityscape there is an increase in the amount of impervious surfaces - places that cannot absorb the rainwater and snowmelt. Rooftops, roads, driveways, parking lots, sidewalks and even lawns are examples of impervious surfaces that increase both the surface runoff and the amount and types of sediments it contains. These sediments, carried by the water, change the nature and quality of streams, rivers and lakes.

As water runs over impervious surfaces it collects soil sediments, salt, oils, chemical

Watersheds, Water Quality

fertilizers and pesticides, which eventually drain into our waterways. Urban watersheds and waterways are affected in a variety ways:

Less Groundwater: As water runs off the roadways, rooftops and lawns, less water is able to soak into the soil as groundwater.

Increased Runoff Volumes: The rivers and streams in the city receive more storm water and melt water and at higher speeds.

Increased Floods: Increased surface runoff, combined with fewer areas of undeveloped land along waterways, results in floods.

Poor Water Quality: Warmer water from heated surface runoff, increased algae growth, and changes to water flow lower the amount of dissolved oxygen in the water and affects the plants and animals that use the waterway as their habitat.

Increased Water Pollution: Sediments, grease, pesticides, fertilizers and trace metals are not filtered by ground cover and are deposited directly into stream beds.

To maintain the river as a navigation channel, these sediments need to be dredged and contained. Dredged sediments from the Cuyahoga River were deposited at Dike 14 between 1979 and 1999. Since 1999, the Dike 14 site has become a refuge for plants and animals.

Web References and Links:

www.epa.gov/win/

http://ohiowatersheds.osu.edu/

www.great-lakes.net/envt/water/quality.html

Dike 14 Nature Preserve 2002

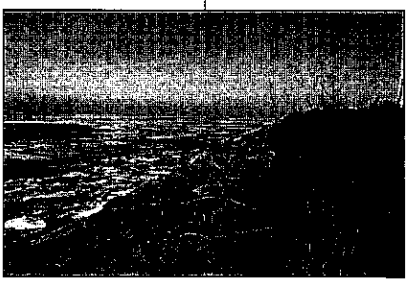
Wildlife near the Dike 14 Nature Preserve 2002

Weather and Seasons at Dike 14

Weather on the Dike 14 Nature Preserve is permanently linked to conditions on Lake Erie. The lake's long weather history is so infamous that it has played a role in over 1,700 documented shipwrecks. The limited depth of Lake Erie - shallowest of the Great Lakes - combined with its prevailing winds creates factors that make Lake Erie treacherous for both boaters and birds.

Weather

During the summer, Lake Erie's shallow depth causes it to heat up faster than the other Great Lakes. In the western basin, the lake is as shallow as 25 feet; in the eastern basin, the lake can be as deep as 210 feet; and in the central basin, near Dike 14 Nature Preserve, the depth is an average of 60 feet. As the warmest and shallowest lake, Lake Erie is the most biologically productive. There are more commercial fisheries on Lake Erie than all the other Great Lakes combined. While the warm temperatures support fish, they also promote the rapid growth of harmful bacteria in wastewater released from nearby sewage treatment plants. The summer waves stir up the bacteria in the sediment and carry it to public beaches, resulting in occasional beach closures.



Icy winter winds chill the Dike 14 Nature Preserve

The warm water creates distinct, small areas of climate known as micro-climates along the shores of Lake Erie. The warm water keeps the land near the shores warmer into the autumn. This allows a vast horticultural industry to thrive along the shores of Lake Erie. Growers along Lake Erie have a longer season due to the tempering effect of the lake. The plants on the Dike 14 Nature Preserve have a longer growing season as well, due to the warm water.

Winds on Lake Erie typically travel from west to east. When wind speeds rise in the summer and move across miles and miles of open water; they create dramatic, unpredictable storm surges and rising lake levels in the east. When winds cross Lake Erie in the late autumn and winter, they create a unique weather phenomenon called "lake effect." Lake effect is caused by arctic cold fronts sweeping across the open water of Lake Erie. The winds pick up warmth and moisture from the parts of the lake that remain unfrozen. As the water molecules travel across the lake, they clump together. By the time the water molecules reach the southeast shore of Lake Erie, they dump their load in the form of snow on the higher elevations east of Cleveland. The snow travels in bands or belts that resemble streamers. The area east of Cleveland is known as the "snow belt" and has an average snowfall of 120 inches. The average annual snowfall in the rest of Cleveland is 61 inches. If the lake completely freezes over, lake effect is no longer a factor. But in recent years, we have tended to get at least one mid-winter

Wings and Wind

thaw in which parts of the lake ice melts. When there is open water in winter, and the winds come from the west or north, there is always a chance to get a lake effect snow.

Most of the 37 inches of annual rainfall in Cleveland comes between the months of April and September. For comparison, both Seattle, Washington and Cleveland - at similar latitudes and influenced by large bodies of water - have an average annual rainfall of 37 inches. On an average day in Cleveland, there will be some cloud cover with an average of 300 days having partly or fully cloudy skies. Cleveland temperatures range from an average of 24 degrees in January to an average of 70 degrees in August.

Birds take the weather on the Dike 14 Nature Preserve very seriously. This 88-acre Lake Erie coastal oasis is a very important stopover site for birds during migration. The Dike 14 Nature Preserve is the only quality natural area between Mentor Marsh State Nature Preserve to the east and the Old Woman Creek State Nature Preserve in Huron to the west. Migratory birds use the Dike 14 Nature Preserve to rest, re-fuel and prepare for the rest of their journey.

In late summer, after their long trip across Lake Erie from Canada, birds use the Dike 14 Nature Preserve to rest and get ready for their trips south. When the weather prevents the birds from continuing their journeys south, the birds may need to take shelter in the habitats of the Dike 14 Nature Preserve.

In the spring, birds use the Dike 14 Nature Preserve as a staging area to cross Lake Erie to Canada. The birds must wait on the Dike 14 Nature Preserve until the winds come from the south before flying on to the north woods of Canada or beyond. While the birds wait, they feed and rest, finding respite in the various habitats of the Dike 14 Nature Preserve. The weather patterns play a big role in when the birds can make the difficult journeys across.

In any season, the Dike 14 Nature Preserve provides essential food, water, shelter and staging areas at the Lake Erie coastline for birds and other wildlife.

A field of alien, invasive Birdsfoot Trefoil, Lotus corniculatus, at the Dike 14 Nature Preserve. Spring 2005

Web References and Links:

Storm
www.glerl.noaa.gov

Shipwrecks
www.eriewrecks.com

www.inlandseas.org

www.sg.ohio-state.edu

Weather on Lake Erie
www.erh.noaa.gov

www.great-lakes.net

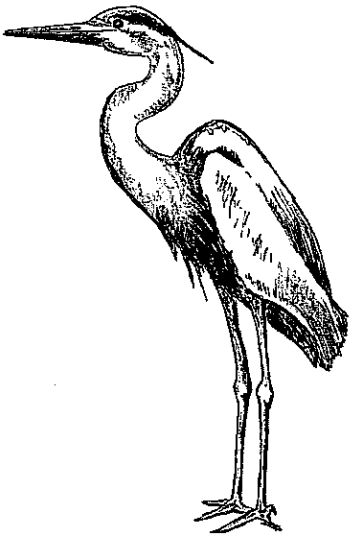
www.wunderground.com

Great Blue Heron

Ardea herodias

Identification

Length: 46" Wingspan: 72"



The Great Blue Heron has a grayish-blue body and a white neck with black vertical streaking. On the head there is a thick, black strip above the eye. The iris is yellow. During the breeding season, two long black feathers adorn its head. The Great Blue Heron has darkish legs and a yellow spear-like bill. In flight, this heron coils its neck inward, giving the throat a bulging appearance, while its long legs trail behind.

Voice

A loud "kraaak" when it is disturbed and in flight.

Birds

Habitat

Rivers, lake edges, marshes, and swamps. The birds usually nest in trees near water.

Life History

The Great Blue Heron has long legs that are adapted to wade in shallow water. Its spear-like bill allows it to catch food successfully in both terrestrial (land) and aquatic (water) environments. This heron's diet consists of fish, frogs, mice, shrews, salamanders, snakes, crayfish, dragonflies, grasshoppers and many aquatic insects. They hunt for food while standing in or near water, and also in fields.

Ecology Link

Great Blue Herons are commonly observed standing on top of the large boulders that surround the shoreline of the Dike 14 Nature Preserve. When abundant springtime rainfall causes standing water inside the preserve, they can be found in these "vernal pools" wading alongside other Great Blue Herons and sometimes Great Egrets. Both the boulders and vernal pools are important habitats for Great Blue Herons, providing them with places to both hunt for food and rest at the Dike 14 Nature Preserve.

Web Link

To learn more about birds, visit the *Cornell Lab of Ornithology* online at www.birds.cornell.edu/.

Turkey Vulture

Cathartes aura

Identification

Length: 26" Wingspan: 67"

A Turkey Vulture's head is small in size when compared to its large body. The head and neck are red in color and lack feathers. The entire body, wings and tail are black. In flight, its wings appear two-toned black and gray, and are held open in a wide shallow "V" shape while soaring. Its beak is small and yellowish in color. Young vultures have dark heads and bills.

Voice

Usually silent, but sometimes they grunt and hiss.

Habitat

Forested and open areas. They roost in large flocks at night in trees.

Life History

Turkey Vultures are scavengers and eat only carrion (dead meat). They spend countless hours soaring high above the land in search of food, using their keen sense of smell and sight to detect a potential meal. Turkey Vultures are most graceful in flight, and can soar for hours at high altitudes without flapping their wings. If vultures are on the ground and a predator approaches, they are known to vomit. This leaves a foul smell behind that causes any threatening animal to quickly retreat.

Ecology Link

At the Dike 14 Nature Preserve and other places, Turkey Vultures help control the spread of infectious diseases. By consuming rotten meat, carcasses are quickly removed from an environment before they pose a health threat to animals or humans in the area.

Web Link

To learn more about these birds, visit the *Cornell Lab of Ornithology* online at www.birds.cornell.edu/.

Northern Harrier

Circus cyaneus

Identification

Length: 18" Wingspan: 43"

The Northern Harrier is a slim raptor with a distinct white patch on its back near the base of the tail. It has a large circular feature around each eye called a facial disk. In flight, the wings are held in a shallow "V." The adult male is pale gray on the head, back, wings and tail, and whitish below. The female is brown overall with dark streaks on the breast. Young harriers resemble adult females but are cinnamon-colored below.

Voice

When startled, harriers utter a rapid, nasal chattering "ke-ke-ke-ke-ke."

Birds

Habitat

Open fields, grasslands, prairies, and marshes.

Life History

Historically, Northern Harriers were abundant and widespread. However, their numbers have declined in recent decades, primarily due to a loss of breeding habitats and the effects of pesticides. The most critical need for the future success of the Northern Harrier is the protection of habitat. Their breeding habitat includes cattail marshes, wet meadows, shrubby uplands and wetlands. They are often seen hovering over fields, grasslands, shrublands and wet meadows as they hunt for small mammals and birds.

Ecology Link

In Ohio, the Northern Harrier is listed as an endangered species, since its overall breeding population is low. The Dike 14 Nature Preserve provides important habitat for both migrating and breeding harriers. Fields that are comprised of tall grasses mixed with wildflowers provide critical habitat for this ground nester.

Web Link

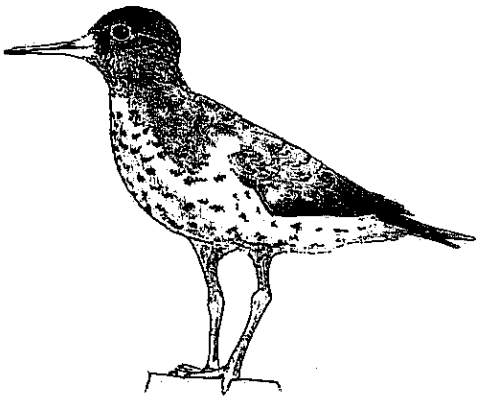
To learn more about raptors, visit *A Pictorial Guide to Illinois Birds of Prey* online at www.illinoisraptorcenter.org/Field%20Guide/guidecover.html.

Spotted Sandpiper

Actitis macularia

Identification

Length: 7 1/2" Wingspan: 15"



Spotted Sandpipers have olive-brown backs and heads, white breasts, and throats covered with many black spots. There is a white line above the eye. The bill and legs are orangish-yellow in color. Both the young and winter birds lack spotting underneath and on their throats.

Voice

Their call is a clear "peet-weet."

Habitat

Along the shores of lakes, ponds, streams, and marshes.

Life History

Spotted Sandpipers are known for their unique style of walking; they nod and teeter in an up and down motion. Because of this behavior, they are sometimes known as "teeter-tail." In flight, this sandpiper rapidly beats its wings and then briefly glides. The movement of the wing beats occurs below body level, and this creates a distinct arch shape to their wings, like the letter "M."

The Spotted Sandpiper eats midges, fish, mayflies, flies, grasshoppers, crickets, beetles, worms, caterpillars, mollusks, crustaceans and spiders. They sometimes swim or dive to hunt for prey. When this sandpiper sees a potential meal, it sneaks up to the prey, thrusts its neck forward and captures its food with its long pointy bill.

Ecology Link

A Spotted Sandpiper nests on the ground and consequently is subject to nest predation. At the Dike 14 Nature Preserve, sandpiper eggs and young chicks are prey for snakes such as Eastern Garter Snakes and brown snakes and mammals such as minks, red foxes, and striped skunks.

Web Link

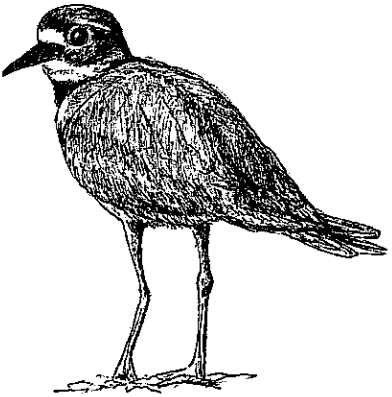
To learn more about shorebirds, visit the *Ocean Wanderers Home Page* online at www.oceanwanderers.com/OWShore.html.

