



SCHOOLYARD HABITATS®

BASELINE AUDIT, GRADES 3-5

The Schoolyard Habitats audit was developed as a tool for students to investigate the school ground's use and to be used as the basis for improving native wildlife habitat and outdoor learning on the school site. Some of the questions may require the assistance of school staff, including facility managers, or require students and staff to perform additional research.

Identify and list below any resource specialists and/or volunteers who can assist with the audit and/or share their gardening/wildlife habitat expertise.

One of the first things you will want to do is to create a base map of the school site. The team is asked to upload an example in Table 3. Students can create this map or you can obtain one from school administration. Make sure the site map has an appropriate scale, includes all borders of the property (property lines, roads, sidewalks) and any large permanent features such as the school and other property buildings. This base map can be given to students to assist them in marking specific vegetation, water, cover and places to raise young that already exist on the school site.

A good way to document wildlife, plants and habitat components is to take pictures and attach them to the audit or keep them in a file for later. It will help you to remember details that might otherwise be lost. The full Schoolyard Habitats® How-To-Guide is available at <https://www.nwf.org/sitecore/content/Home/Garden-for-Wildlife/Create/Schoolyards/Resources>

Before starting the Schoolyard Habitats® Audit or going further, survey your students. Insert the average student response. On a scale of 1-10, where 1 is least important and 10 in most important, how important is:

1. Wildlife (plants and animals) to my community? _____
2. It is to know the history of the school site and surrounding area when conducting the audit? _____



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TABLE 1. SITE HISTORY

Knowing the site’s history is an important part in the planning of the site’s future. For example, if the site is located near an industrial center, soils may contain residues of chemicals generated by the adjacent industry. Generate a list of questions about the site and a list of people you think might be able to help you answer them. Some suggestions are provided below.

1. What year was the site developed?	
2. What type of ecosystem was here before the school was built?	
3. In the past, were any industrial centers near or on the school site? If yes, explain.	
4. What is the cultural history of the school site?	

Who Can Help? Long-time town residents • Historical Society • Principal • Local farmer • Local Businesspeople • Long-time teacher • Librarian • County Planning Office • Conservation District staff



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TABLE 2. DEFINING THE STUDY SITE

<p>1. What are the GPS coordinates for the study site? Use your smart phone's GPS or go to: http://www.whatsmygps.com/ to find the site's coordinates.</p>	<p>Latitude N _____ Longitude W _____</p>
<p>2. In what watershed is the study site located? https://cfpub.epa.gov/surf/locate/index.cfm</p>	
<p>3. What are the land use types surround the study site? Check all that apply.</p>	<p>_____ Residential _____ Commercial _____ Park _____ Undeveloped land _____ Other</p>
<p>4. Is the school a National Wildlife Federation Certified Schoolyard Habitat[®]?</p>	<p>_____ Yes _____ No _____ Unsure</p>
<p>5. Are the school grounds certified or maintained through another local, state or national program or citizen science project?</p>	<p>_____ Yes _____ No _____ Unsure If yes, please list. _____ _____</p>
<p>6. How many square feet of wildlife habitat does the school currently maintain?</p>	<p>_____ ft²</p>
<p>7. What is the average number of minutes students spend in the garden or outdoor learning space each week?</p>	<p>_____ minutes</p>



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TABLE 3. LANDSCAPE

As a team/class activity, have students draw an aerial map of the school grounds and denote the following. Choose one student or team map and insert as a .jpg or .png image file below.

1. School building	2. Man-made structures other than the school building	3. Location of hills valleys and slopes
4. Rainfall or sprinkler run-off paths and low lying areas that hold water	5. Sprinkler systems, storm drains, or sewer markers	6. Existing natural areas
7. Trees	8. Wind breaks	9. Hours of direct sunlight/full shade
10. Natural and man-made walkways	11. Cardinal directions	12. Key

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Think about the following questions as you summarize the information in Table 3.

1. How does the shape of the site affect habitat plans?
2. What are the landscape features you can change? Not change?
3. What are the cause and effect impacts of making or not making changes?

TABLE 4. TEMPERATURE AND PRECIPITATION

<p>1. For today's date, collect the weather data listed to the right. Use your local weather website, application or use the following:</p> <ul style="list-style-type: none"> • http://www.weatherbase.com/weather/state.php3?c=US • www.weather.com 	<p>_____ _____ Temperature in degrees Fahrenheit and Celsius</p> <p>_____ _____ Precipitation in inches and centimeters</p>
<p>2. In what season is data being collected?</p>	<p>_____ Summer _____ Fall</p> <p>_____ Winter _____ Spring</p>
<p>3. In what plant hardiness zone does the school reside? https://planthardiness.ars.usda.gov/PHZMWeb/</p>	
<p>4. What are the average annual minimum winter temperatures for this zone?</p>	<p>_____ °F _____ °C</p>
<p>5. What is the average annual rainfall? https://www.usclimatedata.com/</p>	<p>_____ inches _____ cm</p>

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Think about the following questions as you summarize the data in Table 4.

