

Organizer's Guide 2020

Birds Connect Our World



World Migratory Bird Day



Environment
for the Americas



UNEP AEWA



CMS



Smithsonian



Office of the Tropics

Organizer's Guide 2020

Birds Connect Our World

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Friends

Program Sponsors

Environment for the Americas and World Migratory Bird Day

Environment for the Americas (EFTA) is a non-profit organization that strives to connect people across the Western Hemisphere to bird conservation through education, outreach, and research. Each year EFTA works with hundreds of participating organizations and agencies to coordinate World Migratory Bird Day (WMBD). The following Organizer's Guide is designed to help you develop your program, event, or festival for the 2020 celebration and share the theme of Birds Connect Our World with youth, adults, families, and other groups.



What is a World Migratory Bird Day Program or Event? We invite your organization to join us in celebrating migratory birds and promoting their conservation. We understand that organizations come in all sizes, large and small, with different capacities to host programs and events. Your efforts to share key messages about the spectacular long-distance journeys of migratory birds, the threats they face along the way, and the meaningful actions that individuals, communities, and other groups can take to protect birds can be scaled in a way that works for you.

We ask that your World Migratory Bird Day program or event:

- Engages participants in learning about migratory birds
- Shares information about some of the potential dangers that can impact migratory bird populations
- Highlights the annual conservation theme, Birds Connect Our World, using the slogan and hands-on activities
- Promotes World Migratory Bird Day through social media, print, radio, and television
- Is registered on our global map at www.migratorybirdday.org/events



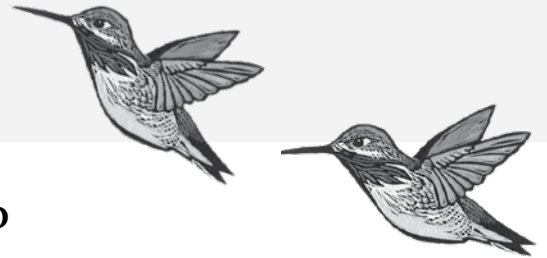
When is World Migratory Bird Day?

WMBD Can Be Celebrated Twice Each Year:

1. On the second Saturday in May, as birds return to their nesting sites.
2. On the second Saturday in October, as they travel to non-breeding grounds.

But because birds don't all travel on the same day, we encourage you to celebrate when the birds are present and the timing works best for your organization. Because of this, WMBD is now celebrated almost every month of the year!

World Migratory Bird Day



WMBD Materials

Through this guide, we provide you with tips and tools to organize your WMBD event from start to finish, focusing on the 2020 conservation theme.

A general outline of your plan should include the following steps:

1. Identify a WMBD coordinator or team
2. Learn more about the 2020 WMBD conservation theme highlighting the different methods and technologies used to track bird migration
3. Identify your WMBD target audience(s)
4. Determine what you need to make your WMBD event successful, including logistical and financial support
5. Identify partners willing to participate in or support your event
6. Develop fun, educational WMBD activities using this guide and other resources

Additional Materials:

EFTA provides many other materials you'll need to host a successful WMBD event. On our website, we provide a directory of educational resources, which includes materials that highlight the annual conservation theme, promotional materials, and much more.

The History of WMBD

In 1993 visionaries at the Smithsonian Migratory Bird Center in Washington, D.C. became concerned about declines in migratory bird populations across the Western Hemisphere and envisioned a program that would spark an interest in and enjoyment of birds that would translate into a desire to help protect them. They created International Migratory Bird Day (IMBD) to accomplish this goal. In 2007, Environment for the Americas (EFTA), a non-profit conservation organization based in Boulder, Colorado, assumed leadership of the program and more than doubled the level of participation.

After noting the success of IMBD, the United Nation's Convention on Migratory Species (CMS) began a similar program in 2005. In 2018, EFTA and CMS joined forces and signed an agreement to promote migratory bird conservation across the globe through the biannual educational campaign and celebration called World Migratory Bird Day (WMBD).

WMBD is a celebration of the spectacular journeys that migratory birds take as they travel between nesting and non-breeding sites around the world. It highlights the changes in seasons when longer days prompt millions of birds to embark on their arduous journeys to the north in spring and to the south each fall. WMBD is also about raising awareness of these long-distance travelers and the threats they face along the way through festivals, events, and programs offered at natural areas, schools, zoos, libraries, museums, and many additional locations. Through these activities, organizers create connections between birdwatchers, businesses, conservation groups, the news media, and national, state, and local officials.

WMBD is an annual opportunity to be part of the solution to bird conservation issues and to share your passion for birds in a resounding way. This Organizer's Guide is designed to provide you with the information you need to get started.

Here's Where to Find Your WMBD Materials

Please don't hesitate to contact EFTA with any questions.

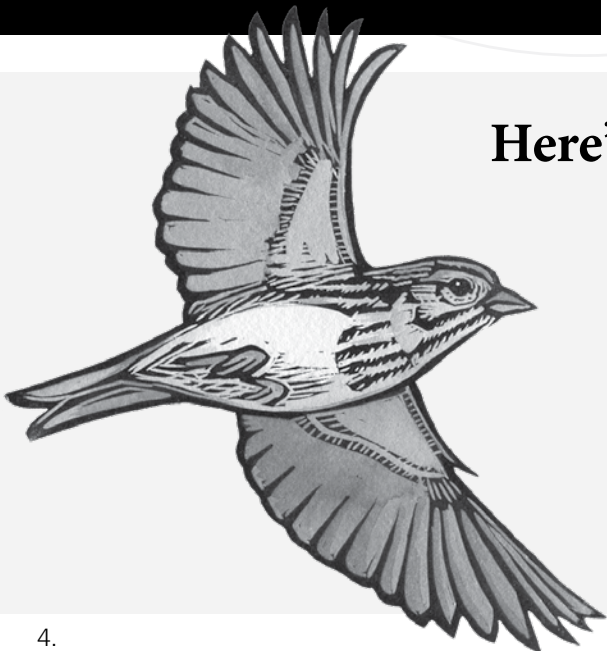
Education materials, flyers, presentations, and more:
migratorybirdday.org/resources

Event materials to purchase for your event:
migratorybirdday.org/shop

To register your event on the global map:
migratorybirdday.org/events/

For questions:

EMAIL: info@environmentamericas.org **CALL:** 303.499.1950



2020 World Migratory Bird Day

Conservation Theme:

Birds Connect Our World!



In 2009, scientists captured a shorebird called a Whimbrel on the coast of Virginia—a vital migration stopover for this species. The scientists fitted the bird, nicknamed Hope, with a satellite transmitter so that they could follow her travels. Shuttling between breeding grounds in northwestern Canada and a wintering site in the Virgin Islands, Hope demonstrated both the spectacular journeys that migratory birds make each year and the threats they frequently face.

In 2020, the annual World Migratory Bird Day (WMBD) conservation campaign features the slogan “Birds Connect Our World.” Throughout the year, this campaign will focus on the tracking technologies researchers use to learn about migratory routes, examine the hazards birds face along these journeys, and implement conservation actions that will help migratory birds along the way. “Birds Connect Our World” will be celebrated around the globe at schools, parks, zoos, wildlife refuges, museums, libraries, and many other locations.

Bird banding, satellite tracking, feather analysis, and weather radar are some of the tools that provide us with new details about bird migration. For example, we knew that the Arctic Tern, one of the twelve focal species for WMBD 2020, has one of the longest migration, traveling as many as 25,800 miles (40,000km) annually. A recent analysis using geolocators, however, has revealed that this species may cover twice this distance each year. “Birds Connect Our World” invites you to explore technology and migration and to learn how you can help migratory birds along the way.

Tracking brings us back to the Whimbrel named Hope. After being tracked for more than 50,000 miles, the hardy Whimbrel disappeared in 2017, when Hurricane Maria struck St. Croix. Intense storms like Maria, as well as pane-glass windows, plastic pollution, and loss of habitat, are some of the factors that WMBD will touch on in 2020. Join us for a spectacular year of learning and conservation!

Each year we work with biologists across the world to select a conservation theme that describes a threat to migratory birds and emphasizes the simple, but effective, ways that people of all ages can help to reduce that threat.

*We know that birds face many complex threats along their incredible migration journeys every year. In 2020, the theme **Birds Connect Our World** will highlight the many ways we track and study bird migrations and how this information may be used to inform conservation actions.*




Join in sharing the 2020 theme using **Social Media Tools!**



Post photos and share your creativity through social media—and remember to tag us!