Killdeer

Charadrius vociferus

Identification

Length: 10 1/2" Wingspan: 24"



Both male and female are similar in appearance. Killdeer have brown backs, wings and crowns. Its breast has a double-band, with the top band completely encircling the upper body and breast. Another band is located at the head, reaching from behind one eye and continuing around the back of the head to the other eye. The forehead has a white patch that is bordered on the top edge with black. The breast and under parts are white, and the legs are grayish. In flight, the tail and "rump" appear bright reddish in color.

Voice

A loud, clear "kill-deee(r)" often repeated endlessly.

Habitat

Fields, meadows, pastures, mudflats, shores of lakes, ponds, and rivers.

Life History

A Killdeer is named after its loud, piercing "kill-deee(r)" call. They belong to a family of birds called Charadriidae, and part of that name comes from the word "charade." Killdeer are ground nesters, and whenever a predator advances toward their nest, the parents pretend to be injured. Adult Killdeer perform a convincing broken wing act and often give a distress call. When performing this act, they move away from the nest, thus drawing the approaching predator towards the parents. When the unwelcome visitor is far enough away from the nest, the adult Killdeer takes flight.

Ecology Link

At the Dike 14 Nature Preserve, Killdeer help control the insect population as insects comprise a large portion of their diet. They eat pests such as mosquitoes, ticks, and locusts.

Web Link

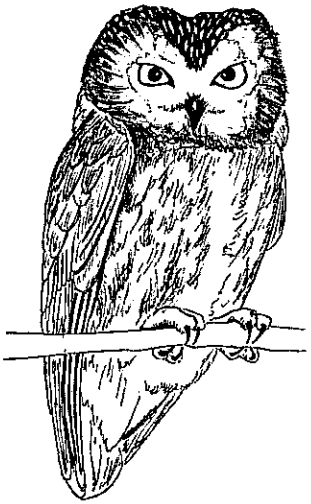
For more information on shorebirds, visit *U.S. Fish & Wildlife Service: Winging Between Hemispheres* online at http://migratorybirds.fws.gov/shrbird/shrbird.html.

Northern Saw-whet Owl

Aegolius acadicus

Identification

Length: 8" Wingspan: 17"



This small owl has a large head and a prominent facial disk. Its crown has fine white streaks, and its nape and back are scattered with large white spots. Its breast is white with thick reddish-brown streaks. The bill is black and the iris is yellow.

Voice

Usually silent, but during the breeding season, they give a repeated whistle that sounds like "saw-whet, saw-whet, saw-whet," etc.

Habitat

Woodlands, coniferous forests, deciduous and mixed conifer-deciduous forests.

Life History

Northern Saw-whet Owls are nocturnal (active at night), and roost in pines or thick vegetation during the day. The species is migratory. During spring migration, they typically move through Ohio in mid-April. During fall migration, they can be found in Ohio from the last week of October through the first week of November, though some may spend the entire winter in Ohio.

These owls are cavity nesters, which means they use a hollow hole in a tree trunk or branch to raise their young. They often use cavities that have been excavated by woodpeckers, particularly those of the northern flicker. Their breeding season begins in March and ends in late July. While they do nest in certain regions of northeast Ohio, they do not nest at the Dike 14 Nature Preserve.

Ecology Link

Northern Saw-whet Owls mostly eat small mammals. At the Dike 14 Nature Preserve, they consume both white-footed mice and meadow voles, whose skeletal remains have been discovered through the dissection of their owl pellets. Since owls cannot digest hair and bones, they regurgitate them in the form of small, cylindrical pellets. During a Saw-whet Owl's stay at the Dike 14 Nature Preserve, it will roost in eastern white pines and other conifers.

Web Link

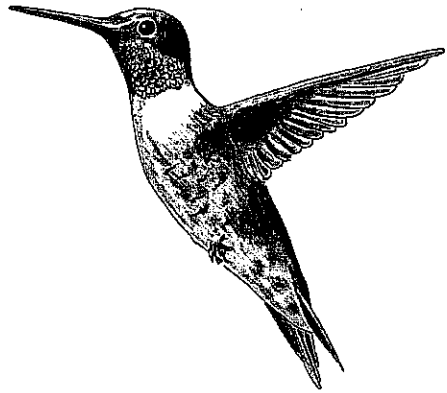
For more information on owls, visit *Owling* online at http://owling.com/.

Ruby-throated Hummingbird

Archilochus colubris

Identification

Length: 3 3/4" Wingspan: 4 1/2"



This tiny hummingbird has an iridescent green back and head, and white underparts. Males have a red metallic throat (called a gorget), while females have a dull grayish throat. Young birds resemble the adult female, and some young males may have a few red feathers on their throats. Their black bills are long and needlelike.

Habitat

Deciduous and pine forests and forest edges, orchards, and gardens.

Life History

Ruby-throated Hummingbirds feed on floral nectar, tree sap, and small insects. They hover or perch on flowers to feed, using their long thin bills to reach nectar deep inside the flower. Ruby-throated Hummingbirds use a variety of flowering plants as food sources, especially those with red tubular flowers. They also consume tree sap from wells drilled by Yellow-bellied Sapsuckers, a species of woodpecker. Insects are captured in flight, gathered off vegetation, or plucked from spider webs.

This species of hummingbird migrates between its breeding and wintering grounds. Some migrate over 3,000 miles roundtrip. During migration, Ruby-throated Hummingbirds fly non-stop across the Gulf of Mexico, which usually takes them 18-20 hours. In order to accomplish this remarkable journey, they often double their body mass. Their migration coincides with the flowering of plants in the north.

Ecology Link

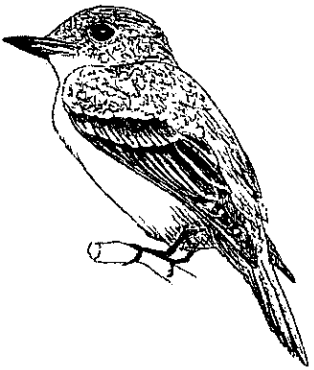
Ruby-throated Hummingbirds play an important role as pollinators in an ecosystem. At the Dike 14 Nature Preserve, many plant species, including morning glory and Hedge Bindweed, benefit from pollination by hummingbirds.

Web Link

To learn more about hummingbirds, visit www.hummingbirds.net/about.html.

Willow Flycatcher

Empidonax traillii



Identification

Length: 5 3/4" Wingspan: 8 1/2"

This sparrow-sized flycatcher has brownish-olive upperparts and a whitish throat that contrasts with the pale olive breast. Their breast has a yellowish tinge. Willow Flycatchers have dark wings with two whitish wing bars. The yellowish-orange bill is triangular-shaped, and is widest at the base.

Voice

Song is a sneezy "FITZ-bew," with accent on the first syllable.

Habitat

Thickets composed of dogwoods, willows, alders, and other shrubby vegetation, often bordering wetlands, lakes, and streams.

Life History

The Willow Flycatcher belongs to a group of birds known as the Empidonax flycatchers. They are all very similar in appearance and are best identified by their unique voices. Of the five Empidonax flycatchers, willow is often confused with Alder Flycatcher in the field. While the Willow Flycatcher's two-syllable song resembles the phrase "FITZ-bew," the alder's song is a three-syllable "fee-BEE-oh," with accent on the second syllable.

Flycatchers perch on a branch or on top of a dead limb to hunt for flying insects. Once they spot an insect close by, they give pursuit and try to catch it. After the chase, they often return to the same perch.

Ecology Link

Willow Flycatchers mainly eat insects, and they help control insect populations at the Dike 14 Nature Preserve. They are mostly found hunting for insects in willow and cottonwood thickets. During the summer, they build their nests in sandbar and peachleaf willows.

Web Link

To learn more about these birds, visit the *Cornell Lab of Ornithology* online at www.birds.cornell.edu/.

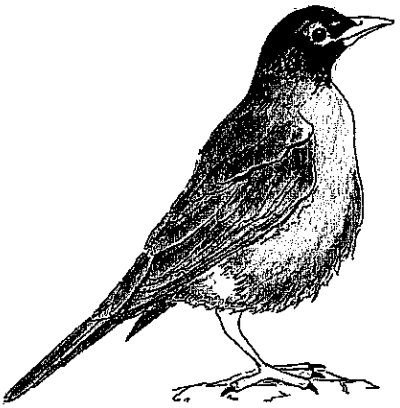
American Robin

Turdus migratorius

Identification

Length: 10" Wingspan: 17"

The American Robin has a brown back, reddish-orange breast, white lower belly and white under its tail feathers. Their throats are white, streaked with black. They have white crescents above and below their eyes. Females are paler in color than males. Young American Robins have dark spots on their breasts. This robin has a yellow bill, often slightly tipped black.



Voice

The song is a loud "cheerily, cheer up, cheerio." Call is a rapid "tut-tut-tut."

Habitat

Woodlands, gardens, orchards, lawns, and fields.

Life History

American Robins are usually the first birds to sing in the early morning hours, often before sunrise. They are typically active during the day (diurnal). In the winter daylight, they tend to be social birds, gathering in large numbers to feed mostly on fruit and berries. They also assemble in large flocks at night when they roost in the trees. During the summer, American Robins defend breeding territories and are less social. Almost all populations of American Robins are migratory. In Ohio, robins that breed here during the summer months move south for the winter; those that spend the winter typically arrive from Canada.

Ecology Link

American Robins consume fruits, berries and earthworms, as well as insects such as beetles, grubs, caterpillars and grasshoppers. Their feeding habits act to control some insect populations and they disperse the seeds of the fruits they eat in their droppings. Some of the fruiting bushes and trees at the Dike 14 Nature Preserve may have been "deposited" by American Robins.

Web Link

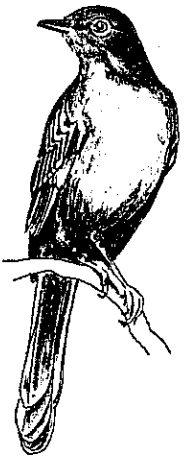
To track bird activity in Ohio, visit the *Ohio Ornithological Society* online at www.ohiobirds.org/.

Northern Mockingbird

Mimus polyglottos

Identification

Length: 10" Wingspan: 14"



Northern Mockingbirds are about the size of American Robins but are slimmer with longer tails. They have gray-brown backs and whitish breasts. The mockingbird's wings have large white patches that are conspicuous in flight. Their long tails have white outer feathers. The bill is long and black with a slight downward curve.

Voice

Mockingbirds mimic other bird songs, often repeating each several times. Call note is a loud "check."

Habitat

Open areas, forest edges, residential areas, farmlands, roadsides, city parks, open grassy areas with thickets.

Life History

Northern Mockingbirds are well-known for their remarkable ability to imitate the sounds of other bird species. A single mockingbird can have a song repertoire of at least 39 different songs, and 50 or more call notes. They also have the ability to mimic other sounds such as dog barking.

Northern Mockingbirds are omnivores (eating both plants and animals), and their primary food sources are insects (beetles, ants, grasshoppers and spiders), berries (mulberries and grapes) and seeds. Occasionally, they also eat earthworms. During fall and winter, their diet consists primarily of fruit from pokeberry, sumac, poison ivy, and Virginia creeper.

Ecology Link

At the Dike 14 Nature Preserve, Northern Mockingbirds are occasionally threatened by aerial attacks from Cooper's Hawks and Great Horned Owls. While they are nesting, their eggs and chicks are at risk of predation by resident Blue Jays, American Crows, Eastern Garter Snakes and fox squirrels. The seeds of the fruit they eat are dispersed in their droppings throughout the nature preserve.

Web Link

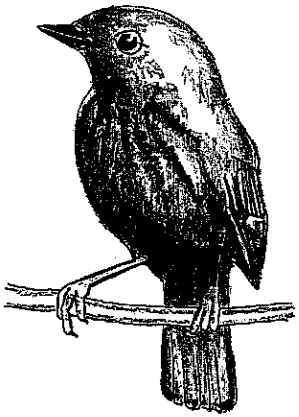
To learn more about a bird's life, search *Wild Bird OMNIBUS* online at http://birdzilla.com/.

Yellow Warbler

Dendroica petechia

Identification

Length: 5" Wingspan: 8"



Yellow Warblers, as their name indicates, are mostly yellow. They have an olive-green tinge to their backs with more darkly tinted wings. Females have an unmarked yellow breast, while males have a yellow breast with many rusty-colored streaks. Their dark eyes stand out prominently against their yellow faces. The bill is blackish in color.

Voice

A rapid, bright "sweet-sweet-sweet, sweeter-than-sweet."

Habitat

Open scrub, thickets, farmlands and gardens - especially near water, and riparian woodlands - especially of willows.

Life History

Yellow Warblers are mostly insectivorous (eat insects), but they occasionally consume berries. They gather insects and spiders off the leaves and limbs of trees and shrubs. This species prefers to eat insect larvae and caterpillars. Yellow Warblers are important predators of insects, especially potential pest species, in the ecosystems in which they live. They may help to disperse fruit seeds in their droppings.

Ecology Link

Yellow Warblers build their nests 2-12 feet above the ground. At the Dike 14 Nature Preserve, their nests are constructed in sandbar and peachleaf willows, but they have also been found two feet above the ground in wildflowers such as Common Mugwort.

Web Link

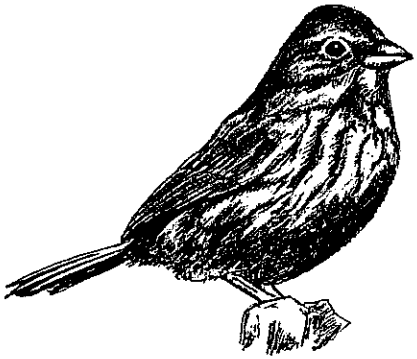
To learn more about these birds, visit the *Cornell Lab of Ornithology* online at www.birds.cornell.edu/.