1. What might the weather be like when the post-action audit is conducted? Consider setting a date for the post-action audit now.
2. How do changes in weather impact plants and animal behavior?
3. How does severe weather impact plants and animals?
4. What are some actions the team/class can take to protect wildlife from significant weather events? Use this information to inform the Eco-Action Plan.



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TABLES 5 and 6. Consider contacting a habitat steward, parks department, college or university, or local gardening/native plants non-profit. Their involvement is a great way to connect to the community, inspire students, demonstrate career possibilities and share resource expertise.

Invite parents and community members to participate in the auditing process. Students can take on the role of educator by working with volunteers on citizen science. This experience is a great way to build community.

TABLE 5. SOIL QUALITY

1. Soil Temperature Test 1 _____ °F _____ °C Test 2 _____ °F _____ °C Test 3 _____ °F _____ °C		2. Soil pH Test 1 _____ pH level Test 2 _____ pH level Test 3 _____ pH level () Acidic () Neutral () Basic	
3. Nitrogen (optional) Test 1 () low () medium () high Test 2 () low () medium () high Test 3 () low () medium () high	4. Phosphorus (optional) Test 1 () low () medium () high Test 2 () low () medium () high Test 3 () low () medium () high	5. Potassium (optional) Test 1 () low () medium () high Test 2 () low () medium () high Test 3 () low () medium () high	



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TABLE 6. WATER QUALITY (OPTIONAL-CONDUCT IF APPLICABLE)

<p>1. Water Temperature</p> <p>Test 1 _____ °F _____ °C</p> <p>Test 2 _____ °F _____ °C</p> <p>Test 3 _____ °F _____ °C</p>	<p>2. Water pH</p> <p>Test 1 _____ pH level</p> <p>Test 2 _____ pH level</p> <p>Test 3 _____ pH level</p> <p>() Acidic () Neutral () Basic</p>
<p>3. Dissolved Oxygen</p> <p>Test 1 _____ ppm (parts/million)</p> <p>Test 2 _____ ppm (parts/million)</p> <p>Test 3 _____ ppm (parts/million)</p>	<p>4. Nitrates</p> <p>Test 1 _____ ppm (NO₃ parts/million)</p> <p>Test 2 _____ ppm (NO₃ parts/million)</p> <p>Test 3 _____ ppm (NO₃ parts/million)</p>
<p>5. Is it raining or has it rained in the last 24 hours? Stormwater runoff from surrounding areas can impact watershed quality and appearance, including temperature and pH.</p>	<p>() Yes () No</p>
<p>6. List the potential point sources of pollution.</p>	

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Think about the following questions as you summarize the data in Tables 5 and 6.

1. What about soil is important to plants and animals?
2. Why is it important to observe and test soil and water in and around potential habitat sites?
3. How can run-off impact wildlife habitat?
4. What action(s) can the team/class take to improve soil and water quality? Use this information to inform the Eco-Action plan.

The key to attracting wildlife to the Schoolyard Habitat is to have all the essential elements including food, water, cover and places to raise young. The following charts will help to assess these habitat elements on the school site. To populate the tables, students can be placed in teams or work in pairs. Students are encouraged to collect data in their science notebook and then transfer the compilation of their data to Table 7 and Charts 1 through 6.

TABLE 7. WILDLIFE

1. Are there animals present at the study site today?	___ Yes ___ No
2. Check the families of animals observed at the study site, then continue to Chart 1. Animal Observations	___ amphibians ___ birds ___ fish ___ insects ___ mammals ___ reptiles

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CHART 1. WILDLIFE – ANIMALS

Most students may not have the knowledge to identify, by name a specific animal. If students do know the common name, write the common name in the notes, otherwise tally the total number of each different kind of animal observed. You may not see the animal, but may see evidence of its existence. Make sure to note the evidence. Often the type of wildlife found in the Schoolyard Habitat helps to define the health of the site.

Identify what teams/classes observe today.

Birds, Mammals, Insects, Reptiles, Fish, Amphibians	# of Animals Observed	Animal Evidence (tracks, burrows, nests, scat, etc.)	Notes
Example Birds – Robins and Chickadees	2 Robins and 3 Chickadees	Robin nest, physical sighting	Robin nest had a broken egg. Chickadees back and forth between the bird feeder and a nearby branch.