Through WMBD, everyone can learn about how we follow birds using different tracking methods and analysis of migration.

TAGS:

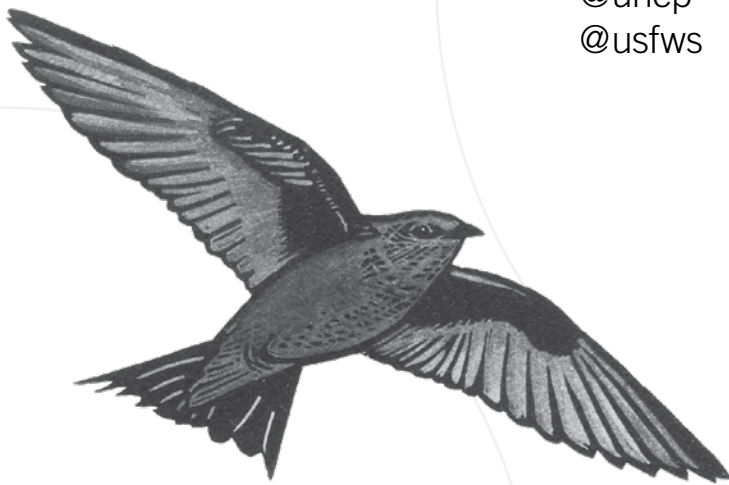
-  @EnvironmentfortheAmericas
-  @EFTA_BirdDay
-  @EFTA_BirdDay

TAG US AND OUR FRIENDS:

- @efta_birdday
- @bonnconvention
- @worldmigratorybirdday
- @eeafp
- @unep
- @usfws

HASH TAGS:

- #BirdDay
- #EFTA_BirdDay
- #WMBD
- #WMBD2020
- #BirdsConnectOurWorld
- #JourneysOfTheFlyways
- #TrackingBirds
- #BirdsKnowNoBorders



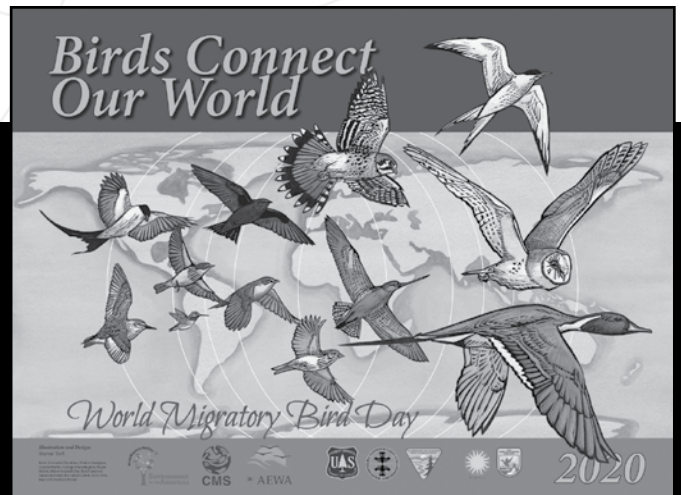
Find more social media tools and icons at
migratorybirdday.org/resources

Meet the 2020 World Migratory Bird Day Artist

Sherrie York

Following a rigorous selection process, artist Sherrie York was selected to create the art that reflects the 2020 conservation theme. A self-taught printmaker and compulsive wanderer of landscapes, Sherrie York lives and works in Bristol, Maine. Observation is the core of Sherrie's work, whether she is sketching leaves collected on a hike or carving a complex linocut block of waterbirds in their element. Her linocuts have been presented in national and international exhibitions, including the Woodson Art Museum's prestigious Birds in Art, and the Society of Animal Artists' Art & the Animal, and are represented in corporate and museum collections.

Contact Sherry about her work at: sy@sherrieyork.com



About Tracking Bird Migration

The incredible phenomenon of bird migration has always been an enticing topic among the world's ornithologists, as well as the general public. Birds fascinate and impress people of all ages because of their extraordinary journeys. Although bird migration is a worldwide phenomenon, many people do not know how scientists learn about birds' routes and destinations, or how they use this knowledge to inform conservation.

By exploring the ways we track bird migration, from geolocators and banding to feather analysis and surveys, we can also examine the threats birds face in their migratory journeys and highlight the communities on the ground that are working to support them. Through WMBD, we can all take action to protect our shared birds and their habitats!

For centuries, birdwatchers contemplated why so many birds disappeared from their homes but are seen in other geographical areas. Because birds acquired very different plumages and gained a lot of weight, the first naturalists thought that the birds had not disappeared but were transformed into other species. The Greeks thought birds turned into fish over the winter because they saw all birds flying towards the open ocean. We tackle the 2020 WMBD theme, sharing what we know about the history of bird migration, the tools and methods involved to inform us of their journeys and destinations, theoretical and evolutionary hypotheses, and the major contributors in this exciting field of ornithology.

Today, scientists use a variety of technologies to explore the migration routes of many birds as they move across different spatial and temporal scales, either as part of their daily lives or as part of seasonal migration. Along the way, birds seek resources in different environments. At the same time, they face natural disasters and human-related risks on the ground and in the skies. We know a lot more today than we did long ago; however, a complete understanding of how these precise navigational journeys work is still a big challenge!

Example tracking methods that researchers use to learn about bird migration.

BIRD BANDING: Bird researchers use metal bands, each with a unique code, to identify individual birds. Each time a banded bird is captured, we learn more about its age, health, and habitat use. Support and visit a local banding station with ethical and scientific approaches to capturing and banding wild birds.

RADIO TELEMETRY: Radio telemetry uses electromagnetic radio waves to determine a bird's location. A transmitter is attached to a bird's back, and an antenna captures a radio signal. The receiver then transforms that signal into a beeping sound that gets louder the closer it is to the transmitter. The signal indicates that the bird is near. Automated radio telemetry systems have increased the scale of detection without having to rely on individuals being recaptured.

WEATHER RADAR: We use weather radar every day to detect the movement of drops of rain. It can also indicate the location of moving birds. Watch a tutorial video for viewing nocturnal bird migration using radar on The National Center for Atmospheric Research website: vimeo.com/2020985

LIGHT-LEVEL GEOLOCATORS: These tracking devices use daylight to estimate location. From sunrise/sunset data, the relative time of noon and midnight is determined to assess the geographic coordinates of migrant birds. However, in the shade of a tree canopy, it can be difficult to determine what the sunrise and sunset times are. Because they are lightweight and have a long battery life, light-level geolocators are an excellent option for studying long distance movements. Explore the sunrise and sunset times where you live and around the world: esrl.noaa.gov/gmd/grad/solcalc

SATELLITE TAGS: Satellite tags attached to birds send signals to the satellites that orbit the Earth and provide the accurate location of the bird. Researchers only need to capture the bird once to affix the tag. There are 31 GPS satellites in orbit that provide highly accurate location data. You use this data daily on your smartphone to navigate to a restaurant and check traffic at rush hour.

CITIZEN SCIENCE: by sharing their observations, everyone can be part of our efforts to learn about bird migration. Here are a few you can join:

- **iNaturalist [inaturalist.org](https://www.inaturalist.org)** Share your observations with other naturalists and discuss your findings.
- Journey North **[journeynorth.org](https://www.journeynorth.org)** Track Hummingbirds are too small to carry tags, so your observations are an important part of our understanding of their migration.
- Hummingbird Highway **westernhummingbird.org/hummingbird-highway** Share your research, pollinator garden, and hummingbird-focused education activities on a map, so that we can make connections to hummingbird conservation.
- **eBird [ebird.org](https://www.ebird.org)** Your bird sightings contribute to our awareness of migration across the globe, plus you can keep a list of every bird you see and where you've seen it!

ACTIVITY 1 The Life Cycle of A Bird



Overview

The annual life cycle of birds is linked to the seasonal changes in their food resources. Many birds migrate north as insects hatch, and hummingbirds follow the opening of flowers, which provide the nectar they need to survive.

Setup

Copy the blank life cycle wheels (next page) to use with participants and the completed wheel to share as an example. Have scissors (if you want participants to cut out their wheels), crayons, colored pencils, and other supplies to illustrate the wheels, as well as the World Migratory Bird Day poster and/or the Focal Species Fact Sheets (migratorybirdday.org/resources), if you want to feature *one of* the 12 focal species.