Song Sparrow

Melospiza melodia

Identification

Length: 6 1/4" Wingspan: 8 1/4"



Both the male and female are similar in size and color. Song Sparrows have heavily streaked feathering, and are easily identified by heavy streaks that form a central chest spot (stick pin). The head has a broad white stripe that runs from the tip of the bill to the side of the neck. Below that stripe is a thicker dark stripe (called a malar), which resembles a moustache.

Voice

The song starts with a series of two to four loud, clear whistles in the same pitch, followed by a buzzy trill. Call note sounds like "chimp."

Habitat

Open brushy habitats, mostly along the borders of ponds or streams, abandoned pastures, thickets or woodland edge.

Birds

Life History

Some of the Song Sparrows found in Ohio are permanent residents, while others breed in Ohio during the summer and then migrate south for the winter. The diet of the Song Sparrow typically consists of seeds, grains, grass, berries, and occasionally, insects.

Ecology Link

At the Dike 14 Nature Preserve, Song Sparrows often stage in large numbers during their spring and fall migrations. Typically, 50-100 individuals can be found in a single day, and occasionally that number can reach over 300 birds. It is the combination of the Dike 14 Nature Preserve's location along the shoreline of Lake Erie, the amount of suitable habitat, and availability of food that attracts them. Plants produce a large amount of seeds that provide Song Sparrows and other seedeaters with a generous supply of food.

Web Link

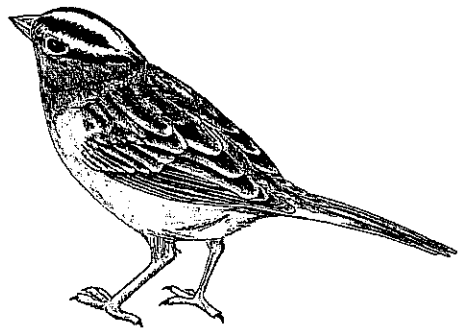
To read about recent bird sightings in Ohio, visit the *OhioBirds listserv archive* online at http://birdingonthe.net/mailinglists/OHIO.html.

White-crowned Sparrow

Zonotrichia leucophrys

Identification

Length: 7" Wingspan: 9 1/2"



Both males and females are similar in appearance. The White-crowned Sparrow has 7 broad stripes on its crown; 4 black and 3 white. They have solid light gray breasts and dark brown backs and wings. This sparrow's wings have two white stripes called "wing bars." The bill can be pink, yellow, or orange in color. The young look like the adults, except their crown stripes are tan and light gray instead of black and white.

Voice

One or two clearly whistled notes followed by three husky notes, "dear-dear buzz buzz buzz." Call note is a hard "pink."

Habitat

Open woodlands, brushy meadows, willow thickets along streams or lakes, parks, farmland.

Life History

About 92% of a White-crowned Sparrow's diet consists of plants. Their small cone-shaped bills allow them to easily crunch seeds, grass, and fruit. During spring, their diet mainly includes insects and seeds. Since White-crowned Sparrows feed mostly on the ground, they need dense vegetation to provide adequate coverage from potential predators, especially from raptors migrating overhead.

Ecology Link

In Ohio, White-crowned Sparrows can be found during spring and fall migrations as well as winter months. The Dike 14 Nature Preserve is considered the premier staging area for this species in the state. Fall concentrations can reach as many as 1,700 individuals in a single day. The extensive amount of open meadows and willow thickets provides a critical place for them to refuel and rest while waiting for ideal weather conditions before continuing on their migration.

Web Link

To learn more about these birds, visit the *Cornell Lab of Ornithology* online at www.birds.cornell.edu/.

Red-winged Blackbird

Agelaius phoeniceus

Identification

Length: 8 1/2" Wingspan: 13"

A male Red-winged Blackbird has a black body, head, tail, and wings. They have bright red shoulder patches (called epaulets) edged with yellowish-orange. A female is streaked with whitish and brownish marks on its body, and it sometimes has a pinkish wash on its chin and throat. Both males and females have sharply pointed dark beaks. Young males and females resemble adult females in coloration.

Voice

Males utter "oak-a-lee"or "kon-ker-ee" in the spring. The common call used by both males and females is a "check" call. Males may utter a whistled "cheer," if alarmed.

Birds

Habitat

Marshes, bushes and small trees along watercourses, and upland cultivated fields.

Life History

For Red-winged Blackbirds, visual displays are an important type of communication, especially during breeding season. Males use visual displays in order to attract females to their territories and to defend their territories and mates. Males fluff their plumage, raise their shoulders to expose their epaulets (shoulder patches), and spread their tails as they sing.

Red-winged Blackbirds often migrate in flocks of a thousand or more, and sometimes assemble in flocks of over one-hundred thousand birds. Such flocks often include other blackbird species. Blackbird flights are often seen in the early morning hours, a phenomenon known as "morning flights." They also roost at night in large gatherings.

Ecology Link

At the Dike 14 Nature Preserve, Red-winged Blackbirds use willow and cottonwood thickets for display and for nest locations. During migration, they use the diverse habitats to rest and refuel before continuing onward. In the spring, they are often seen during morning flights, as they fly at tree top level in flocks made up of 10 to 300 or more birds.

Web Link

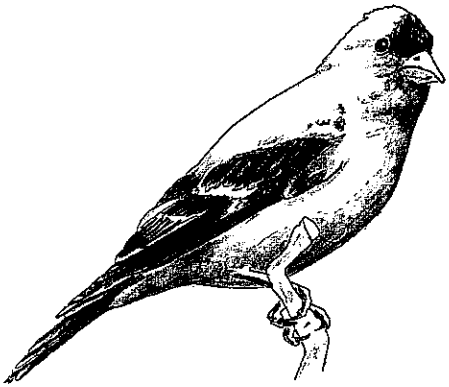
To learn more about these birds, visit the *Cornell Lab of Ornithology* online at www.birds.cornell.edu/.

American Goldfinch

Carduelis tristis

Identification

Length: 5" Wingspan: 9"



Male and female American Goldfinches differ in appearance. The males have bright yellow throats, backs and breasts, jet black tails and wings with two white wing bars. They have a black cap. Females are dull yellow and have blackish-brown wings with two white wing bars. Their bills are a dull orange color, and they have pinkish legs.

Voice

A distinct "per-chick-o-ree" or "potato chip" flight call. Song is series of twitters with the occasional "swee" note thrown in.

Habitat

Weedy fields and flood plains in the breeding range.

Life History

In flight, American Goldfinches "undulate" in a wave-like pattern. They ascend by flapping their wings, and then fold their wings next to their body to descend. During their flight, goldfinches utter their "per-chick-o-ree" call. American Goldfinches often fly in small flocks, and together they have a light, buoyant, bouncy flight.

American Goldfinches consume many different types of seeds from plants including thistles and goldenrods. They also eat seeds from grasses and trees, such as alder, birch, cedar, and elm. Goldfinches are well-adapted to hanging upside-down on seed heads.

Ecology Link

Canada thistle is a common and widespread plant species at the Dike 14 Nature Preserve. American Goldfinches rely on Canada thistles, in addition to other thistle species, as a food source. They also use the fine hairs from thistle seed to line their nests.

Web Link

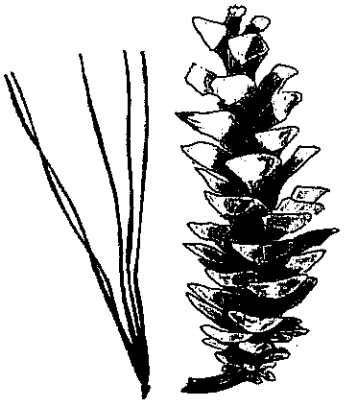
To learn more about these birds, visit the *Cornell Lab of Ornithology* online at www.birds.cornell.edu/.

Eastern White Pine

Pinus strobus

Identification

Eastern White Pines can reach a height of 100-220 feet, with a trunk diameter of 3-4 feet. The tree is conical in shape, and has gray-brown bark that is deeply furrowed with rectangular scaly plates. Needles are long and deep green in color and they are joined in bundles of five. Hint: the word "white" has five letters, just like the number of needles per bundle. The seed cones are 4-8 inches long and cylindrical in shape, and they mature from August to September.



Habitat

Well-drained sandy soils and a cool humid climate.

Life History

The Eastern White Pine is the largest conifer (cone-bearing tree) to occur in the northeast. Their needles last about 2-3 years before they need replacement. Unlike deciduous trees that drop all their leaves in the fall, coniferous trees gradually grow new needles every spring. As a white pine grows, one row of horizontal branches is added per year.

Ecology Link

Eastern White Pines provide food and shelter for many species of birds and mammals. For example, White-tailed Deer and Eastern Cottontails (a species of rabbit) browse on pine needles. Its bark is eaten by a variety of animals, while songbirds and small mammals eat the seeds from the pine cones. At the Dike 14 Nature Preserve, Northern Saw-whet Owls roost overnight in white pines during their spring and fall migrations. Both Northern Saw-whet Owls and Long-eared Owls are winter residents and they frequently roost in white pines during the day.

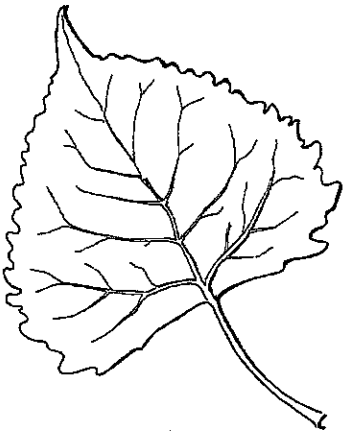
Web Link

To learn more about conifers, visit *Conifers* online at www.conifers.org.

Eastern Cottonwood

Populus deltoides

Identification



Eastern Cottonwoods can reach a height of 100 feet. The bark of larger individuals is deeply grooved. Their leaves are arranged alternately along a branch, and are heart-shaped with jagged "teeth" around the edges. In late spring and early summer, fruit capsules release fluffy seeds resembling cotton into the air. Consequently, the area around them becomes blanketed with the fluffy seeds, making the ground appear to be lightly covered with snow.

Habitat

Moist or wet soils, flood plains, and bottomland hardwood forests.

Life History

Eastern Cottonwoods are one of the fastest growing native trees and they can reach substantial heights in just a few years. They belong to a group of plants called "pioneer species." This means that cottonwoods are the first plants to colonize stream banks, flood plains, and disturbed or newly created man-made areas, like the Dike 14 Nature Preserve.

Trees

Cottonwoods are a valuable natural resource to people. They are planted as shade trees in yards, and are also used to construct particleboard and plywood, boxes, crates, matches and hidden parts of furniture. Native Americans used the cottonwood to make lodge poles and to start fires.

Ecology Link

Cottonwood bark and leaves provide a source of food for a variety of species of wildlife that inhabit the Dike 14 Nature Preserve, including Meadow Voles, Eastern Cottontails (rabbits), and White-tailed Deer. Many different species of birds use cottonwoods for courtship behavior and nesting, or for finding insects on which to feed.

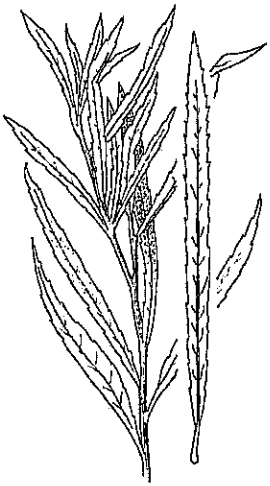
Web Link

To learn more about trees, visit *Ohio's Trees* online at www.dnr.state.oh.us/forestry/education/ohiotrees/ohiotreesintro.htm.

Sandbar Willow

Salix exigua

Identification



Sandbar willows are thicket-forming shrubs. Sometimes small trees can reach 3-20 feet in height. Their bark is smooth and gray in coloration. The leaves are 2-6 inches long 1/4 inch wide and they are arranged alternately along the stem and have widely-spaced small teeth. In the spring, catkins (a drooping cluster of flowers) appear shortly after the leaves.

Habitat

Wet soils, especially mudflats, sandbars or gravel deposits along streams, roadside ditches, and other places frequent to flooding.

Life History

Sandbar willow is a common native shrub that spreads quickly by suckering, which occurs when a new shrub sprouts upward from the root system of an already established shrub. Since they have such a dense network of roots, these willows are often used to control soil erosion along stream banks and lakeshores.

Willow bark contains a substance called salicin which, when ingested by people, becomes salicylic acid, a compound similar to aspirin. Native Americans are thought to have used ground willow bark steeped for tea as a medicinal remedy for everything from pain relief to fevers.

Ecology Link

Sandbar willow provides shelter for a variety of birds and mammals. At the Dike 14 Nature Preserve, songbirds, like Willow Flycatcher and Yellow Warbler, use them for courtship behavior and nesting. Willows are the host plant for a number of species of caterpillars, including Viceroy and Mourning Cloak, both of which are common in the area.

Web Link

For more information on trees, visit *Ohio Trees* online at www.dnr.state.oh.us/forestry/education/ohiotrees/ohiotreesintro.htm.

Box Elder

Acer negundo

Identification

Box elders can reach 30-60 feet in height, and their trunk diameter at maturity is 2 1/2 feet. They are medium-sized deciduous trees, and their trunks usually divide at the base. This tree's brown-gray bark has interwoven ridges and furrows. The young branches are bright green. Their leaves are pinnately compound (having leaflets on each side of the stem) with 3 to 5 leaflets. The fruit has "wings" and hangs in clusters from female box elders. The seeds are sometimes referred to as helicopters.

Habitat

Moist open areas, stream banks and floodplains.

Life History

People have often used this wood for lumber. Box elder's name comes from its former use in building crates, pallets, and boxes. Box elders are fast-growing trees that have a short lifespan of about 30 years. They are related to maples, and are the only species of maple to have compound leaves. Box elders often colonize recently created or disturbed areas that were produced by natural causes (fire, storms, tornado damage) or by man-made causes (landfills, dredge facilities, bulldozing).

Ecology Link

At the Dike 14 Nature Preserve, box elders are commonly found growing alongside willows and cottonwoods. Songbirds often use box elder for courtship, shelter, and nest location. They will also glean insects, spiders and caterpillar larva from the leaves of the box elder.

