Case Study:

BARN SWALLOW

PHOTO: MARK PECK
BARN SWALLOW

Barn Swallows are a widespread and familiar species in the Swallow family. They are aerial insectivores, and have fast, agile flight to feed on flying insects.

LATIN: Hirundo rustica

FRENCH: Hirondelle rustique

SPANISH: Golondrina Común

CLASSIFICATION:
Kingdom: Animalia
Phylum: Chordata
Class: Aves
Order: Passeriformes (Perching birds)
Family: Hirundinidae (Swallows)
Genus: Hirundo
Species: rustica

Glossy, dark blue head and back
Rufous forehead, chin and throat
Long, forked tail

Weight: 16-22 g
Length: 17-19 cm

CONSERVATION

Globally, Barn Swallows are listed as a species of Least Concern. However, breeding populations in Canada have continuously declined for nearly 40 years, and Barn Swallows are listed as a Threatened species by the Committee of the Status of Endangered Wildlife in Canada. The causes of this trend are not well understood, but as long-distance, neotropical migrants, these birds rely on many locations, and safe and healthy habitats to support different stages of their annual cycle.

Key conservation concerns:
• Habitat availability
• Changing climate & seasonal shifts result in mis-matched timing of food availability
• Decline in food source linked to pesticides

Click here to view photos, videos and audio
Barn Swallows spend the non-breeding season in Central and South America, where the tropical climate supports an abundant supply of food.

Barn Swallows are neotropical migrants, travelling long distances to breeding areas in North America. They migrate during the day, moving north as insects emerge with the warmer weather.

Barn Swallows settle into breeding areas in April and May, seeking open areas like grasslands, farms and marshes. Males set up territories near structures, often associated with human dwellings, like barns and outbuildings. Cup-shaped nests are made of mud pellets and lined with feathers for 3-7 white eggs. Females incubate for 2 weeks, and both parents feed the young for another 3 weeks.

Adult Barn Swallows leave the breeding area shortly after their young fledge the nest. By August, large flocks of swallows gather on power lines, in fields and wetlands, foraging and preparing for the journey back to their wintering grounds.

RESEARCH IN FOCUS:

Barn Swallow Ecology Project

Scientists are exploring what factors may be impacting Barn Swallows between the breeding stage and fall migration.

SCIENCE GOALS:

• Observe the regional post-breeding movements and survival of juvenile Barn Swallows.
• Determine the locations and dates that individual Barn Swallows start fall migration.
• Identifying important stopover locations and length of stay during migration.

METHODS:

Adult and juvenile Barn Swallows are tagged at their nesting site, usually within barns or outbuildings. Mist nests are set up inside the barn or at an entrance where birds move in and out with food for the young chicks.

An aluminum band is attached to the birds leg, and information about its age, sex, fat, wing length and weight are recorded. A nanotag with a loop harness is wrapped on the birds legs and sits at the base of the bird like a backpack. The birds are released, and the tags emit a unique signal that can be detected by the Motus receivers. Detections of these tags indicate the date and location of the individual bird as it moves across the landscape.

Nanotags have been released on more than 250 Barn Swallows since 2016 in southwestern Ontario, and in Atlantic Canada.
The following individual Barn Swallows represent a subset of the population's movements across the landscape.

Explore the post-breeding and migration movements on the provided base map using the following guidelines:

1. Label the bird species in the top right corner of the map page.
2. Use the detection data in the table below to plot the locations on the map.
3. Connect the dots and label each track with the tag identification number.
4. Draw arrowheads on the tracks to point in the direction of bird movement.
5. Label the track dates on the first detection location and the last detection location.
6. Circle the location where the bird stopped for the longest time. Label its length of stay.
7. Using the scale on the map and a ruler, measure and label the total flight track distance from its wintering to breeding location.
8. Choose two detections, and calculate the flight speed between locations (distance/time as km/hr). Label this on the map sites.
9. Build a legend in the bottom left corner of the map. Use a different color to label each stage: Breeding, Migration, and Wintering
10. Fill in the Breeding range and the Wintering range of the map, using the legend colors. Trace the flight tracks with the color for Migration.
11. Circle the country names of which this bird was detected in.
12. Draw a big star on your location. Which range for this species are you located?

**PROJECT DATA**

<table>
<thead>
<tr>
<th>DATE</th>
<th>LATITUDE</th>
<th>LONGITUDE</th>
<th>ALPHA-NUMERIC</th>
<th>NEAREST REFERENCE</th>
<th>LENGTH OF STAY</th>
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<tbody>
<tr>
<td>July 31, 2018</td>
<td>43.44</td>
<td>-80.64</td>
<td>I-9</td>
<td>Kitchener, Ontario, Canada</td>
<td>27d 5h 3m 46s</td>
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<td>42.62</td>
<td>80.72</td>
<td>I-9</td>
<td>Woodstock, Ontario, Canada</td>
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<td>43.06</td>
<td>-80.75</td>
<td>I-9</td>
<td>Port Burwell, Ontario, Canada</td>
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<td>30.09</td>
<td>-84.16</td>
<td>I-12</td>
<td>Tallahassee, Florida, USA</td>
<td>0d 0h 21m 45s</td>
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<td>8.64</td>
<td>-77.35</td>
<td>I-16</td>
<td>Panama City, Panama</td>
<td>0d 0h 4m 36s</td>
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<tr>
<td>July 25, 2018</td>
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<td>J-8</td>
<td>Shemogue, New Brunswick</td>
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<td>Johnson’s Point, New Brunswick</td>
<td>1d h 32m</td>
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</table>

Check your migration track here: [www.motus.org/data/demo/educationBARS.html](http://www.motus.org/data/demo/educationBARS.html)
### DISCUSSION

Use the guided discussion boxes below to analyze the project results from this Case Study. Compare and contrast with other species:

### POPULATIONS

1. **What is the population trend and status for Barn Swallows?**

### MIGRATION ECOLOGY

2. **What habitat and food resources make a good stopover site for this species?**

### THREAT ASSESSMENT

3. **Identify a threat that might impact survival or success during breeding, migration or non-breeding stages of annual cycle.**

### CONSERVATION

4. **How can human-related threats be reduced or mitigated?**

### CRITICAL THINKING:

How might **CLIMATE CHANGE** impact the range and resources for Barn Swallows?