Get Started

Allow visitors to make observations at your site. Invite them to notice the vegetation, including leaf types, flowers, and seeds. Are they present? What season is it? Participants may choose to complete the wheel during the month of your event, illustrating the plants and birds that they see, or illustrate other months. Help them by explaining that a migratory bird has two homes, one where it nests, and another where it spends the rest of the year. During the journey between these two places, it may also have areas where it stops to rest and refuel.

Questions and Discussion

Learning about life cycles helps people understand phenology or the timing of events, such as migration, insect hatches, and flowering. The synchrony of these events can be critical to a bird's survival.

1. What would happen if a bird migrated to a location when its food wasn't available?
2. What birds do you observe during these months?
3. If you picked a specific bird, what does this bird do each month of the year (when does it nest, migrate, winter)?



OBJECTIVES

- To learn about the life cycles of birds.
- To understand how the phenology or timing of events can affect a migratory bird's success.

Ages

Kindergarten to Adult

Materials

- Blank Life Cycle Wheel
 - Example Life Cycle Wheels* *Find Example Life Cycle Wheels here: migratorybirdday.org/resources
 - Scissors
 - Crayons
 - Colored Pencils
 - WMBD 2020 poster and focal species
- partnersinplace.com/wheels-of-time-and-place

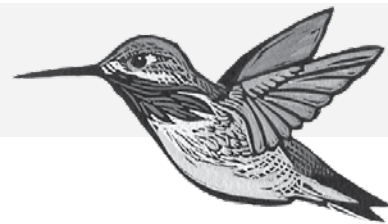
Time

30+ minutes
15+ minutes

ACTIVITY 1 The Life Cycle of A Bird (continued)



ACTIVITY 2 Tracking Bird Migration



Overview

This activity describes how researchers learn about birds and their migration using tracking devices, similar to devices that help people find their keys, wallets, and other items. These “finders” use Bluetooth or Radio Frequency to track objects, simulating the technologies that scientists use to learn about bird migration, such as radio telemetry.

Setup

Select a site in or outdoors where stuffed birds or images of birds can be hidden. Before the time of activity, purchase as many tracking devices as you would like, such as ones found at clickndig.com, eskynow.com, thetrackr.com, or others. Download any required applications to a smartphone or tablet that participants may use to track the birds. Hide the birds with the tracking devices attached to them! Most tracking devices have a 100 ft (30.48 m) range, so keep that in mind when hiding the birds. Also, introduce images (pictures) of conservation threats, such as; a cat, a glass window, a storm, around the area where the birds are hidden.

Place the birds in locations around the area and get their latitude/longitude by using a GPS unit or app, if you have one. You can also use the following free sites:

gps-coordinates.org, maps.ie/coordinates.html or Google Earth

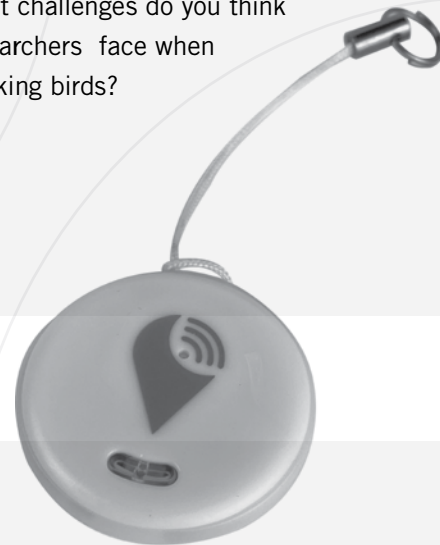
This activity may be offered at a festival, school, or other programs or used with small groups or individuals. It is only limited by the number of “finder” devices, smartphones, and available tablets. At a festival, parents may be willing to download the necessary app onto their phones.

Provide clear instructions about the goals of the activity. Teach them how to use the app to find the birds. You may allow participants to find just one bird or more.

Participants will search for the birds with their phone/tablet in hand until there is a beeping sound. The closer the individual is to the bird, the louder the sound will become. Walk around the area (within the set boundaries) with the phone in hand, until you hear a beeping noise. The tracker will beep as you get closer to the bird, like a radio-telemetry bird tag!

Questions and Discussion

1. What birds have migrated to your area?
Will they stop there for just a short time before continuing on their journeys or will they stay for a longer time?
2. What does your area offer to a migratory bird? Food? Water? Nesting sites?
3. What potential threats to migratory birds do you notice in your area?
4. Were some birds easier to find? Why?
5. What challenges do you think researchers face when tracking birds?



OBJECTIVES

- To experience tracking birds using simple technology that simulates current research techniques.
- To learn about bird migration and the challenges birds face along the way.

Ages

Kindergarten to Adult

Materials

- Stuffed birds or bird images
- Images of threats to birds
- Smartphone or Tablet
 - Tracker devices:
 - clickndig.com • eskynow.com • thetrackr.com
- Optional items: Map of the area and/or GPS unit

Time

15+ minutes

ACTIVITY 3

Exploring Tracking Devices

Overview

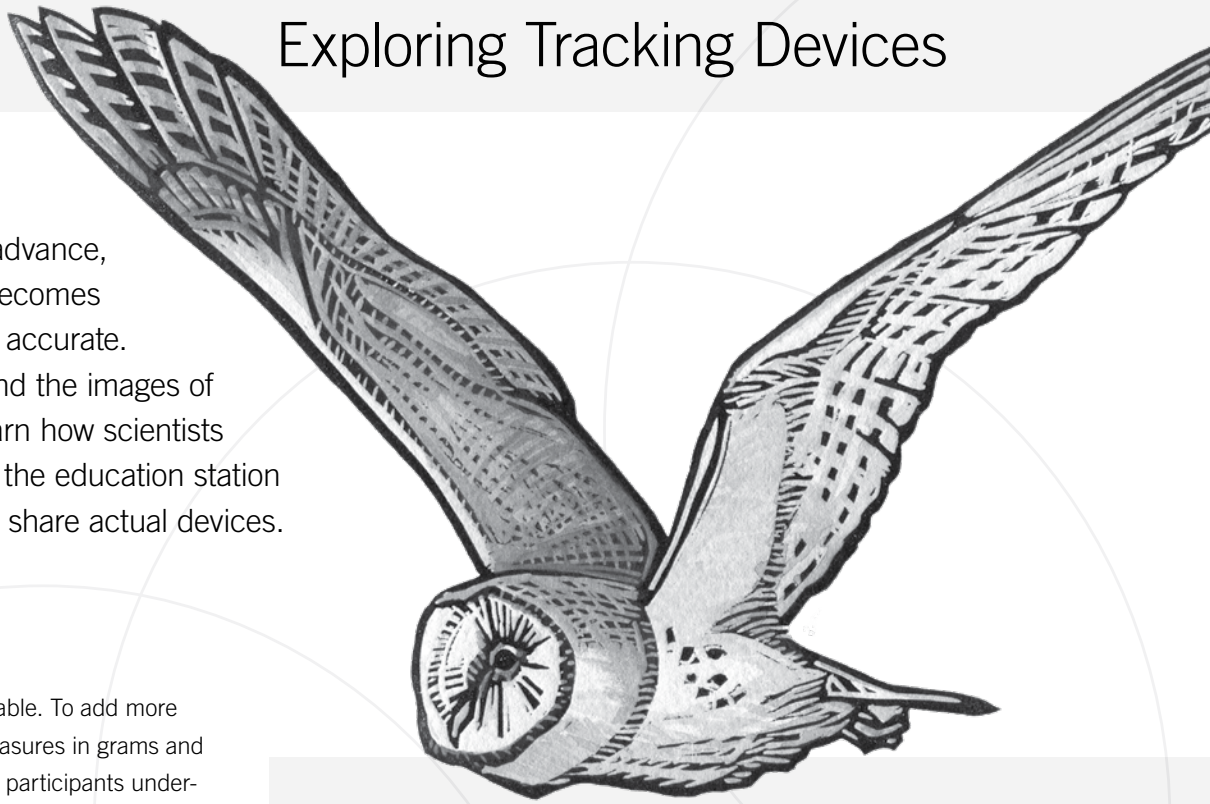
With every technological advance, tracking migratory birds becomes easier, and the data more accurate. Use the photos of birds and the images of the tracking devices to learn how scientists study migration. Enhance the education station by inviting a researcher to share actual devices.

Setup

This activity may take place at a table. To add more information, bring a scale that measures in grams and some small items to weigh so that participants understand the weight of the devices and the weight of birds.