Web Link

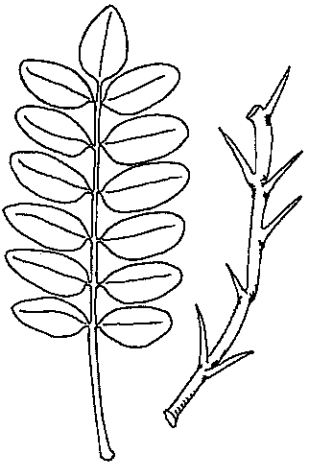
To learn more about plants, visit the *USDA Plant Database* online at http://plants.usda.gov.

Black Locust

Robinia pseudoacacia

Identification

Black Locusts reach a height of 40-100 feet. The bark of a mature tree is dark brown, and deeply furrowed into long, forking ridges. Their leaves are arranged alternately along stems with each leaf composed of 7 to 21 smaller leaflets. Twigs are dark brown, with stout, paired thorns that are 1/4 to 1/2 inches long. Their fragrant flowers are pea-shaped and form showy drooping clusters. They bloom in May and June. After pollination, they form dark brown fruit pods that are 2-4 inches long and contain 4-8 seeds.



Habitat

Disturbed areas such as old fields, cleared woods, and roadsides.

Life History

Black Locusts are native to the southeastern United States, southern Illinois, Indiana, Missouri, and the lower slopes of the Appalachian Mountains. They are not native to Ohio. Black Locusts grow rapidly and have a relatively short lifespan. Once they colonize an area, they spread quickly by a process called "suckering," which occurs when a young tree sprouts upward from the root system of an established tree. When Black Locusts populate an open meadow or prairie habitat, their shade reduces the sunlight available to plants growing underneath. Eventually, Black Locusts can take over native prairies and open meadows. Therefore, it is considered to be an invasive species.

Ecology Link

Black Locust is often planted for soil erosion control, and as an ornamental plant. Native Americans made bows out of the wood, and early colonists used its durable timber for home construction. At the Dike 14 Nature Preserve, Black Locusts provide a food source for many kinds of insects such as honeybees and butterflies. The insects drawn to their showy flower clusters are often eaten by songbirds.

Web Link

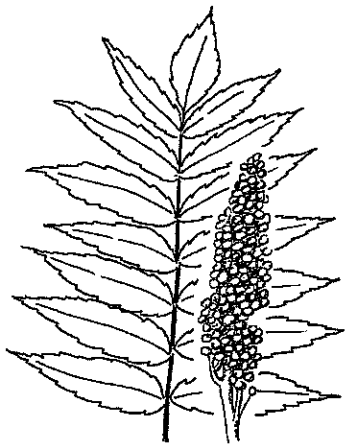
For more information on invasive species, visit *Invasive Species* online at www.invasive.org/.

Staghorn Sumac

Rhus typhina

Identification

Staghorn Sumacs usually grow to 15 feet high, but under favorable conditions, they can reach 35 feet. Their bark is darkish brown in color and has a smooth or slightly scaly appearance. This species has compound leaves that can grow 12 to 24 inches long and each leaf has 2 to 5 inch long leaflets. The edge of its leaves is saw-toothed. They have red, berry-like fruits that grow in erect, cone-shaped clusters at the tips of branches.



Habitat

Open uplands, edges of forests, roadsides, and old fields.

Life History

The name "staghorn" comes from the appearance of this sumac's bare twigs in the winter, which resemble velvety deer antlers (a stag is a male deer). Staghorn Sumac belongs to the cashew family, which also includes poison ivy, poison oak, and poison sumac. This species spreads by growing horizontal roots called rhizomes, which can form both above and below ground. These roots ultimately extend new sprouts upward that grow to be new sumac plants. As colonies of sumac expand outward, older plants are found in the center, and younger ones surround the colony.

Sumac is a valuable natural resource for people. Sumac bark and foliage contains a substance called tannin, which was once used to tan leather. The mature berries can be brewed to make a drink similar in taste to pink lemonade.

Ecology Link

At the Dike 14 Nature Preserve, the fruit of Staghorn Sumac provides a food source for songbirds and animals, especially during the winter months. American Robins are often found foraging on sumac fruit clusters. Mice and voles feed on fallen seeds.

Web Link

For more information on poison ivy, oak, and sumac, visit http://poisonivy.aesir.com/ online.

Common Mugwort

Artemisia vulgaris

Identification

Common Mugwort reaches a height of 6 feet. Their leaves are arranged alternately along the stem, and are 4 inches long and deeply lobed. The underside of mugwort leaves have whitish, woolly hairs that cover the surface. In late summer, their greenish-yellow flowers bloom in clusters towards the top of the plant. Young mugwort can be confused with ragweed, which has more finely cut leaves.

Habitat

Disturbed areas, along roadsides, and in natural areas.

Life History

Common Mugwort is not originally from North America, and therefore is classified as a non-native species. It arrived from Eurasia, and is now found throughout the eastern United States. The name "mugwort" comes from its use as a malt to flavor drinks. When mugwort colonizes an area, it spreads by growing horizontal roots above or below ground called rhizomes. New plants are formed by sprouting upward from these rhizomes. Once introduced into a field habitat, mugwort is difficult to control because of its persistent rhizome production. Since mugwort rapidly spreads or "invades" into areas with native flora, it is often referred to as an invasive species.

Ecology Link

At the Dike 14 Nature Preserve, songbirds and animals find shelter within mugwort's dense foliage. In winter, mugwort stems remain intact providing additional coverage for wildlife. Some songbirds, like Yellow Warbler, build their nests in mugwort. Certain species of seed-eating birds, like Song Sparrow, may consume mugwort seeds.

Web Link

For more information on invasive species, visit *Invasive Species* at www.invasive.org/.

Poison Hemlock

Conium maculatum

Identification

Deadly poisonous! Poison Hemlock reaches a height of 2-6 feet. Look for purple streaking on their stems. Their dark-green leaves are fern-like in appearance, and are attached oppositely around the stem. They have tiny, white flowers with 5 petals that form a wide, umbrella-like structure (called an umbrel) at the top of the stem. It blooms in late spring and summer.

Habitat

Moist fields, riparian woodlands, open floodplains, and waste grounds.

Life History

Poison Hemlock is a highly poisionous weed found throughout much of the world; however, it is not native to North America. Historically, it is well-known as the source of deadly poison used to kill the Greek philosopher Socrates. Also, Native Americans used hemlock extracts to make poison arrows.

When Poison Hemlock first becomes established in an area, it may act as a pioneer species. This means that it is one of the first plant species to arrive in a disturbed landscape, such as a landfill or bulldozed area. As they quickly colonize these areas, Poison Hemlock often displaces native plants. For this reason, this plant is classified as an invasive species.

Ecology Link

At the Dike 14 Nature Preserve, Poison Hemlock has begun to invade open meadows, particularly in the westernmost section. However, hemlock colonies also have a positive impact on the environment by providing dense coverage for small animals and songbirds.

Web Link

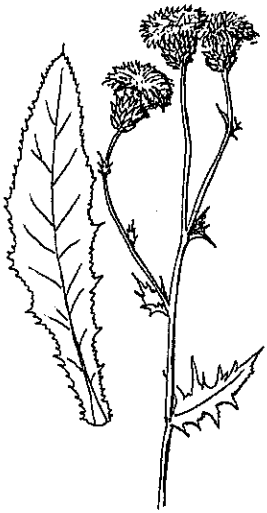
For more information on invasive species, visit *Invasive Species* online at www.invasive.org/.

Canada Thistle

Cirsium arvense

Identification

Canada thistle reaches a height of 1 to 5 feet. Their leaves are arranged alternately around the stem, and are stalkless and deeply lobed. The leaves also have yellowish spines along their margins. Each of its purple flowers consists of a disk of many small petals. A key field mark is the numerous clusters of small purple flowers. Flowers bloom from mid-June into September.



Habitat

Open, moist areas, including fields, open meadows, pastures, roadsides, railroad embankments and waste places.

Life History

Canada thistle's name is misleading given the fact that it is native to southeastern Europe and the eastern Mediterranean area, but not native to the United States or Canada. Canada thistle has a negative impact on the environment. Native plant communities, such as prairies and fields, are threatened by this species of thistle. As Canada thistle establishes itself in an area, it crowds out and replaces native plants. This changes the structure and species composition of natural plant communities and can reduce plant and animal diversity.

Ecology Link

At the Dike 14 Nature Preserve, American Goldfinches feed on the seeds produced by Canada thistle. Goldfinches begin nesting in mid-July, later than most birds. The finches wait for thistles to produce seeds before breeding, since they use the long hair of the seeds to line their nests. Canada thistle is also considered a good source of pollen and nectar for honeybees at the Dike 14 Nature Preserve.

Web Link

For more information on invasive species, visit *Invasive Species* online at www.invasive.org/.

Common Milkweed

Asclepias syriaca

Identification

Common Milkweed reaches a height of 2-6 feet tall. It has stout stems covered with short fine hairs, and when cut releases a milky substance. The large leaves are arranged oppositely around the stem, and they can reach 4 inches wide and 8 inches long. They are covered with fine white hairs, especially below. This milkweed's flowers are fragrant and form a half-circle cluster at the top of the stem. Each pink flower has 5 downward petals and a 5-part crown. Flowers bloom from June through August. Their large seed pods have a warty surface, and are covered with a tuft of silky hairs.

Habitat

Native prairies, roadsides and most other open habitats.

Life History

Common Milkweed produces chemicals known as cardiac glycosides. When Monarch Butterfly caterpillars ingest these chemicals, they become toxic to predatory species that feed on them, especially birds. Domestic livestock have been poisoned after consuming milkweed plants.

There are two ways in which a common milkweed plant spreads itself. The first method involves the pollination of its flower, followed by the dispersal of seeds by wind and animals. The second method occurs just above or below ground. When milkweed colonizes an area, it spreads by growing horizontal roots called rhizomes. New milkweed plants are formed by sprouting upward from these rhizomes.

Ecology Link

Milkweed is the only source of food for Monarch Butterfly caterpillars. At the Dike 14 Nature Preserve, both Common Milkweed and Swamp Milkweed are available for Monarchs, Milkweed Beetles, Milkweed bugs and other insects.

Web Link

For more information on plants, visit *Ohio Perennial and Biennial Weed Guide* online at www.oardc.ohio-state.edu/weedguide/.

Giant Goldenrod

Solidago gigantea

Identification

Giant goldenrod towers high above open meadows, as it reaches a height of 8 feet. Its leaves are arranged alternately around the stem, and are pointed at the tip and tapered at the base. The leaves are also sharply toothed, rough above, hairy below, and have 3 veins, with 2 distinct veins that run parallel to the middle vein (also called midrib). Their stem is smooth and is usually covered with a whitish powder. The flowers are yellow and arch outward to form a pyramid cluster on top of the stem. Flowers bloom from August to November.

Habitat

Thickets, roadsides, moist woods, wet prairies and along rivers and streams.

Life History

Goldenrods signal the coming of fall, as fields and open meadows burst into bright gold coloration. Most goldenrod species are native to North America. Some people believe that goldenrods cause sneezing and hay fever, but they do not. A native plant called ragweed is usually the culprit. Goldenrods attract insects, which in turn, pollinate goldenrods. Therefore, its pollen is never airborne and does not have a chance to cause allergies.

Ecology Link

Many different insects can be found on goldenrod flowers, including Tree-Hoppers, Goldenrod Beetles, ants, and butterflies. At the Dike 14 Nature Preserve, praying mantises are found on goldenrods in mid-October.

Web Link

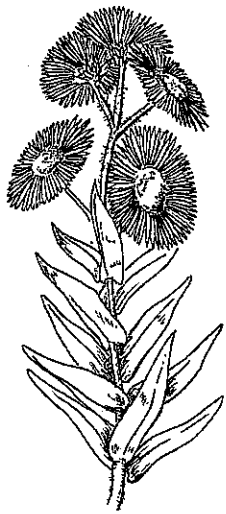
For more information on prairie plants, visit *Northern Prairie Wildlife Research Center* online at www.npwrc.usgs.gov.

New England Aster

Aster novae-angliae

Identification

New England aster is a showy wildflower that grows 3-7 feet high. Its narrow, pointy leaves are lance-shaped and clasp the stem at its base. The stem has fine hairs. This aster has deep violet flower that consists of a "ray" of 45-100 thin petals. At the center of the ray is a bright yellow disc. Their flowers may range in color from white to pink to deep violet, and bloom from late July through October.



Habitat

Thickets, meadows, old fields, wet places, and moist open woods.

Life History

In Greek, the name Aster means "star," and with its showy array of petals, it is not difficult to understand why. Asters are typically associated with autumn and this is the season when their flowers bloom in all their splendid beauty. Asters are often found in colonies. When land is recently disturbed, asters are one of the first plant species to establish themselves. Over time, they gradually disappear from the area only to be replaced by other plant species. Aster seeds are carried away by wind, or animals, to colonize near and distant places.

Ecology Link

At the Dike 14 Nature Preserve, asters comprise one of the many plant species that thrive in the open meadows. New England asters grow alongside other plant species, including common mugwort, giant goldenrod, tall nettle, and Canada thistle. In winter, their dried stalks remain standing along with other wildflower species such as common mugwort. This provides shelter and cover for birds and small animals spending the winter at the Dike 14 Nature Preserve.

Web Link

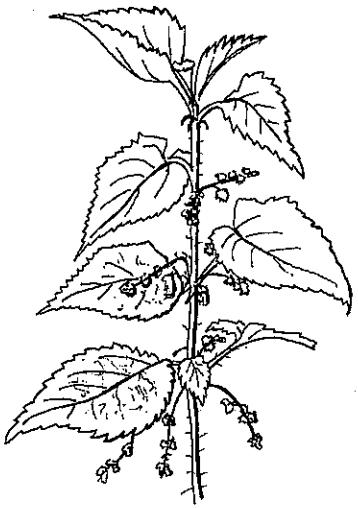
To learn more about plants, visit *USDA Plant Database* online at http://plants.usda.gov/.