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CHART 2. HABITAT ELEMENTS - FOOD

Vegetation Type	Tally	Total # of Trees
Trees (over-story canopy)		
Shrubs (mid-story canopy)		
Flowers (herbaceous)		
Ground Cover (fungi, mosses, grasses)		
Other (man-made structures)		

Think about the following questions as you summarize the information in Chart 1 and 2.

1. What do you want to know about the plants, trees, shrubs and flowers that have been observed?
2. How many of the plants observed are native to the area? Why are native plants important to the Schoolyard Habitat® site?
3. Which plants feed which wildlife species? How can the team/class find out?
4. How diverse (how many different types) are the plants? A higher level of diversity will attract more wildlife species.
5. Referring back to the baseline maps, pay attention to existing natural areas and landscaped areas on the school grounds. How might they provide examples of how to enhance the Schoolyard Habitat® site for native wildlife?



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CHART 3. HABITAT ELEMENTS – WATER

1. Are there water sources on the school site?	() Yes () No
2. What are the natural water sources? Select all that apply.	() stream () pond () lake () wetland () puddles _____ other
3. Does the site have seasonal pools of water (vernal pools)? Vernal pools are important nurseries for many amphibian species.	() Yes () No () Unsure
4. Does the site include manmade water structures?	() bird baths () rain garden(s) () puddling containers _____ other

Think about the following question as you summarize the information in Chart 3.

1. Water is important to plants and animals. What is the relationship, or connections, between natural water sources and nearby habitat?



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CHART 4. HABITAT ELEMENTS – COVER

<p>1. Our school provides places for wildlife to find cover from the weather and predators. (brush piles, rock walls, dense vegetation, trees)</p>	<p>() Yes () No</p>
<p>2. How many sources of natural cover are available on the school site?</p>	<p>_____ natural cover sources</p>
<p>3. How many manmade structures provide cover for wildlife such as bird houses, toad houses, bat house, bug houses, etc.</p>	<p>_____ manmade cover sources</p>

Think about the following questions as you summarize the information in Chart 4.

1. Do plants range in size and denseness (how compact)?
2. Why is it important to have a variety of plant sizes with different densities?



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CHART 5. HABITAT ELEMENTS – PLACES TO RAISE YOUNG

1. Our school provides places for wildlife to raise their young.	() Yes () No
2. How many natural sources of available places for wildlife to raise their young on the school site (host plants for larvae, trees/bushes for nests, water features for amphibians, etc.).	_____ natural structures
3. How many manmade structures provide places for wildlife to raise young such as bird houses, bat houses, etc. There may be similarities between Chart 4 and 5.	_____ manmade structures

CHART 6. HABITAT ELEMENTS – OTHER CONSIDERATIONS

1. Check all that apply. What types of sustainable practices are used on the school site?	<input type="checkbox"/> organic fertilizers and herbicides <input type="checkbox"/> mulching <input type="checkbox"/> remove invasive species <input type="checkbox"/> xeriscaping <input type="checkbox"/> drip irrigation <input type="checkbox"/> native plants <input type="checkbox"/> compost <input type="checkbox"/> reduced lawn _____ other
2. Does the school site include vegetable, fruit and/or herb gardens?	() Yes () No
3. Does the school site include pollinator gardens?	() Yes () No
4. Are the school grounds used for teaching and learning?	() Yes () No If yes, please briefly describe how:

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CHART 6. HABITAT ELEMENTS – OTHER CONSIDERATIONS, CONTINUED

5. Does the garden(s) meet the American with Disabilities (ADA) accessibility standards?	() Yes () No () Unsure
6. Does the garden(s) include interpretive signage that is multi-lingual?	() Yes () No
7. Are there existing places/structures on the school site that serve as an outdoor classroom where students can gather, listen, dialogue and learn?	() Yes () No

Think about the following questions as the Eco-Action Team/students summarize the information from the above charts and tables:

1. Does the school contain all five wildlife habitat requirements in a natural urban, suburban or rural setting – food, water, cover, places to raise young, and a healthy, sustainable habitat?
2. Are there any protected plant or animal species (threatened or endangered) in or around the study site?
3. What role might a food garden (vegetable/fruit/herb) play in the Schoolyard Habitat®? What role might a pollinator garden or native plantings play?
4. What are some stewardship actions the team/class can take to improve wildlife habitat in the Schoolyard Habitat study site?

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Review of All Data

1. Based on what is known and has been learned, what does the team/class need to create or extend wildlife habitat on the school grounds?
2. Be prepared in the post-audit to explain **patterns** students observed while investigating the school grounds.
3. Be prepared in the post-audit to explain **cause and effect** relationships students have identified through their investigations.
4. Be prepared in the post-audit to explain the role **systems and system models** play in the development and maintenance of wildlife habitat.