Get Started

This activity helps participants understand the technologies used to track bird migration, how they work, and the information they gather. Some gather more information than others, but sometimes researchers seek different information. Have the Focal Species Fact Sheet available. Distribute the tracking device cards and read the facts about any of the species. Have participants think about which tracking device would be most appropriate to track that species and why (weight/size of the bird, how high they fly, distance traveled, etc.).



Questions and Discussion

Scientists must make decisions about how to conduct their research based on a variety of factors. Participants can explore the tracking devices by thinking like scientists.

1. Which tracking devices are the best for gathering information about long-distance migration?
2. Which would be better to use on a bird that does not migrate long distances, such as the Barn Owl?

OBJECTIVES

- To learn about tracking technologies.
- To explore different tracking devices and the information they gather.

Ages

3rd Grade to Adult

Materials

- Tracking device cards
- Focal Species Fact Sheets, visit migratorybirdday.org/resources
- Scale (optional)
- Actual examples of tracking devices

Time

15+ minutes

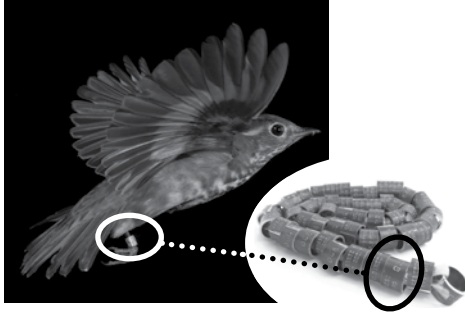
ACTIVITY 3 Exploring Tracking Devices (continued)

Cut on dashed lines



BANDING

Metal bands, each with a different number, or colored bands are placed on a bird's leg.



WHAT WE LEARN

Location of the bird, health, and size

LOCATION ACCURACY

Exact location because the bird must be captured.

MINIMUM WEIGHT OF BIRD

Bands are made in sizes to fit most species, even hummingbirds

HOW LONG THE DEVICE LASTS

Metal bands last for years, but color bands fade and break

PHOTO CREDIT: © SHERRI AND BROCK FENTON
LONG POINT BIRD OBSERVATORY

RADIO TELEMETRY

A radio transmitter fitted on a bird sends a signal about its location. A receiver picks up these signals as "beeping" sounds.



PHOTO BY AUDUBON AND THE SMITHSONIAN

WHAT WE LEARN

Location of the bird and habitat use.

LOCATION ACCURACY

A bird may be detected within 33 feet (10 meters), even if you can't see it.

MINIMUM WEIGHT OF BIRD

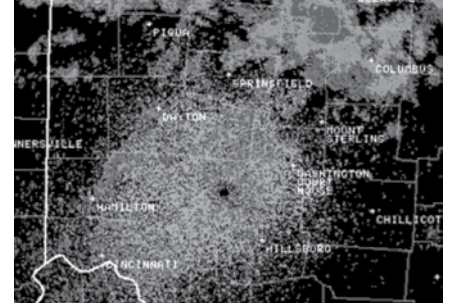
6.6 grams or a little heavier than a nickel

HOW LONG THE DEVICE LASTS

A few weeks to several months

WEATHER RADAR

The same radar that gives us our weather can detect birds, especially when large numbers take flight.



WHAT WE LEARN

Location of the birds, preferred weather for migration, number of individuals, direction and speed of flight, and habitat use.

LOCATION ACCURACY

Detection of birds varies, but it indicates a general location area.

MINIMUM WEIGHT OF BIRD

No device is necessary

HOW LONG THE DEVICE LASTS

As long as the weather station uses it!

GEOLOCATOR

A device fitted on a bird gathers information about its movements over large areas.



PHOTOS ©SMITHSONIAN

WHAT WE LEARN

By recording light, we can locate the bird as it moves across large distances.

LOCATION ACCURACY

62 - 93 miles (100 - 150 km)

MINIMUM WEIGHT OF BIRD

8 grams

HOW LONG THE DEVICE LASTS

The device usually lasts for at least one year and longer.

SATELLITE TAG

A transmitter attached to a bird's back sends its signal to an orbiting satellite.



WHAT WE LEARN

A bird's location across a broad area as it migrates.

LOCATION ACCURACY

820 - 5000 feet (250 - 1500 meters)

MINIMUM WEIGHT OF BIRD

117 grams

HOW LONG THE DEVICE LASTS

The device may last for just months to more than one year.

CITIZEN SCIENCE

People can help to track birds by recording their observations.



WHAT WE LEARN

A bird's location, its behavior, habitat, and more!

LOCATION ACCURACY

Exact location

MINIMUM WEIGHT OF BIRD

Not required

HOW LONG THE DEVICE LASTS

The lifetime of the citizen scientist.

ACTIVITY 4 Make a Bird Mask



Overview

Learn about the WMBD 2020 focal bird species and create a mask inspired by one of them. Discuss the threats they face and what actions we can take to help protect them. Use a bird identification guide to help inspire your mask.

Setup

If you plan to work with multiple ages, be sure you have a table that is appropriate for shorter participants. This activity can be messy, especially if you have lots of fun items that can be used to decorate the masks. Consider covering your tables with butcher paper to prevent stray marks from crayons, glue, and especially permanent markers.

Get Started

Mask making is an interactive and creative way to connect young people to birds. Using the 12 bird species on the 2020 World Migratory Bird Day poster, you can share the incredible diversity of feathers, beaks, and eyes as participants create their own masks. From the long-billed Bar-tailed Godwit to the tiny Calliope Hummingbird, the species illustrate the many ways birds find food, find mates, and more. To incorporate the conservation theme and the different ways we track bird migration, integrate a conversation about how we can learn about threats these birds face along their journeys and what actions we can take to help protect them.

Questions and Discussion

Creating bird art requires focus and brings attention to details. While your participants are at work or after the activity, you can ask them:

1. Did you notice aspects of the bird's face that you did not see before?
2. Why did you choose this bird?
What attracted you to this particular species?



DON'T FORGET

Post photos and share your creativity through social media—and tag us!

@EnvironmentForTheAmericas
@EFTA_BirdDay
#BirdDay
#WorldMigratoryBirdDay
#WMBD2020
#BirdsConnectOurWorld

OBJECTIVES

- To examine birds in the 2020 World Migratory Bird Day artwork or in your area.
- To learn about bird characteristics.

Ages

Kindergarten to Adult

Materials*

- Mask
- Scissors
- Glue
- Crayons
- Markers
- Paint
- Other decorative items
- Popsicle sticks
- String
- Bird identification guide
- WMBD 2020 poster
- Table

Time

30+ minutes

*BIRD MASK TEMPLATES

Don't want to make your own bird masks? Purchase pre-cut masks for a group or class at migratorybirdday.org/shop

ACTIVITY 5 Be a Bander

Overview

This activity illustrates how scientists band birds so they can track how far they travel and how long they live. You will do this without live birds, a formal bird-banding station, the need to wake up early in the morning, or a field site!



Setup

You are a bird scientist and have already ethically and properly captured a bird (your friends with their bird masks from the previous activity). You are ready to take and record their measurements. Have your materials available, including your metal rings and the Collector Data Sheet to be filled out.

Get Started

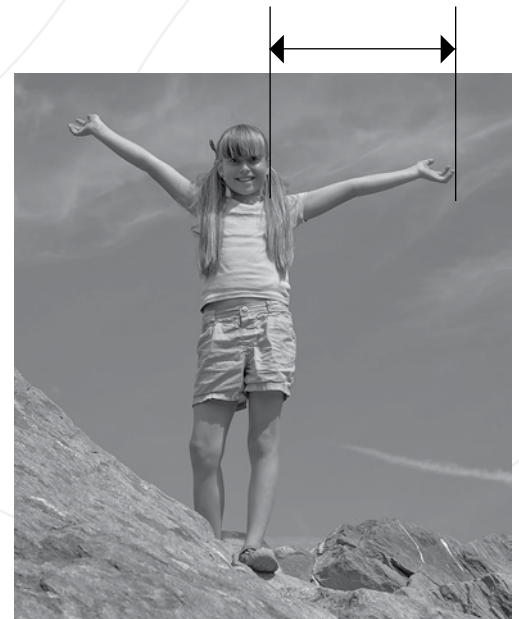
As you band your friend, tying the metal ring with a string around his/her wrist, complete the form using these instructions:

Refer to **Collector Data Sheet** on page 16.