Stinging Nettle

Urtica dioica var. *procera*

Identification

Stinging nettle reaches a height of 2-9 feet, and is sometimes called "tall nettle." Its stem is square and covered with many bristly stinging hairs. This nettle's leaves are arranged oppositely along the stem, and are heart-shaped and coarsely toothed. They have green flowers that form clusters, and are joined to the stem at the point where the leaves attach (at the axis).



Habitat

Damp, nutrient-rich soils of thickets, open meadows, waste places, flood plains, stream banks, and along the edges of fields and woodlands.

Life History

The genus *Urtica* comes from the Latin word uro which means "I burn." The fine hairs on the stem of a stinging nettle plant contain a chemical that causes a skin irritation if touched. Stinging nettle is often found in dense colonies. It spreads by developing an underground system of specialized roots called rhizomes. New plants sprout from these rhizomes. Once stinging nettle becomes established in an area, they form dense colonies that prevent other plants species from entering the area.

Ecology Link

At the Dike 14 Nature Preserve, stinging nettle grows in dense colonies under willow thickets. It is the host plant for caterpillars such as Red Admiral, Question Mark and Comma. Consequently, the adult butterflies are often seen flying around the willows.

Web Link

For more information on plants, visit *the Ohio Perennial and Biennial Weed Guide* online at www.oardc.ohio-state.edu/weedguide/.

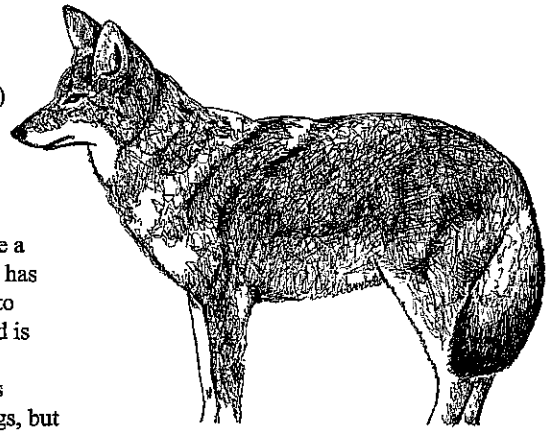
Coyote

Canis latrans

Identification

Length: 41-52"

Weight: 20-40 lbs (or more)



A coyote's fur coloration varies from grayish brown to yellowish gray on the upper parts. Their throats and bellies are whitish. Their forelegs have a dark vertical line, and their tail has a black tip. The scat is similar to dogs, but it usually has hair and is deposited on the paths they routinely use. A coyote's tracks resemble those of domestic dogs, but they typically form a straight line. Their prints include 4 toes that show the claws.

Fore

Hind

Habitat

Grassland, shrubland/scrubland, forest and urban settings.

Life History

Scat

Coyotes are mainly crepuscular (active during early morning and late evening) and nocturnal (active at night), though they are occasionally observed during daylight hours in some areas. Adults travel an average of up to 12 miles every day, can leap 14 feet high, and normally run 20-30 mph. They are opportunistic feeders (eating whatever they can find), but they mainly feed on carrion (dead meat), small mammals and birds, and invertebrates (insects, caterpillars, etc). Occasionally, coyotes feed on plant vegetation.

Coyotes mate in late winter, and use a den to raise young. Their gestation (pregnancy) period lasts 60-65 days, and young are born from March through May. Their average litter size ranges from 4 to 7 pups. Both parents tend to the young. A coyote family leaves the den when pups reach 8-10 weeks old, and the young are on their own by late fall.

Ecology Link

At the Dike 14 Nature Preserve, a coyote can prey on meadow voles, eastern cottontails, fox squirrels, small birds and white-tailed deer.

Web Link

For more information on coyotes and other animals, visit *NatureServe Explorer* online at www.natureserve.org./explorer/.

Red Fox

Vulpes vulpes

Identification

Length: 36-40"

Weight: 7-15 lbs

A red fox looks similar to a small domestic dog. They have rusty-reddish fur on their backs, sides and heads, and white fur on their bellies, chins and throats. Their long, bushy tails have a white tip. A fox's ears are black and pointy, and their legs and feet are also black. Scat is small and narrow and usually sharply tapered at one end. It also has a distinct skunk-like smell. Red fox tracks form a straight line like a domestic cat. The claws may show in the tracts.

Fore

Hind

Habitat

Brushy and wooded areas, prairies and farmlands.

Life History

Red fox are generally shy and primarily nocturnal (active at night), though they sometimes venture out during the day. Their life cycle begins during the mating season from January through March. The female will make one or more dens to raise young fox, which are called kits. The female establishes the den site for the young in late winter, but both parents live together while raising the young. Foxes either dig their own dens or use those of other burrowing animals. Sometimes two litters may occupy one den. After 51 to 53 days, the female will give birth to 1 to 10 kits. The male brings the female and kits' food to the den. The kits leave their mother after about four months.

Scat

Ecology Link

At the Dike 14 Nature Preserve, the red fox will eat birds and small animals like Meadow Vole, Fox Squirrel, and Eastern Cottontail. It also feeds on insects such as crickets, grasshoppers, caterpillars and beetles, as well as fruit and berries.

Web Link

For more information on red foxes, visit *The Urban Fox Home Page* online at www.foxes.org./urbanfox/.

Mink

Mustela vison

Identification

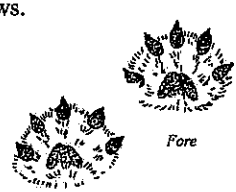
Length: 19-28"

Weight: 1 1/2 - 3 1/2 lbs

The mink has an elongated body with chocolate brown fur. They have white spotting on their chins and throats. The mink has small, rounded ears, a long tail, and relatively short legs. Each foot has five toes. The scat is dark brown, 5-6 inches long, sometimes segmented, often with pieces of fur and bone. Minks deposit scat on rocks, logs, and around dens. Their tracks may show all 5 slightly webbed toes, as well as the retractable claws.

Habitat

Rivers, creeks, lakes, ponds, and marshes, especially those with areas of brushy or rocky cover.



Fore

Hind

Life History

The life cycle of a mink begins when they mate during the winter months. After 40 to 75 days, young are born in early spring (April or May). Their litter size varies from 1 to 8 individuals. The young are raised in a den and remain with their mother until fall when they disperse and establish their own territories.

Mink are considered an environmental indicator, which means they will not tolerate places where contamination or pollution levels are high, especially those that contain mercury and hydrocarbon compounds like DDT (an insecticide that is now banned in the United States).

Ecology Link

Minks are important predators of small mammals. At the Dike 14 Nature Preserve, minks prey on Meadow Voles, Eastern Cottontails, Brown Snakes, and occasionally birds. Their main predators are red fox and Great Horned Owls.

Web Link

For more information on minks and other mammals, visit *Animal Diversity Web* online at http://animaldiversity.ummz.umich.edu/site/index.html.

Meadow Vole

Microtus pennsylvanicus

Identification

Length: 5 1/2 - 7 3/4"

Weight: 3/4 - 2 1/2 oz

Also known as "field mouse," Meadow Voles have short, brown fur tipped with silver. Their stomach is gray or silver in coloration. The Meadow Vole's head is short and rounded with very small eyes, and their ears are hidden by fur. Meadow Vole foot tracks show hindprints with 5 toes, and foreprints with 4 toes. While the tracks of Meadow Voles are difficult to see, they create tunnels, or "runs" beneath the snow or in grass that are easier to observe.

Habitat

Grasslands, old fields, shrublands, and woods with open areas.

Vole run

Life History

Meadow Voles build an extensive network of tunnels. They nest in these tunnels, as well as under rocks or logs, and in self-constructed clumps of grass. Meadow Voles breed throughout the year, including winter if snow provides an insulating layer. Their peak breeding activity occurs from April through October. Young are born 21 days after mating, and their litter size varies from 1 to 9 (average 4 or 5) individuals. They can have 5 to 10 litters per year.

Ecology Link

Meadow Voles are herbivorous, which means their diet consists of vegetation, such as grasses, roots and other plants. Dike 14 Nature Preserve provides Meadow Voles with a generous supply of plants for food consumption. And since the ecological conditions are so favorable for Meadow Voles, it is common to find them running about in the open meadows. Also, Meadows Voles are an important food source for predatory species like mink, red fox, and Short-eared, Long-eared and Northern Saw-whet Owls.

Web Link

For more information on Meadow Voles and other rodents, visit *NatureServe Explorer* online at www.natureserve.org./explorer/.

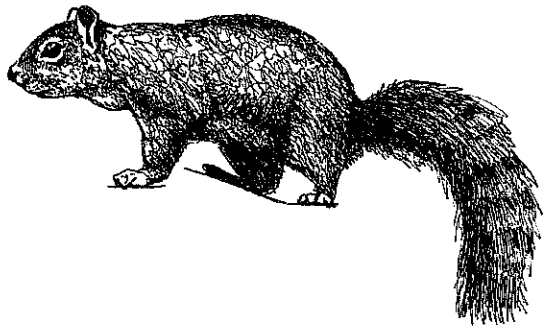
Fox Squirrel

Sciurus niger

Identification

Length: 19-29"

Weight: 17-37 oz



Fox squirrels have grayish fur highlighted with rusty yellow. Their belly, feet, and face are solid orange or yellow. This squirrel has a long, bushy tail mixed with black and dull orange-colored fur. The eyes are large and black and stand out against their light-colored head. When alarmed, fox squirrels often chatter.

Habitat

Wooded parks, mixed forest, pine forest and forest edge.

Hind

Fore

Life History

Fox squirrels forage mostly on the ground. During autumn, squirrels bury nuts in individual caches (hidden storage places) for winter consumption. They play an important role in planting trees. While squirrels are only able to relocate some of the nuts they have buried, the rest are left behind to develop into trees.

Tracks

For nesting and lodging, fox squirrels prefer hollow trees. If there are no such vacancies available, they will build "leaf" nests within the canopy of a tree. These nests are composed of twigs and leaves that are usually cut from the tree in which the nest is built, and the structures are roughly spherical in shape.

Squirrels use their long bushy tails for several purposes. It is used for balancing themselves as they climb from branch to branch, and for wrapping around their body to keep warm. When alarmed, they will often quickly jerk their tail.

Ecology Link

At the Dike 14 Nature Preserve, the main predators of the fox squirrel are red fox, coyote, and Great Horned Owls.

Web Link

For more information on fox squirrels and other mammals, visit *Animal Diversity Web* online at http://animaldiversity.ummz.umich.edu/site/index.html.

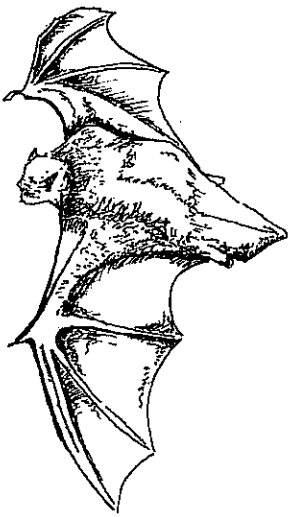
Red Bat

Lasiurus borealis

Identification

Length: 3 3/4 - 5"

Weight: 3/8 - 1/2 oz



The red bat is a medium-sized bat with long, pointed wings. Their color varies from bright orange-red to yellow-brown, with males usually being the more vibrant shade of orange-red. The fur of both male and female is frosted white on both the back and breast. This bat is easily recognized by its coloration, long tail and the furry part of the wing near the legs.

Habitat

A red bat hangs around in foliage, typically 4 to 20 feet high. It prefers forested areas, wooded hedgerows or forest edges.

Life History

In the daytime, red bats roost in the foliage of trees (especially elm trees), grapevine tangles, or tall shrubs. Hanging in vegetation by one foot, a red bat looks just like a dead leaf. They become active early in the evening, and forage over the same areas nightly. Red bats are considered to be highly migratory, sometimes even flying with birds in the evening while migrating to a warmer geographic location. Red bats are solitary roosting bats, only roosting with other bats when the females have young ones.

A red bat is an insectivore, feeding on flying insects, often moths within forested areas. They generally forage near the forest canopy at or above treetop level, and along streams and lake margins. In some suburban settings, this bat forages around lights.

EcologyLink

Red bats are more vulnerable to birds and other predators because they roost in tree foliage. At the Dike 14 Nature Preserve, Blue Jays and raptors are potential predators to roosting red bats.

Web Link

For more information on bats, visit *Bat Conservation International* online at http://batcon.org.

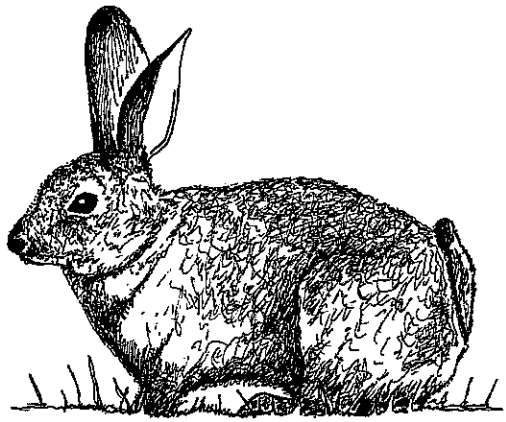
Eastern Cottontail

Sylvilagus floridanus

Identification

Length: 14-18"

Weight: 2-4 lbs



An Eastern Cottontail has grayish-brown fur above, and whitish fur on its underside. Its rump and sides are gray, and its feet are whitish. Cottontails have a prominent rust-colored patch on the nape and forelegs. When running, they display the white underside of their short, cotton-like tail. They have distinctly large eyes for their size.

Habitat

Hind

Fore

Edge environments between woody vegetation and open land, meadows, orchards, farmlands, hedgerows and areas with shrubs, vines and low deciduous trees.

Life History

Tracks

Eastern Cottontails are solitary and tend to be intolerant of each other. They have a keen sense of sight, smell and hearing. They are crepuscular (active during early morning and late evening) and nocturnal, and are active all winter. During daylight hours, cottontails retreat into a hollow, under a log, or in a thicket or brush pile. They are fast runners and can reach speeds up to 18 miles per hour. Most Eastern Cottontails do not survive beyond their third year.

The Eastern Cottontail is an herbivore, meaning it eats plants. In summer, their diet consists of grasses and herbs, wild strawberry, clover and garden vegetables. In winter, they consume seedlings, twigs, dogwood, sumac, maple and birch. Their foraging activity usually peaks about 2 to 3 hours after dawn and the hour after sunset.

Droppings

Ecology Link

At the Dike 14 Nature Preserve, predators of Eastern Cottontails include hawks, Great Horned Owl, red fox, and coyote.

Web Link

For more information on rabbits and other wildlife, visit *NatureServe Explorer* online at www.natureserve.org./explorer/.

Striped Skunk

Mephitis mephitis

Identification

Length: 20-31"

Weight: 6-14 lbs

Striped skunks have a black body with two broad white stripes that run down the length of their backs then meet together at the head and shoulders. They have a single white strip on the center of the face. The ears and eyes are small. These skunks have a bushy tail that is often tipped with white.

Habitat

Mixed woodlands, open areas, shrubland/ scrubland and farmlands.

Life History

When threatened, a striped skunk raises its tail and secretes a foul-smelling chemical from its anal glands. The spray can reach up to 15 feet away and is usually aimed at the face of the threatening animal. Most predators avoid skunks because of their tendency to spray attackers. However, Great Horned Owls are able to sneak attack a striped skunk from above, and thus avoid being sprayed.

Fore

Hind

A striped skunk is omnivorous, which means its diet consists of both plant and animal foods. A skunk often consumes field mice, fruits, birds and birds' eggs. They are excellent rodent catchers, and nearly half of their summer diet is composed of insects. Striped skunks are mostly crepuscular (active at dusk and dawn) and nocturnal. Sometimes they are active during daytime. Skunks do not hibernate, but they may be dormant during extended periods of cold snowy weather. Skunks are excellent diggers. Small pits dug in the ground indicate a striped skunk has been foraging for food.

Ecology Link

At the Dike 14 Nature Preserve, striped skunks are found in the grasslands, open meadows, and willow thickets. Their main predator is the Great Horned Owl, which has been found there in the past.

Web Link

For more information on skunks and other animals, visit *Animal Diversity Web* online at http://animaldiversity.ummz.umich.edu/site/index.html.

White-tailed Deer

Odocoileus virginianus

Identification

Length: 4-6'

Weight: 200-300 lbs (male)
150-250 lbs (female)

In spring and summer, a white-tailed deer's fur is reddish tan. In winter, its coat is more grayish. It has white fur located in a band behind the nose, in circles around the eyes, and inside the ears. These deer also have white over the chin and throat and on the upper insides of the legs and beneath the tail. Males have antlers which are shed from January to March and grow out again in April or May. At birth, fawns have white spots.

Habitat

Various habitats from forests to fields with adjacent cover.

Hoof

Life History

White-tailed deer have good eyesight and acute hearing, but they are mainly dependent on their sense of smell to detect danger. They wave their tails from side to side when they are startled and fleeing away. These deer are extremely agile and may reach speeds of 30 miles per hour. White-tailed deer are also good swimmers and often enter large streams and lakes to visit islands or to escape predators or insects.

Scat

White-tailed deer feed on a variety of vegetation, including buds and twigs of maple, sassafras, and birch, as well as many shrubs. They are mainly crepuscular, feeding from before dawn until several hours after, and again from late afternoon until dusk.

Ecology Link

At the Dike 14 Nature Preserve, the main predator of white-tailed deer is coyote. Because of the Preserve's dense willow thickets, deer are rarely seen. Most evidence of their occurrence comes from deer tracks, scat, and nibbled vegetation.

Web Link

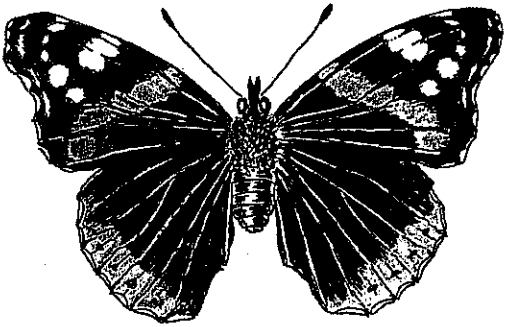
For more information on white-tailed deer and other animals, visit *Animal Diversity Web* online at http://animaldiversity.ummz.umich.edu/site/index.html.

Red Admiral

Vanessa atalanta

Identification

Length: 2 1/4 - 3"



A Red Admiral has a black hindwing edged with a broad, reddish-orange band. The forewing has a reddish-orange diagonal stripe in the middle, and white markings near the tip (called the apex). It is difficult to mistake this species of butterfly with any other species.

Habitat

Moist environments such as marshes, woods, fields and yards.

Life History

Red Admirals are tame butterflies that sometimes land on people. However, male red admirals are not so kind. In fact, they are quite aggressive toward one another. As a male patrols its territorial boundaries, it keeps an eye out for unwelcome males. If a wandering butterfly enters its territory, the male will attempt to drive the intruder out by aggressively flying at it and maneuvering the trespasser away.

In flight, Red Admirals tend to be restless and quick, rapidly changing flight direction. They can be found from March through October. Red Admirals are most active during spring and autumn, which coincides with their breeding season and their migration. Indeed, a portion of red admirals migrate through Ohio. Those individuals that choose to stay and endure the bitter cold temperatures of the winter months will hibernate.

Ecology Link

Red Admiral caterpillars tend to eat Stinging Nettle and common hop, both of which are found as part of the local flora at the Dike 14 Nature Preserve. In addition, they consume bird droppings, fermenting fruits, sap from trees, and nectar from flowers, such as Common Milkweed and New England aster.

Web Link

Visit http://butterflygardeningandconservation.com/ for more information on butterflies.

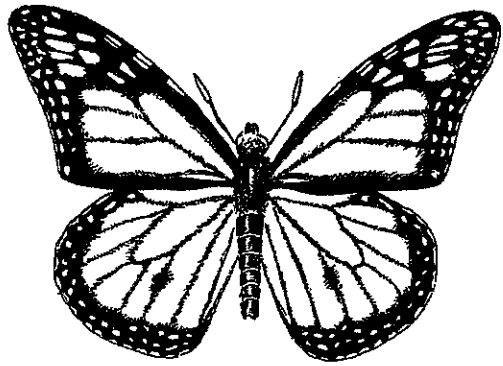
Monarch

Danaus plexippus

Identification

Length: 3 1/2 - 5"

Overall, Monarchs are bright orange with dark black markings. Their wings have black borders and black veins, like those of a leaf. Females have thicker veins than males. The black border of their wings has a double row of white spots. Male Monarchs also have a swollen patch along the vein closest to the body on both hind wings.



Habitat

Sand dune, grassland, old field, shrubland, and hardwood and coniferous forests.

Life History

Monarch caterpillars only eat milkweed plants, and for this reason, they are sometimes called the "milkweed butterfly." The female will lay her eggs on the underside of milkweed leaves. Once the larvae hatch, in 3 to 12 days, they feed on the leaves for about two weeks. These larvae develop into caterpillars about 2 inches long. Their bodies are decorated with alternating black, white and yellow stripes.

The Monarch butterfly has developed a clever strategy to avoid being eaten. Milkweed plants contain a toxin that is not harmful to Monarch caterpillars, but is toxic to many kinds of insects and animals. In both the caterpillar and adult stage, Monarchs are poisonous to eat, and most predators have learned this. The adult Monarch further protects itself from predators through its coloration. In nature, orange is a warning color, and it cautions predators that monarchs are poisonous and should not be eaten.

Ecology Link

During their migration along Lake Erie's shoreline, Monarchs depend on coastal habitat for food, shelter, and rest. Monarchs stage during the fall at the Dike 14 Nature Preserve and feed on a variety of native plants such as Late-flowering Thoroughwort and Swamp Milkweed.

Web Link

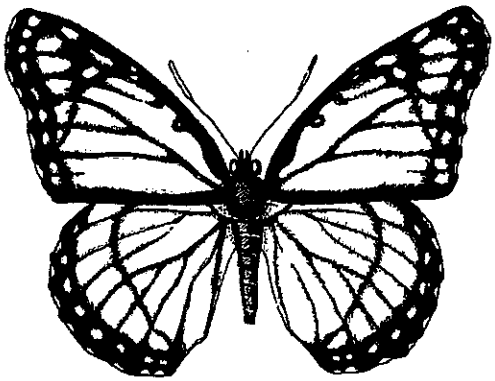
For more information on Monarch butterflies, visit http://monarchwatch.org.

Viceroy

Basilarchia archippus

Identification

Length: 2 1/2 - 3 1/4"



A viceroy resembles a Monarch butterfly. It is mostly orange, and its wings have black borders and black veins. A viceroy differs from a Monarch in two ways. The most obvious difference is that a viceroy has a thick black line across the hindwing. It also has a single row of white dots in the black band along the edge of the wings. They are found from May through September.

Habitat

Moist open or shrubby areas such as lake and swamp edges, willow thickets, valley bottoms, wet meadows, and roadsides.

Life History

In nature, viceroys are found in four different stages: eggs, caterpillar, pupae, and adult. During these four different stages of life, they have developed four different ways to protect themselves from predators. First, the eggs are concealed in a structure that resembles an insect gall, which is a swelling of plant tissue around a stem or leaf caused by insects. Second, a caterpillar looks like a bird dropping, which will discourage most predators from eating them. Third, pupae blend into their environment and are almost invisible to predators, like chameleons blending into their surroundings. Fourth, the adult viceroy mimics the coloration and pattern of an adult monarch butterfly. Since most birds have learned that monarchs are poisonous if eaten, they will also avoid eating viceroys.

Ecology Link

At the Dike 14 Nature Preserve, the main hosts of viceroy caterpillars are sandbar willow and eastern cottonwood, both of which are abundant. Adult viceroy typically feed on the nectar of flowering plants, such as New England aster, Canada thistle, and giant goldenrod.

Web Link

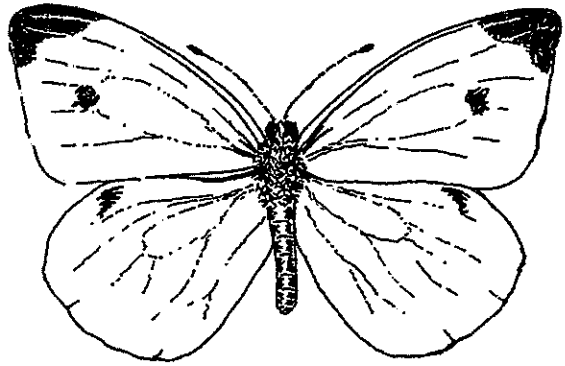
Visit http://butterflygardeningandconservation.com/ for more information on butterflies.

Cabbage White

Pieris rapae

Identification

Length: 1 1/4 - 2"



The Cabbage White is a white butterfly with a black body. When they hold their wings open, the males show one rounded black spot on the forewing, while females show two. Their forewings have black tips and a dusting of black near the body. In Ohio, they are active from April through November.

Habitat

Any open area including gardens, old fields, and the edge of roads and trails.

Life History

Cabbage Whites are the most common and widespread butterfly in the United States. They may become very abundant in some areas with hundreds and even thousands of individuals flying at one time. Cabbage Whites are not native to the U.S. They were introduced from Europe in 1860.

Cabbage Whites often fly high above the ground with a strong but swerving flight pattern.

While foraging, adult butterflies feed on flower nectar from a large variety of plant species including mustards, dandelion, red clover, asters, and mint.

Ecology Link

At the Dike 14 Nature Preserve, widespread areas of open meadows offer abundant habitat for Cabbage Whites. Within these meadows, insect-eating (insectivorous) birds occasionally devour Cabbage Whites. In the autumn, wildflowers like New England aster provide an important food source for them.

Web Link

For more information on invasive species, visit *Invasive Species* online at www.invasive.org/.

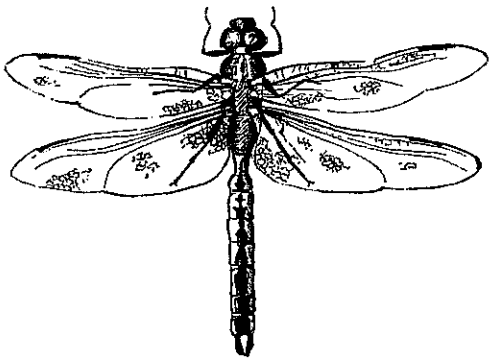
Green Darner

Anax junius

Identification

Length: 3"

Wingspan: 3 1/2 - 4"



The Green Darner has a bright green thorax (middle body section), green eyes, bull's-eye mark on the forehead and two sets of clear wings. A male has a bright blue upper abdomen (tail section behind wings), while the female's abdomen is dull red. A female's wings can have a yellow tint.

Habitat

Ponds, streams and wetlands, as well as fields and open meadows during migration.

Life History

The life of a dragonfly begins underwater. A dragonfly lays it eggs in or above water; the eggs eventually transform into aquatic nymphs underwater. Most of a dragonfly's life is spent underwater in the nymph stage, which may last from one month to three years.

Once nymphs reach maturity and are ready to emerge into adults, they climb onto plants or stones near the water's edge. Next, their exoskeleton (outer body armor) splits at the thorax and the adult dragonfly slowly extracts itself.

Green Darners are common and widespread, and they are one of the fastest and biggest of the dragonflies in North America. They are migratory, commonly observed from late April to early September. Green Darners are typically found during their fall migration at the Dike 14 Nature Preserve. They are often seen patrolling fields some distance away from water.

Ecology Link

Green Darners eat midges, mosquitoes and other insects. During the summer months, thousands of midges (winged insects) appear along Lake Erie's coast, providing a bountiful feast for dragonflies and other insectivores (insect-eaters) at the Dike 14 Nature Preserve.

Web Link

To learn more about Ohio dragonflies, visit *North Coast Odonata* online at www.ohioodonata.com/.