- 1. NAME/INITIALS:** Write the name or initials of the “bird” (friend) you are measuring. Before banding a bird, it must be identified.
- 2. BAND NUMBER:** Write the number of your metal ring. This code is unique, and we don’t want to make mistakes and confuse individuals when analyzing the data.
- 3. DATE:** Write the exact date. Birds can quickly move far away at any time of the year.
- 4. TIME:** Write the exact time of your observation. Birds partake in different activities during the day or night.
- 5. AGE:** Write the age (or estimated age) of the “bird” you are banding.
- 6. WEIGHT:** Use a weight scale to calculate this value, or estimate the weight of the “bird” you are banding.
- 7. WINGSPAN:** Using a measuring tape, take the measurement from your friend’s left middle fingertip to their right middle finger, with both their arms stretching out horizontally. This is the same way a bander measures a bird’s wingspan in the field. (see photo, right)



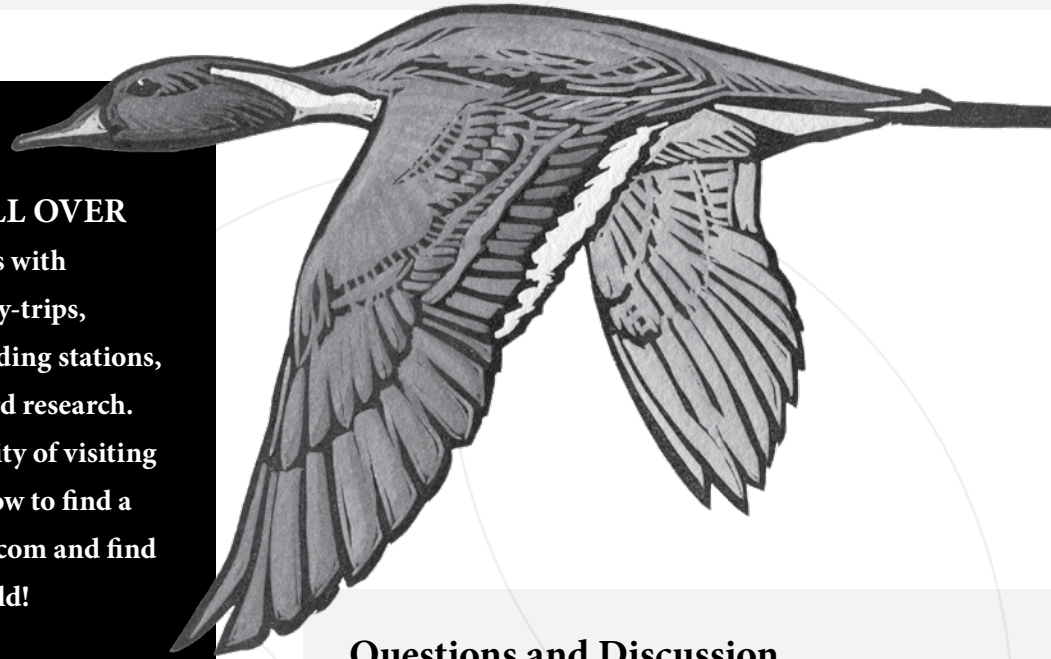
Metal Bands



How to Measure Wingspan

Measure wing length from the shoulder to the wing tip.

ACTIVITY 5 Be a Bander (continued)



BIRD OBSERVATORIES EXIST ALL OVER THE WORLD, and they provide visitors with a variety of activities, including guided day-trips, education about the operation of bird banding stations, local bird species, and best practices in bird research. Combine these activities with the possibility of visiting a real bird banding station. Don't know how to find a bird observatory? Visit birdobservatories.com and find out where to find one anywhere in the world!

READ ABOUT BANDING BIRDS BEFORE YOUR ACTIVITIES; YOUNG PEOPLE ARE VERY INTERESTED IN THIS TOPIC! You can check all available recommendations from North American Banding Council on NABANDING.NET and find different methods that ornithologists use to track different groups of birds, including Hummingbirds, Passerines, Raptors, and Waterfowls.

Questions and Discussion

1. Why do you think it is important to record all this information when banding a bird?
2. What are some benefits and problems with this method of tracking birds?

OBJECTIVES

- To understand the steps scientists take when banding birds.
- To learn about advantages and disadvantages of bird banding as a tracking method.

Ages

All ages

Materials

- Measuring Tape
 - Bird Bands
 - String
 - Scale
- Collector Data Sheet
 - Pen or Pencil

Time

Varies depending on how the activity is conducted.

ACTIVITY 5 Be a Bander (continued)

Collector Data Sheet

NAME/ INITIALS	BAND NUMBER	DATE	TIME	AGE	WEIGHT	WING LENGTH

ACTIVITY 6

Mapping the Canada Warbler's Migration

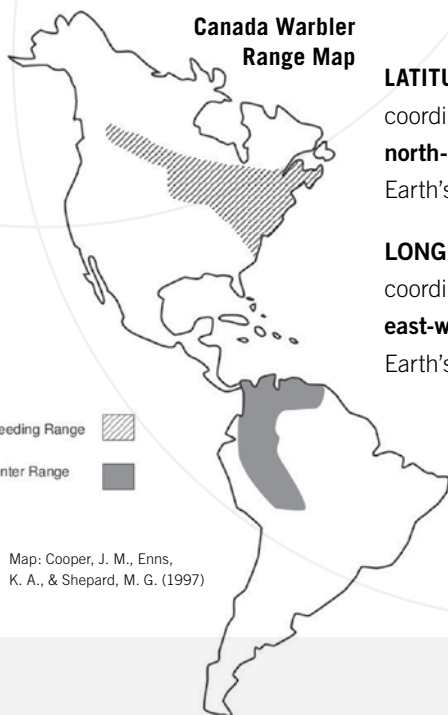


Overview

This activity introduces participants to latitude and longitude and the use of maps to track bird migration. Each geographic coordinate represents a place where a specific Canada Warbler stopped during its migration journey. By plotting the coordinates on a map, you can visualize the warbler's migration route!

Setup

1. Refer to the range map of the winter and breeding ranges of the Canada Warbler. Canada Warblers are generally found in their winter range from November to February and summer range from June to July.
2. Explain the definitions of latitude and longitude:



LATITUDE: geographical coordinate that specifies the **north-south** position on the Earth's surface.

LONGITUDE: geographical coordinate which specifies the **east-west** position on the Earth's surface.

Map: Cooper, J. M., Enns, K. A., & Shepard, M. G. (1997)

Get Started

1. Refer to the data on page 18 for the two migrating warblers. Plot the coordinates in each of the warbler's migration routes on the map by drawing a dot at that location and writing the date next to it.
2. After the coordinates have been plotted, draw a line on the map connecting all the dots in chronological order. Use different colored pens/pencils to transfer the data for each warbler to the map. Participants will need to know that they should use different colors before they start adding points to the map.

Questions and Discussion

For each warbler, describe the migration pattern:

1. Where did the bird's migration start?
2. What path did it follow to Central America?
3. Over what countries did the warbler fly?
4. What were the northern- and southernmost points of its migration?
5. Was there a common transition point shared by the birds?

OBJECTIVES

- To learn about latitudes and longitudes and how to use them to track bird migration.