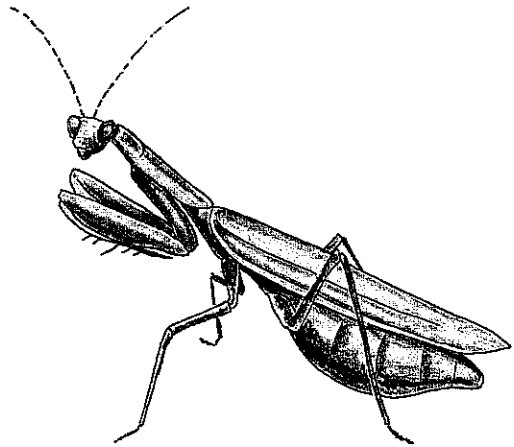
Chinese Praying Mantis

Tenodera aridifolia sinensis

Identification

Length: 2 - 6"

Praying mantises have long, narrow green or tan bodies. The head is shaped like triangle, and it has a large green, compound eye on each side. The two front legs are thicker than the others. Mantises have wings, and long antennae.



Habitat

Brushy fields, open meadows and gardens.

Life History

Praying mantises are the only insects that can turn their heads from side to side in a full 180-degree angle. They are carnivorous insects that hold their front forelegs up together in a posture that looks like praying. Their front legs have rows of sharp spines used to grasp their prey. As a praying mantis waits to catch passing insects, it remains motionless, and its camouflage makes it almost invisible. When unwary prey comes in reach of the mantis, it swiftly extends its pincher-like forelegs forward to capture the prey.

Praying mantises eat flies, beetles, moths, butterflies, crickets, grasshoppers, and even spiders. Sometimes they behave like cannibals and eat each other. They especially like to feast on honey bees going to and from the hive. The female even eats the male after mating. Praying mantises also eat vertebrates such as mice and hummingbirds, if they can catch them.

Ecology Link

At the Dike 14 Nature Preserve, praying mantises are commonly found on goldenrod species, like giant goldenrod. They are found in the fall, typically during the month of October.

Web Link

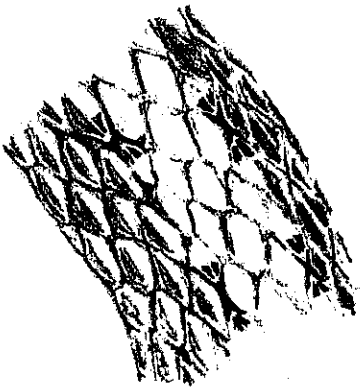
For more information on invasive species, visit *Invasive Species* online at www.invasive.org/.

Northern Brown Snake

Storeria dekayi dekayi

Identification

Length: 13-18"



The Northern Brown Snake is a non-venomous snake. Its back color is a shade of brown or gray. Along the center of its back is a broad, light-colored stripe bordered with two parallel rows of black spots. This species has a dark downward streak on the side of the head. Brown snakes have 17 rows of scales, which are keeled (scales with a central ridge). Their unmarked bellies may be cream, pinkish or yellowish in color.

Habitat

Marshes, streams, ponds, lakes, and open grasslands with woodland borders.

Life History

A Northern Brown Snake is also called a DeKay's snake, named after James Edward DeKay who was a New York naturalist. Most brown snakes are harmless and do not bite; however, some snakes may release a foul-smelling musk when they are harassed. Brown snakes are sensitive to vibrations and they use their forked tongues to sense and interpret their surroundings. Like other snakes, they wiggle their tongues through the air to collect chemicals. To analyze these chemicals, the snake places its forked tongue into a special organ, called a Jacobson's organ, located on the inside of their mouth.

Ecology Link

At the Dike 14 Nature Preserve, Northern Brown Snakes help to control populations of snails, slugs, and earthworms. They also serve as a valuable food supply for their predators, which include American Crows, hawks, mink, and Blue Jays.

Web Link

To learn more about snakes, visit *Ohio Snakes* online at www.dnr.state.oh.us/wildlife/resources/reptiles/reptiles.htm.

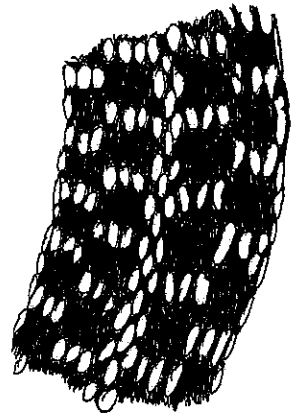
Eastern Garter Snake

Thamnophis sirtalis sirtalis

Identification

Length: 14-48"

The Eastern Garter Snake is a non-venomous snake. This snake has a light brown to black colored back with a double row of alternating black spots. The stripe down the middle of its back is usually yellow. The stripes on its sides are cream to yellow and are located on the second and third scale rows. Its belly may be white, yellowish or bluish in color.



Habitat

Moist habitats, and may be found at the waters' edge, open plains, grasslands, and forests or forest edge.

Life History

The Eastern Garter Snake is active during the day (diurnal). They can be aggressive at times, and if threatened, may even bite or release a foul-smelling musk to keep back enemies. Like other species of snakes, the Eastern Garter Snake is cold-blooded and will periodically bask throughout the day in order to maintain its body temperature. To hide, they slither underneath logs, rocks, boards, and in mammal burrows. During the winter, garter snakes may hibernate with other species of snakes. The place where snakes hibernate is called a hibernaculum. Garter snakes may be seen crossing roads in October as they migrate to their hibernaculum.

Ecology Link

At the Dike 14 Nature Preserve, Eastern Garter Snakes eat meadow voles, bird eggs, carrion (dead meat), or just about anything they can catch and swallow.

Web Link

To learn more about snakes, visit *Ohio Snakes* online at www.dnr.state.oh.us/wildlife/resources/reptiles/reptiles.htm.

Dike 14 Nature Preserve Bird Checklist

July 16, 1980 to March 25, 2005 *284 Species*

Key:

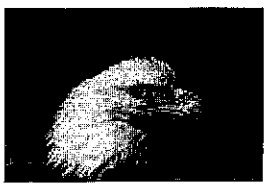
- Audubon Ohio Watchlist - Species of High Conservation Priority in Ohio
- State Endangered Species
- State Threatened Species
- State Species of Concern
- State Species of Special Interest
- Federally Endangered Species

- ☐ Common Loon
- ☐ Red-throated Loon
- ☐ Horned Grebe
- ☐ Eared Grebe
- ☐ Pied-billed Grebe
- ☐ Red-necked Grebe
- ☐ American White Pelican
- ☐ Double-crested Cormorant
- ☐ Least Bittern
- ☐ American Bittern
- ☐ Black-crowned Night-Heron
- ☐ Green Heron
- ☐ Tricolored Heron
- ☐ Little Blue Heron
- ☐ Cattle Egret
- ☐ Snowy Egret
- ☐ Great Egret
- ☐ Great Blue Heron
- ☐ Tundra Swan
- ☐ Mute Swan
- ☐ Snow Goose
- ☐ Canada Goose
- ☐ Brant
- ☐ Wood Duck
- ☐ Mallard
- ☐ American Black Duck
- ☐ Gadwall
- ☐ Green-winged Teal
- ☐ American Wigeon
- ☐ Eurasian Wigeon
- ☐ Northern Pintail
- ☐ Northern Shoveler
- ☐ Blue-winged Teal
- ☐ Canvasback
- ☐ Redhead
- ☐ Ring-necked Duck
- ☐ Greater Scaup
- ☐ Lesser Scaup
- ☐ Black Scoter
- ☐ White-winged Scoter
- ☐ Surf Scoter
- ☐ Harlequin Duck
- ☐ Oldsquaw
- ☐ Common Goldeneye

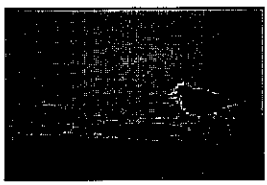
Dike 14 Nature Preserve Bird Checklist

- ❒ Bufflehead
- ❒ Common Merganser
- ❒ Red-breasted Merganser
- ❒ Hooded Merganser
- ❒ Ruddy Duck (I)
- ❒ Turkey Vulture
- ❒ Osprey
- ❒ Northern Harrier
- ❒ Bald Eagle
- ❒ Sharp-shinned Hawk (C)
- ❒ Cooper's Hawk
- ❒ Northern Goshawk
- ❒ Broad-winged Hawk
- ❒ Red-shouldered Hawk
- ❒ Red-tailed Hawk
- ❒ Rough-legged Hawk
- ❒ American Kestrel
- ❒ Merlin
- ❒ Peregrine Falcon
- ❒ Ring-necked Pheasant
- ❒ Ruffed Grouse
- ❒ Wild Turkey

- ❒ King Rail
- ❒ Virginia Rail (C)
- ❒ Yellow Rail
- ❒ Sora (C)
- ❒ Common Moorhen (C)
- ❒ American Coot
- ❒ Sandhill Crane
- ❒ Black-bellied Plover
- ❒ American Golden-Plover
- ❒ Piping Plover
- ❒ Semipalmated Plover
- ❒ Killdeer
- ❒ American Avocet
- ❒ Willet
- ❒ Greater Yellowlegs
- ❒ Lesser Yellowlegs
- ❒ Solitary Sandpiper
- ❒ Spotted Sandpiper
- ❒ Whimbrel
- ❒ Marbled Godwit
- ❒ Hudsonian Godwit
- ❒ Ruddy Turnstone

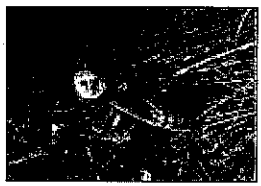


Bald Eagle

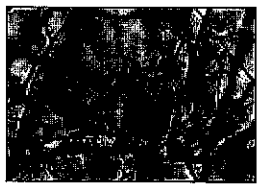


Killdeer

Bald Eagle chicks



Barn Owl



Cedar Waxwing

Dike 14 Nature Preserve Bird Checklist

- ☐ Purple Sandpiper
- ☐ Red Knot
- ☐ Sanderling
- ☐ Dunlin
- ☐ Curlew Sandpiper
- ☐ Semipalmated Sandpiper
- ☐ Western Sandpiper
- ☐ Least Sandpiper
- ☐ White-rumped Sandpiper
- ☐ Baird's Sandpiper
- ☐ Pectoral Sandpiper
- ☐ Sharp-tailed Sandpiper
- ☐ Upland Sandpiper
- ☐ Buff-breasted Sandpiper
- ☐ Ruff
- ☐ Short-billed Dowitcher
- ☐ Long-billed Dowitcher
- ☐ Stilt Sandpiper
- ☐ Wilson's Snipe
- ☐ American Woodcock
- ☐ Wilson's Phalarope
- ☐ Red-necked Phalarope
- ☐ Red Phalarope
- ☐ Pomarine Jaeger
- ☐ Parasitic Jaeger
- ☐ Franklin's Gull
- ☐ Laughing Gull
- ☐ Bonaparte's Gull
- ☐ Black-headed Gull
- ☐ Little Gull
- ☐ Ring-billed Gull
- ☐ California Gull
- ☐ Herring Gull
- ☐ Glaucous Gull
- ☐ Iceland Gull
- ☐ Thayer's Gull
- ☐ Lesser Black-backed Gull
- ☐ Great Black-backed Gull
- ☐ Black-legged Kittiwake
- ☐ Caspian Tern
- ☐ Forster's Tern
- ☐ Common Tern
- ☐ Least Tern
- ☐ Black Tern
- ☐ Black Guillemot
- ☐ Rock Pigeon
- ☐ Mourning Dove
- ☐ Yellow-billed Cuckoo
- ☐ Black-billed Cuckoo
- ☐ Barn Owl
- ☐ Barred Owl
- ☐ Short-eared Owl
- ☐ Long-eared Owl
- ☐ Great Horned Owl
- ☐ Snowy Owl
- ☐ Northern Saw-whet Owl
- ☐ Common Nighthawk
- ☐ Chimney Swift
- ☐ Ruby-throated Hummingbird
- ☐ Belted Kingfisher
- ☐ Pileated Woodpecker
- ☐ Red-headed Woodpecker
- ☐ Northern Flicker
- ☐ Yellow-bellied Sapsucker
- ☐ Red-bellied Woodpecker
- ☐ Downy Woodpecker

Dike 14 Nature Preserve Bird Checklist

- ❒ Hairy Woodpecker
- ❒ Olive-sided Flycatcher
- ❒ Eastern Wood-Pewee
- ❒ Acadian Flycatcher
- ❒ Yellow-bellied Flycatcher
- ❒ Alder Flycatcher
- ❒ Willow Flycatcher
- ❒ Least Flycatcher
- ❒ Eastern Phoebe
- ❒ Say's Phoebe
- ❒ Great Crested Flycatcher
- ❒ Western Kingbird
- ❒ Eastern Kingbird
- ❒ Loggerhead Shrike
- ❒ Northern Shrike
- ❒ White-eyed Vireo
- ❒ Blue-headed Vireo
- ❒ Red-eyed Vireo
- ❒ Warbling Vireo
- ❒ Philadelphia Vireo
- ❒ Blue Jay
- ❒ American Crow
- ❒ Horned Lark
- ❒ Tree Swallow
- ❒ Purple Martin
- ❒ Bank Swallow
- ❒ Cliff Swallow
- ❒ Northern Rough-winged Swallow
- ❒ Barn Swallow
- ❒ Tufted Titmouse
- ❒ Black-capped Chickadee
- ❒ Brown Creeper (I)
- ❒ White-breasted Nuthatch
- ❒ Red-breasted Nuthatch (I)
- ❒ House Wren
- ❒ Winter Wren (I)
- ❒ Carolina Wren
- ❒ Marsh Wren (C)
- ❒ Sedge Wren (C)
- ❒ Golden-crowned Kinglet (I)
- ❒ Ruby-crowned Kinglet
- ❒ Blue-gray Gnatcatcher
- ❒ Eastern Bluebird
- ❒ Wood Thrush