Ages

9 years – Adult

Materials

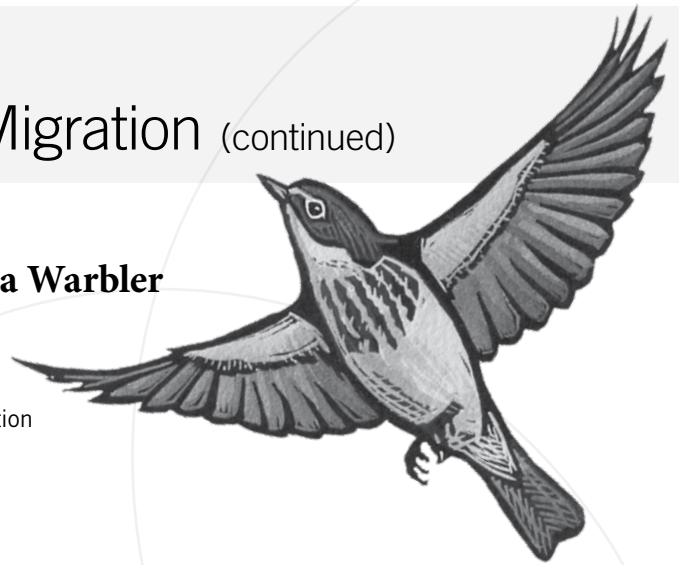
- Map of the Western Hemisphere with latitudes and longitudes
- Colored pens/pencils

Time

30+ minutes

ACTIVITY 6

Mapping the Canada Warbler's Migration (continued)



Geographic Coordinates for Tracking the Canada Warbler

B = Breeding **F** = Fall Migration **W** = Wintering **S** = Spring Migration

BIRD "A" CANADA WARBLER #36260

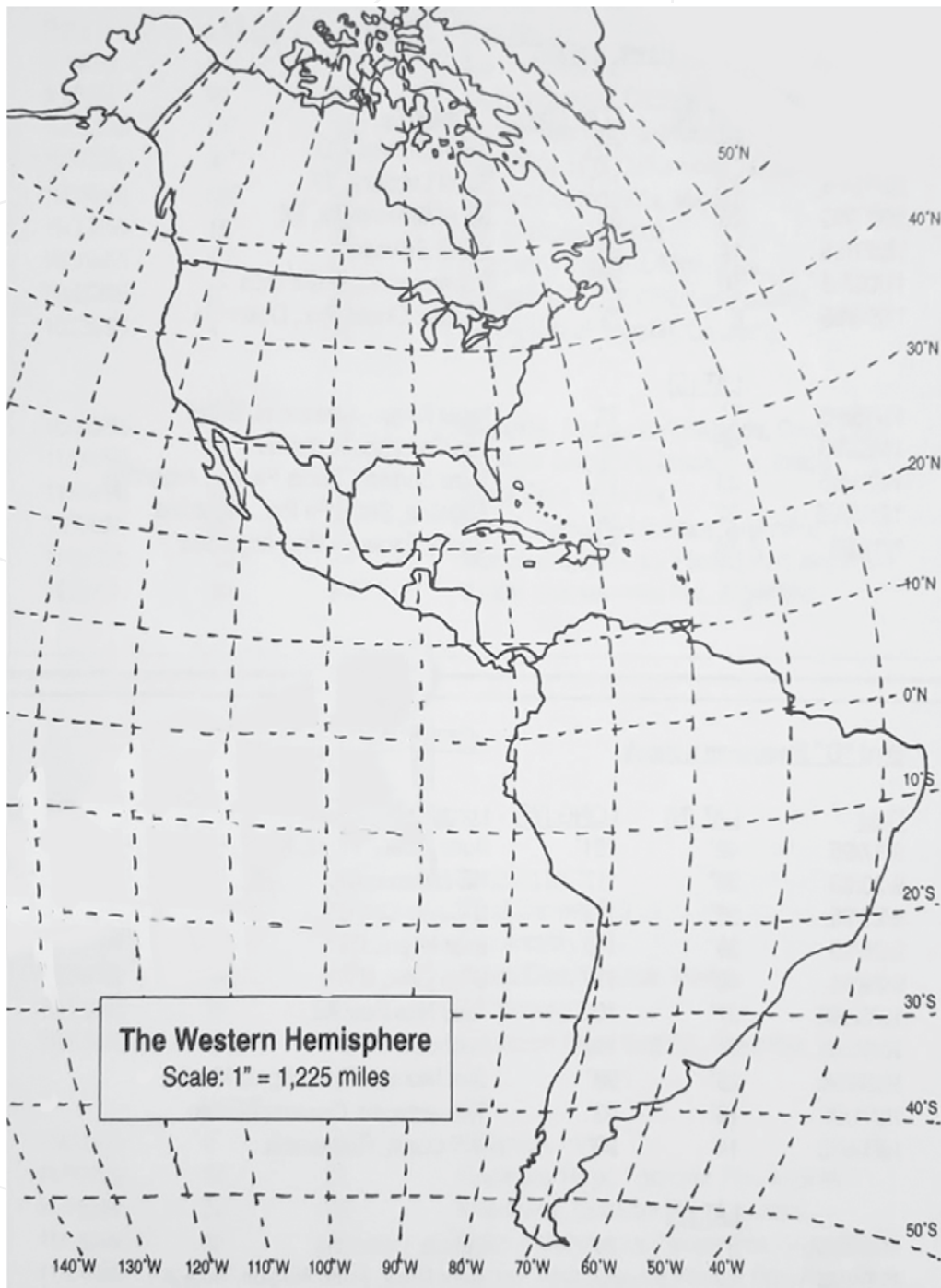
	DATE	LAT	LONG	LOCATION BY:
B	06/30/18	53.8760° N	94.6265° W	Garden Hill, Manitoba, Canada
	07/07/18	51.6298° N	85.9452° W	Ogoki, Ontario, Canada
	08/01/18	41.4203° N	78.7286° W	Ridgway, Pennsylvania, USA
F	09/30/18	29.9240° N	90.1126° W	New Orleans, Louisiana, USA
	10/06/18	19.4326° N	99.1332° W	Mexico City, Mexico
	10/30/18	14.0391° N	83.3950° W	Puerto Cabezas, Nicaragua
W	11/30/18	8.7122° N	71.4365° W	La Azulita, Merida, Venezuela
	01/28/19	10.9360° S	73.6008° W	Sierra de Santa Marta, Colombia
	03/01/19	3.4063° S	78.5718° W	Gualaquiza, Morona Santiago, Ecuador
S	04/30/19	8.5503° N	80.3547° W	Penonomé, Coclé, Panama
	05/05/19	13.4326° N	87.4554° W	San Lorenzo, Valle, Honduras
	05/13/19	19.8301° N	90.5349° W	Campeche, Campeche, Mexico

BIRD "B" CANADA WARBLER #47371

	DATE	LAT	LONG	LOCATION BY:
B	06/25/19	48.8053° N	79.2029° W	La Sarre, Quebec, Canada
	07/17/19	43.4392° N	70.7743° W	Sanford, Maine, USA
	08/07/19	41.7248° N	73.4770° W	Kent, Connecticut, USA
F	09/13/19	36.1627° N	86.7816° W	Nashville, Tennessee, USA
	10/26/19	29.7604° N	95.3698° W	Houston, Texas, USA
	10/04/19	17.0732° N	96.7266° W	Oaxaca, Mexico
W	11/12/19	7.7283° N	80.8226° W	Chepo, Herrera, Panama
	01/28/19	3.4516° N	76.5320° W	Cali, Valle del Cauca, Colombia
	03/07/19	7.1617° S	78.5128° W	Cajamarca Quechua, Peru
S	04/21/19	10.6346° N	85.4407° W	Liberia, Guanacaste, Costa Rica
	05/15/19	14.5573° N	90.7332° W	Antigua, Guatemala
	05/19/19	19.0414° N	98.2063° W	Puebla, Mexico

ACTIVITY 6

Mapping the Canada Warbler's Migration (continued)



ACTIVITY 7 Helping at Home

Overview

It is important to offer participants ways that they can help birds at home. This activity explores some of the hazards birds face and also actions we can take to reduce these hazards. Using the suggestions below, display a variety of items that are harmful to birds and describe their negative impacts. Then, provide visitors with solutions to reduce these impacts.

PLATE-GLASS

SHOW: A piece of plate-glass Demonstrate that plate-glass windows are easy to see through but can reflect the surrounding trees. Birds see the reflected trees instead of the glass and can fly into the glass.

IMPACTS: One out of every two window strikes may result in the death of the bird.

WAYS TO HELP: Place streamers made of ribbon, string, or yarn on your windows using cup hooks. Or make bird silhouettes or other decorations that will break up the reflective expanse of glass.

CHEMICALS

SHOW: Lawn chemicals, household chemicals, pesticides, and herbicides. Be sure the containers are well-sealed!

IMPACTS: Researchers estimate that almost 70 million birds die from exposure to pesticides each year. Chemicals may also impact bird reproduction and behavior.

WAYS TO HELP: Use natural products in your house and on your lawn that you can make or purchase. Properly dispose of chemicals, though, check with your local authorities if you aren't sure of how to do this.

CATS AND DOGS

SHOW: Pictures of pets. They may be your own.

IMPACTS: Domestic cats kill hundreds of millions of birds each year. Dogs chase wildlife, though no estimates are available on the extent of damage free-roaming dogs cause.