A Yellow-rumped Warbler at the Dike 14 Nature Preserve

Dike 14 Nature Preserve Bird Checklist

- ☐ Veery
- ☐ Swainson's Thrush
- ☐ Gray-cheeked Thrush
- ☐ Hermit Thrush
- ☐ American Robin
- ☐ Gray Catbird
- ☐ Northern Mockingbird
- ☐ Brown Thrasher
- ☐ European Starling
- ☐ American Pipit
- ☐ Sprague's Pipit
- ☐ Cedar Waxwing
- ☐ Blue-winged Warbler
- ☐ Golden-winged Warbler
- ☐ Northern Parula
- ☐ Tennessee Warbler
- ☐ Orange-crowned Warbler
- ☐ Nashville Warbler
- ☐ Chestnut-sided Warbler
- ☐ Cape May Warbler
- ☐ Magnolia Warbler
- ☐ Yellow-rumped Warbler
- ☐ Black-and-white Warbler
- ☐ Black-throated Blue Warbler
- ☐ Blackburnian Warbler
- ☐ Black-throated Green Warbler
- ☐ Bay-breasted Warbler
- ☐ Blackpoll Warbler
- ☐ Pine Warbler
- ☐ Palm Warbler
- ☐ Yellow Warbler
- ☐ Mourning Warbler
- ☐ Connecticut Warbler
- ☐ Canada Warbler
- ☐ Wilson's Warbler
- ☐ Ovenbird
- ☐ Louisiana Waterthrush
- ☐ Northern Waterthrush
- ☐ Common Yellowthroat
- ☐ Yellow-breasted Chat
- ☐ American Redstart
- ☐ Summer Tanager
- ☐ Scarlet Tanager
- ☐ Eastern Towhee
- ☐ American Tree Sparrow
- ☐ Field Sparrow
- ☐ Chipping Sparrow
- ☐ Clay-colored Sparrow
- ☐ Grasshopper Sparrow
- ☐ Henslow's Sparrow
- ☐ Le Conte's Sparrow
- ☐ Nelson's Sharp-tailed Sparrow
- ☐ Fox Sparrow
- ☐ Savannah Sparrow
- ☐ Lincoln's Sparrow
- ☐ Vesper Sparrow
- ☐ Song Sparrow
- ☐ Swamp Sparrow
- ☐ White-throated Sparrow
- ☐ White-crowned Sparrow
- ☐ Dark-eyed Junco
- ☐ Smith's Longspur
- ☐ Lapland Longspur
- ☐ Snow Bunting
- ☐ Rose-breasted Grosbeak
- ☐ Northern Cardinal

Dike 14 Nature Preserve Bird Checklist

- ❒ Dickcissel
- ❒ Indigo Bunting
- ❒ Bobolink Ⓒ
- ❒ Eastern Meadowlark
- ❒ Yellow-headed Blackbird Ⓘ
- ❒ Red-winged Blackbird
- ❒ Rusty Blackbird
- ❒ Common Grackle
- ❒ Brown-headed Cowbird
- ❒ Orchard Oriole
- ❒ Baltimore Oriole
- ❒ Purple Finch Ⓘ
- ❒ House Finch
- ❒ Evening Grosbeak
- ❒ Red Crossbill
- ❒ White-winged Crossbill
- ❒ Pine Siskin Ⓘ
- ❒ American Goldfinch
- ❒ Common Redpoll
- ❒ House Sparrow

A western U.S. species of flycatcher called Say's phoebe (Sayornis saya) was discovered at the Dike 14 Nature Preserve in October 2004. This is only the fourth record of this species for Ohio, and a new species for the site's bird list. Photo: copyright © 2004 by Sean T. Zadar

This official checklist of the Birds of Dike 14 Nature Preserve (DNP) includes birds documented on the grounds of, or flyovers at, DNP as well as those immediately offshore on the waters of Lake Erie.

Data collected from The Cleveland Bird Calendar, The Ohio Cardinal, Ted Gilliland, Robert Harlan, Dick and Jean Hoffman, William and Nancy Klamm, Gabe Leidy, Craig Rieker, Ben Winger and Sean Zadar.

Compiled by: Sean T. Zadar, Szadar@juno.com
Last revised on March 25, 2005.

Academic Content Standards

The Field Guide to the Dike 14 Nature Preserve addresses the following Indicators for Academic Content Standards in Social Studies and Science in Grades Four through Six.

Social Studies Content Standard indicators:

Grade 4:

Geography

Location

4. Use maps to identify the location of major physical and human features of Ohio including:

a. Lake Erie;

b. Rivers;

Places and Regions

5. Describe and compare the landforms, climates, population, vegetation and economic characteristics of places and regions in Ohio.

7. Explain how resources, transportation and location influenced the development of cities and industries in Ohio including major industries such as oil, steel, rubber and glass.

Human Environmental Interaction

9. Identify ways that people have affected the physical environment of Ohio including:

a. Use of wetlands;

b. Use of forests;

c. Building farms, towns and transportation systems;

d. Using fertilizers, herbicides and pesticides;

Grade Five:

Geography

Location

2. Use maps to identify the location of:

e. The Great Lakes.

Human Environmental Interaction

8. Explain how the characteristics of different physical environments affect human activities in North America.

9. Analyze the positive and negative consequences of human changes to the physical environment including:

a. Great Lakes navigation;

b. Highway systems;

c. Irrigation;

d. Mining;

e. Introduction of new species.

Grade Six

Geography

Human Environmental Interaction

5. Describe ways human settlements and activities are influenced by environmental factors and processes in different places and regions including:

a. Bodies of water;

b. Landforms;

c. Climates;

d. Vegetation;

e. Weathering;

7. Describe ways humans depend on and modify the environment and the positive and negative consequences of the modifications including:

c. Agriculture;

d. Urban growth.

Academic Content Standards

Science Content Standard indicators:

Grade Four

Earth and Space Sciences
Earth Systems

1. Explain that air surrounds us, takes up space, moves around us as wind, and may be measured using barometric pressure.

4. Describe weather by measurable quantities such as temperature, wind direction, wind speed, precipitation and barometric pressure.

6. Trace how weather patterns generally move from west to east in the United States.

Life Sciences
Heredity

1. Compare the life cycles of different plants including germination, maturity, reproduction and death.

Diversity and Interdependence of Life

2. Relate plant structures to their specific functions (e.g., growth, survival and reproduction).

3. Classify common plants according to their characteristics (e.g., tree leaves, flowers, seeds, roots and stems).

4. Observe and explore how fossils provide evidence about plants that lived long ago and the nature of the environment at that time.

5. Describe how organisms interact with one another in various ways (e.g., many plants depend on animals for carrying pollen or dispersing seeds).

Scientific Way of Knowing
Nature of Science

1. Differentiate fact from opinion and explain that scientists do not rely on claims or conclusions unless they are backed by observations that can be confirmed.

2. Record the results and data from an investigation and make a reasonable explanation.

3. Explain discrepancies in an investigation using evidence to support findings.

Ethical Practices

4. Explain why keeping records of observations and investigations is important.

Grade Five

Earth and Space Sciences
Earth Systems

6. Investigate ways Earth's renewable resources (e.g., fresh water, air, wildlife and trees) can be maintained.

Life Sciences
Diversity and Interdependence of Life

2. Explain how almost all kinds of animals' food can be traced back to plants.

3. Trace the organization of simple food chains and food webs (e.g., producers, herbivores, carnivores, omnivores and decomposers).

4. Summarize that organisms can survive only in ecosystems in which their needs can be met (e.g., food, water, shelter, air, carrying capacity and waste disposal). The world has different ecosystems and distinct ecosystems support the lives of different types of organisms.

5. Support how an organism's patterns of behavior are related to the

nature of that organism's ecosystem, including the kinds and numbers of other organisms present, the availability of food and resources, and the changing physical characteristics of the ecosystem.

6. Analyze how all organisms, including humans, cause changes in their ecosystems and how these changes can be beneficial, neutral or detrimental (e.g., beaver ponds, earthworm burrows, grasshoppers eating plants, people planting and cutting trees and people introducing a new species).

Science and Technology
Understanding Technology

1. Investigate positive and negative impacts of human activity and technology on the environment.

Abilities To Do Technological Design

3. Explain how the solution to one problem may create other problems.

Scientific Way of Knowing
Nature of Science

1. Summarize how conclusions and ideas change as new knowledge is gained.

2. Develop descriptions, explanations and models using evidence to defend/support findings.

3. Explain why an experiment must be repeated by different people or at different times or places and yield consistent results before the results are accepted.

4. Identify how scientists use different kinds of ongoing investigations depending on the questions they are trying to answer (e.g., observations of things or events in nature, data collection and controlled experiments).

Grade 6

Life Sciences
Diversity and Interdependence of Life

8. Describe how organisms may interact with one another.

Science and Technology
Understanding Technology

1. Explain how technology influences the quality of life.

2. Explain how decisions about the use of products and systems can result in desirable or undesirable consequences (e.g., social and environmental).

Scientific Ways of Knowing
Nature of Science

1. Identify that hypotheses are valuable even when they are not supported.

Ethical Practices

2. Describe why it is important to keep clear, thorough and accurate records.

Science and Society

3. Identify ways scientific thinking is helpful in a variety of everyday settings.

4. Describe how the pursuit of scientific knowledge is beneficial for any career and for daily life.

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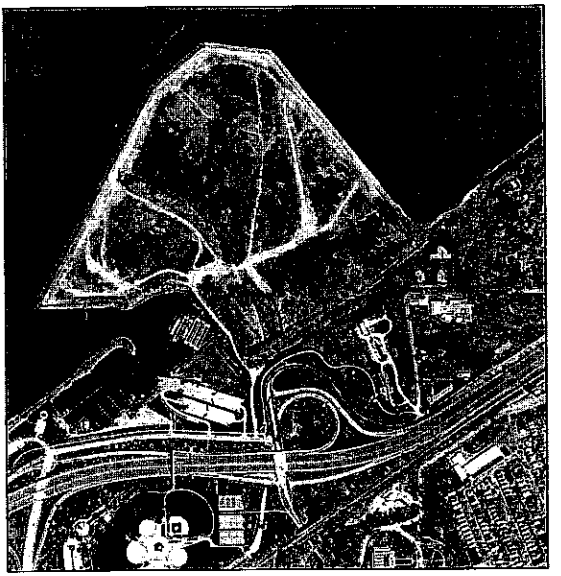
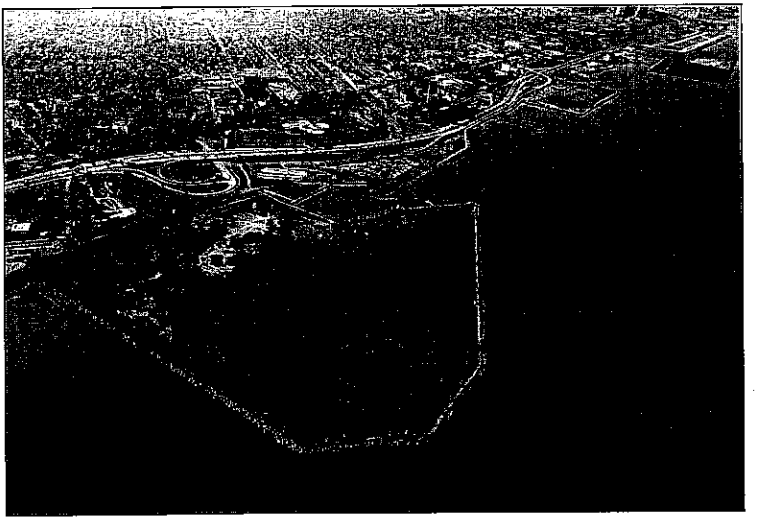


Satellite view of the Dike 14 Nature Preserve 2002



Aerial view of the Dike 14 Nature Preserve. Courtesy USACE

You are key to the future of the Dike 14 Nature Preserve!

Contact the Dike 14 Environmental Education Collaborative to learn more about environmental education resources and to help promote environmental stewardship of the Dike 14 Nature Preserve.

The Dike 14 Environmental Education Collaborative develops environmental education resources for children, families and local and regional schools focusing on water quality, land use, dike information, native and invasive species and the natural world.

For copies of the Field Guide, for additional information about the Dike 14 Nature Preserve, for information about environmental education opportunities, or to learn how you can get involved to help preserve and promote the Dike 14 Nature Preserve please contact any member of the Dike 14 Environmental Education Collaborative listed below.

Audubon OHIO

Audubon Ohio
Jerry Tinianow
(614) 224-3303

Cleveland Metroparks

Cleveland Metroparks
Dr. Bob Hinkle, Wendy Weirich
(216) 341-9225

Cleveland Museum of NATURAL HISTORY

Cleveland Museum of Natural History
Harvey Webster, Nancy Howell, Alison Ball, Renee Boronka
(216) 231-4600

Cuyahoga Soil and Water Conservation District

Cuyahoga Soil and Water Conservation District
Jan Rybka
(216) 524-6580

Cuyahoga Valley National Park Association

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Deb Yandala, David Irvine
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earth DAY COALITION

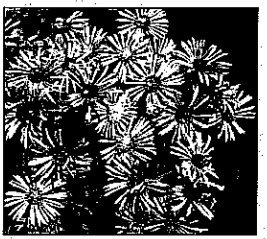
Earth Day Coalition
Chris Trepal, Dawn Wrench
(216) 281-6468

LENSC

Lake Erie Nature and Science Center
Larry Richardson
(440) 871-2900

Nature Center AT SHAKER LAKES

The Nature Center at Shaker Lakes
Steve Cadwell, David Wright
(216) 321-5935



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Dike 14 Environmental Education Collaborative

providing exemplary environmental education for students, teachers, families, neighbors and the greater community, and, promoting the stewardship of Dike 14 as a unique place for nature and people on Cleveland's Lakefront.

For the safety and enjoyment of all visitors and the protection of the Dike 14 Nature Preserve, please use care when visiting:

- Stay on the established trails
- Do not remove or disturb plants
- Do not feed, remove or disturb wildlife
- Take your trash
- No smoking or pets

www.dike14.org

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