WAYS TO HELP: Keep pets indoors, mainly when birds are nesting and/or if you have a bird-feeder.

DIRTY BIRD-FEEDERS

SHOW: Dirty seed and/or nectar feeder(s) as well as clean feeders.

IMPACTS: Dirty feeders may help to spread diseases. Because birds congregate at feeders, diseases may spread easily and quickly.

WAYS TO HELP: Clean feeders regularly. Mix one part liquid chlorine household bleach into nine parts lukewarm water. Immerse your feeders in the solution entirely for two to three minutes, then air dry.

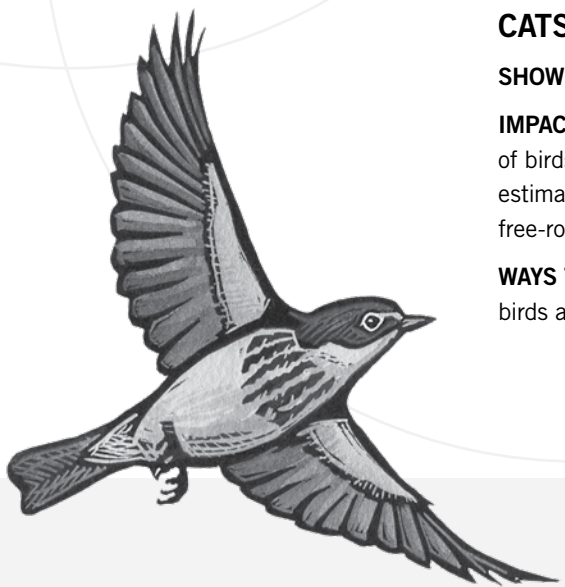
NON-NATIVE PLANTS

SHOW: Noxious weeds and other non-native plants common in your area.

IMPACTS: Noxious weeds spread rapidly, often out-competing native plants. Though wildlife may like some, others offer no benefits.

WAYS TO HELP: Plant native flowers, trees, and shrubs in your yard. They are beautiful and are appreciated by many kinds of wildlife.

NOXIOUS WEEDS: Please use examples of noxious weeds from your area.



OBJECTIVES

- To demonstrate the many human-related hazards birds face.
- To motivate participants to reduce the impact of these hazards on birds.

Ages

All Ages

Materials

- Piece of plate-glass
- Household chemicals/pesticides
 - Pictures of pets
 - Dirty bird feeder
- Noxious weed/non-native plants

Time

30+ minutes

ACTIVITY 8 Plastic Cleanup

Overview

Hosting a plastic cleanup is an effective way of sharing the enormity of plastic pollution, one of the many threats birds face in their migration journeys. Your WMBD cleanup can be fun and help to protect birds!

Planning Your Cleanup

Pick a location. Choose a location that has easy access, sufficient parking, and requires a cleanup.

Identify the property owner and obtain permission. Landowners may be a private, city, or a national park or wildlife refuge. It is essential to have the proper permissions before you begin to plan your event.

Choose a date and a time. Check with cooperating partners to determine an appropriate time to schedule your event.

Determine how garbage will be picked up and disposed of properly. Talk with your city's waste disposal company or learn where the city dump is located, when it is open, and how much it costs to dispose of garbage.

Limit the number of participants, especially if this is your first clean up and you have limited assistance. We recommend a first-time event that has no more than 30-50 participants

Visit your site before hosting the activity to be sure that no hazards are present.

Address Safety Issues

SAFETY COMES FIRST! Keeping your staff, volunteers, and participants safe is absolutely crucial.

Require volunteers to sign a waiver of liability for your own protection and to emphasize the importance of safety.

Examine your cleanup location. Is it close to a road or dangerous machinery? You may need to mark restricted areas where your volunteers should not collect plastic. If the site is near vehicles and/or roads, provide bright or reflective clothing, or safety vests, and/or set boundaries.

Familiarize yourself with plants and animals at the site that could pose potential safety hazards. For example, is poison ivy or oak present? Could venomous snakes be present? Most sites will have items that could be hazardous if not handled correctly, such as injured or dead wildlife, sharp items including broken glass, toxic materials such as cleaning products and batteries, and other items such as hypodermic needles. Only participants with the required safety equipment and who are trained and experienced should remove these items.

Require participants to wear appropriate clothing during the cleanup, including closed-toed shoes and the recommended gloves.

Note any boundaries that volunteers should be aware of. Be sure participants don't wander onto private property, into areas where they could become lost, or areas where they could become separated from the group.

Never burn plastic or other trash, which can result in toxic smoke and potentially spread a fire. Work with your city or other partners to ensure that you can properly dispose of the garbage.



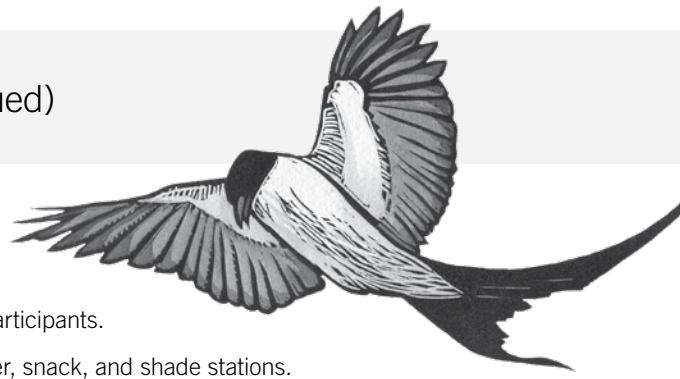
RECRUIT PARTICIPANTS

Identify your target audience and the number of people you want to participate in. The more people you invite, the more help you will need to organize and managing your cleanup. The age of your participants will also affect the organization. For example, you may want more supervision if you are working with youth.

RECRUITING TIPS TO GET YOU STARTED

- Work with a group you already know. This may include scouts, a senior group, an environmental or bird club, or a neighborhood.
- Ask participants to RSVP so that you can be sure your numbers don't exceed your capacity to safely manage the activity.
- Recruit local conservation organizations and clubs.
- Make and distribute event fliers around your community and/or neighborhood to increase participation if your event is open to the public.
- Incorporate your activity into other WMBD events.
- Unless you are working with a youth group, determine the minimum age at which children may participate without an adult supervisor.

ACTIVITY 8 Plastic Cleanup (continued)



Plan Day-of-Event Timing

Develop a detailed schedule of the cleanup to organize the day and ensure you complete all of your activities.

The schedule should include the following times:

1. Setup before participants arrive.
2. Instructing participants and distributing materials, equipment, and data forms.
3. Cleanup start and finish.
4. Gathering equipment from participants.
5. Pickup of garbage by the city, natural area, or other partner.

Have Fun!

There are several ways to make your event more fun, but they will require planning ahead.

Give rewards. You can acknowledge the team that has the heaviest bag, the team that collects the most garbage, and the team that finds the most interesting or unusual item.

Take plenty of photos and post them on social media.

Have a dinner or other wrap-up after the cleanup to celebrate your accomplishments.

Day of Event

Event Setup

1. **Arrive before** the participants.
2. **Set up** sign-in, water, snack, and shade stations.
3. **Place signage** to identify stations, such as First Aid and Registration.
4. **Organize the supplies** (gloves, garbage bags, and data forms) so that they are easy to distribute. Place gloves into one container, garbage bags into another, and data forms on clipboards with a pencil into a third.
5. **Put up any boundaries** required for hazards or restricted areas.
6. **If your community recycles**, plan to have participants separate their items into bags for recycling and bags for trash.

End of Day

1. **Properly dispose** of all garbage and recyclables.
2. **Inspect the site** to ensure that all of your supplies and equipment have been removed.

After the Event

1. **Thank** the cleanup volunteers and sponsors.
2. **Compile Data.** If you have an event coordinator, have him/her gather volunteer data forms, compile the data, and submit online.
3. **Enter your cleanup data** at www.migratorybirdday.org/events and select the **Submit Cleanup Data**.
4. **When naming your cleanup event**, please precede the name with **WMBD-**, such as WMBD-Clear Creek.
5. **As with the cleanup data**, if there is a coordinator, the bird observations should be compiled. Submit your bird observations to eBird, using the account: **EFTA_Birdday** The password is: **WMBD2019DMAM**

NEED CLEANUP SUPPLIES?

Visit migratorybirdday.org/shop to purchase a Family or Group Cleanup Kit

OBJECTIVES

- To engage your community, hands-on, in an action that helps to protect birds.
- To demonstrate plastic pollution in our environment.
- To motivate participants to reduce their plastic use.

Ages

8 years – Adult

Materials

- Protective gloves
- Garbage bags
- Data Form, visit migratorybirdday.org/resources

Time

3 - 6 hours

ACTIVITY 9

World Migratory Bird Day 2020 Matching Game



Cut on dashed lines

AMERICAN KESTREL (*Falco sparverius*)

- This small falcon often perches on utility lines.
- Researchers use feather analysis, color bands, and geolocators to track kestrels.
- Its weight equals about 34 pennies.

PURPLE MARTIN (*Progne subis*)

- It forages on insects in the air. Declines in insect populations impact the decreasing numbers of this large swallow.
- Weather radar has helped researchers locate this species, especially when birds gather in large flocks on migration.

FORK-TAILED FLYCATCHER (*Tyrannus savana*)

- Males have long tails, shaped like scissors.
- This flycatcher feeds on insects and is often seen in grasslands from Mexico to Argentina.
- Geolocators are now helping us to understand flycatcher migration in South America.

WESTERN SANDPIPER (*Calidris mauri*)

- Hundreds of thousands gather during migration.
- This bird forages by walking slowly through mudflats and pecking or probing for small prey.
- Threatened by tundra fragmentation, coastal development, loss of habitat and wetlands acidification.
- Scientists use colored bands and citizen science data to learn about this shorebird's migration between Alaska and South America.

ARCTIC TERN (*Sterna paradisaea*)

- This tern is the world's migration champion. It flies around the planet twice in a single year—over 37,000 miles (59,500 km).
- Miniature geolocators weighing 1.4 grams—about the same as a paperclip—are used to track terns.

CALLIOPE HUMMINGBIRD (*Selasphorus calliope*)

- This hummingbird is the smallest bird on its nesting sites in the United States and Canada—only 3 inches long!
- Understanding this bird's migration between its nesting sites in Canada and the United States and its overwintering sites in Mexico depends on observations made by citizen scientist.
- Calliope means “beautiful voice.”

BAIRD'S SPARROW (*Centronyx bairdii*)

- This small brown bird uses overgrown fields and grasslands to find seeds and insects and to nest.
- Banding analysis are helping us learn about this species, whose numbers are declining.
- Ranchers provide important protection for this sparrow by conserving its habitat.

BARN OWL (*Tyto alba*)

- Radio tags and geolocators share information about where this owl hunts.
- Its dish-shaped face helps it to locate rodents at night.
- Habitat loss, prey poisoned with pesticides, and collisions with cars are threats.

BAR-TAILED GODWIT (*Limosa lapponica*)

- Satellite transmitters revealed that this godwit holds the world record for non-stop flight, 11,000 km in 8 days.
- Godwits are waders that use their long bills to probe for food, including snails, worms, and clam in mudflats.

CANADA WARBLER (*Cardellina canadensis*)

- Numbers of this yellow warbler are declining; it is threatened with extinction in Canada.
- Scientists in Canada and Colombia use small tags attached to warblers' backs to track them from nest sites in Canada to northern South America.

NORTHERN PINTAIL (*Anas acuta*)

- Ducks carrying satellite transmitters help us understand their migratory routes around the world.
- Pintails are threatened by human competition for water and agricultural activities that affect nesting and habitat.

YELLOW-BREASTED CHAT (*Icteria virens*)

- Banding and genetic analysis help us learn about migration from the U.S. and Canada to Mexico and Central America.
- At 7.5 in (19 cm), this is the largest warbler!

IMPORTANT NOTE:

**Before starting Activity 7, you must make copies of this page.
Provide one copy for each participant in the Matching Game.**

ACTIVITY 9

World Migratory Bird Day 2020 Matching Game (continued)

Overview

Explore the characteristics of the birds on the 2020 WMBD poster by playing this simple matching game.

Setup

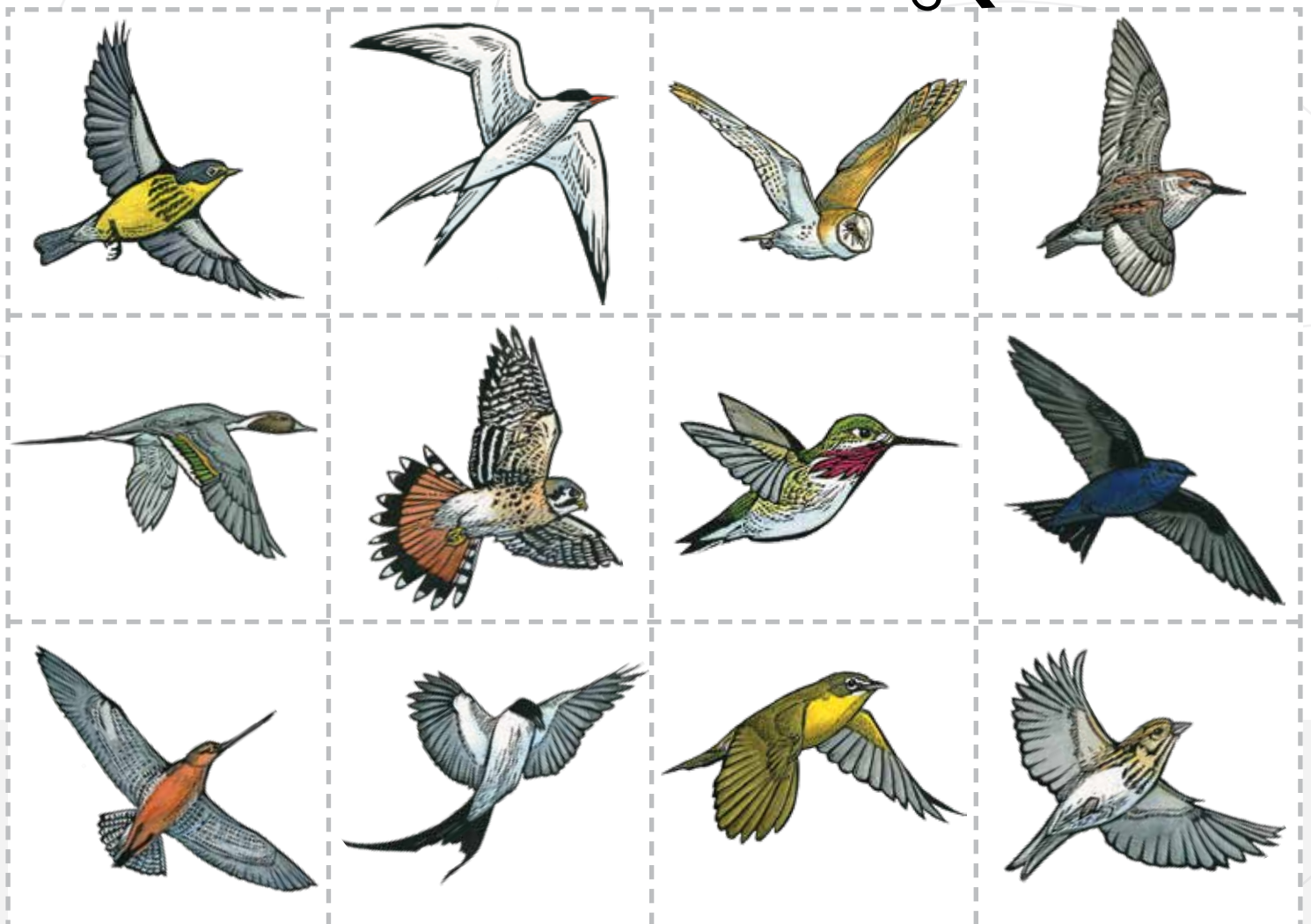
Preparing this activity couldn't be simpler. Print the bird images and descriptions. Printing on card stock creates durable game pieces that can be used many times. Then, cut out each bird image and description.

Get Started

Place the bird images and descriptions on a table. Participants match the descriptions to the images of the birds. This activity does not require any bird identification knowledge. Use the descriptions to lead discussions about migration, the threats birds face on their journeys, and how we can help the birds.



Cut on dashed lines



OBJECTIVES

- Learn facts about each of the birds on the 2020 WMBD poster.
- Compare characteristics of different bird species.

AGES

Kindergarten - Adult

Materials

- Copies of bird characteristics cutouts (page 23)
- Bird image cutouts • Table

TIME

As long as participants want to play!