



SCHOOLYARD HABITATS[®]

POST-ACTION AUDIT, GRADES 9-12

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.

Did the class/team work with any resource specialists and/or volunteers () Yes () No
Please list.

Once again survey the team/classes. Record the average response. On a scale of 1-10, where 1 is least important and 10 in most important, how important is:

1. Wildlife to people and my community? _____
2. It to know the history and culture of the school site and surrounding area when conducting the audit?

METRICS REQUIRED FOR DASHBOARD

1. How many square feet of wildlife habitat does the school maintain? _____ ft²
2. What are the average number of minutes teams/classes spend in the garden or outdoor learning spaces each week? _____ minutes



TABLE 1. DEFINING THE STUDY SITE

<p>1. Confirm the GPS coordinates for the Schoolyard Habitat® 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. If land use types surrounding the study site changed in any way from the baseline to the post-action audit, record it here? Check all that apply.</p>	<p>_____ Residential _____ Commercial _____ Park _____ Undeveloped Land _____ Other _____ No changes</p>
<p>3. Is the school now or in the process of certifying as a National Wildlife Federation Schoolyard Habitat®?</p>	<p>Yes _____ No _____</p>

Think about the following questions as you summarize the information in Table 1.

1. What did students learn about how the land was used prior to the school's existence?
2. What did students learn about the cultural heritage of the land in which the school was built?
3. Why is this information important when considering a Schoolyard Habitat®?



TABLE 2. TOPOGRAPHY

Using the same elements from the base map created in the baseline audit, have students update and make modifications based on new learning and understanding as well as, identifying new structures, man-made or natural, habitat expansions, etc. As a reminder, the original chart is provided below. Choose one student or team map and insert it as a .jpg or .png 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. If changes to the landscape were required, briefly explain what issue needed to be addressed and how it was addressed.
2. If no changes to the landscape were required, briefly explain how the conclusion was made.



TABLE 3. 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. Are the temperatures since the baseline audit considered seasonal or not typical for the season?</p>	<p>____ typical</p> <p>____ atypical</p>
<p>4. Since the baseline audit, how much rain has the study site received? Is this typical or atypical?</p>	<p>____ inches ____ cm</p> <p>____ typical ____ atypical</p>

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

1. How has student understanding changed from the baseline audit to the post-action audit in relation to weather's role in the development and maintenance of Schoolyard Habitat®?



TABLES 4 and 5. 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 4. SOIL

Instructions for taking soil samples can be found in the soil sample kit. Follow the directions closely for valid results.

<p>1. Soil Temperature</p> <p>Test 1 _____ °F _____ °C</p> <p>Test 2 _____ °F _____ °C</p> <p>Test 3 _____ °F _____ °C</p>	<p>2. Soil 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. Iron</p> <p>Test 1 _____ Fe ppm (parts/million)</p> <p>Test 2 _____ Fe ppm (parts/million)</p> <p>Test 3 _____ Fe ppm (parts/million)</p>
<p>4. Nitrogen</p> <p>Test 1 () low () medium () high</p> <p>Test 2 () low () medium () high</p> <p>Test 3 () low () medium () high</p>	<p>5. Phosphorus</p> <p>Test 1 () low () medium () high</p> <p>Test 2 () low () medium () high</p> <p>Test 3 () low () medium () high</p>	<p>6. Potassium</p> <p>Test 1 () low () medium () high</p> <p>Test 2 () low () medium () high</p> <p>Test 3 () low () medium () high</p>



TABLE 5. 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. Salinity</p> <p>Test 1 _____ ppt (parts/thousand)</p> <p>Test 2 _____ ppt (parts/thousand)</p> <p>Test 3 _____ ppt (parts/thousand)</p>
<p>4. 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>5. 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>6. 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>7. List the potential point sources of pollution.</p>		
<p>8. List the potential non-point sources of pollution.</p>		

Think about the following questions as you summarize the information in Table 4 and 5.

1. What changes, if any have been documented when comparing the baseline and post-action audits?
2. Why did these changes occur?
3. What action(s) did the team/class take to improve soil and water quality?



TABLE 6. WILDLIFE – GENERAL

1. Has there been an increase in animal sightings at the Schoolyard Habitat study site?	() Yes () No
2. Check the families of animals observed at the Schoolyard Habitat® study site today. Fill in Chart 1. Wildlife – Animal Observations	() Mammals () Fish () Birds () Insects () Reptiles () Amphibians

CHART 1. WILDLIFE – ANIMALS

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 ELEMENT, FOOD - VEGETATION

Vegetation Type	Species or Description	Percent Coverage*	Native or Non-Native	What Wildlife Prefers this Food Source?
Trees (over-story canopy)	Example: sugar maple	5%	native	red squirrels, deer
Shrubs (mid-story canopy)	Example: blackberries	1%	native	raccoons, red foxes
Flowers (herbaceous)	Example: asters	.3%	native	bumblebees, Sulphur butterfly
Other (fungi, mosses, grasses)	Example: oyster mushrooms	.5%	native	mice, slugs and snails

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Vegetation Type	Species or Description	Percent Coverage*	Native or Non-Native	What Wildlife Prefers this Food Source?
Other (man-made structures)	Example: bird feeders	2%	non-native	local songbirds, squirrels

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

1. Is the study site more biodiverse than it was when assessed during the baseline audit?
2. What noticeable changes have students observed in the types of wildlife that frequent the study site?
3. Are members of the Eco-Action Team able to identify the native and local plants and animals?
4. How has student understanding of ecosystems changed?



CHART 3. HABITAT ELEMENT – 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? Select all that apply.	() bird baths () rain garden(s) () puddling containers _____ other

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

1. Briefly explain what’s changed since conducting the baseline audit?
2. Have students observed wildlife at the new, expanded or modified water features?



CHART 4. HABITAT ELEMENT – 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. List the sources of available cover on the school site.</p>	
<p>3. List the manmade structures on the school site that provide cover for wildlife such as bird houses, toad houses, bat house, bug houses, etc.</p>	

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

1. Briefly explain what’s changed since conducting the baseline audit?
2. What have student’s learned about wildlife’s need for cover and its importance as a habitat element?



CHART 5. HABITAT ELEMENT – PLACES TO RAISE YOUNG

<p>1. Our school provides places for wildlife to raise their young.</p>	<p>() Yes () No</p>
<p>2. List the 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.).</p>	
<p>3. List the manmade structures on the school site that provide places for wildlife to raise young such as bird houses, bat houses, etc. There may be similarities between Chart 4 and 5.</p>	

Think about the following question as you summarize the information in Chart 5.

1. Briefly explain what's changed since conducting the baseline audit?



CHART 6. OTHER CONSIDERATIONS

<p>1. Check all that apply. What types of sustainable practices are used on the school site?</p>	<p><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</p>
<p>2. Does the school site include vegetable, fruit and/or herb gardens?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>3. Does the school site include pollinator gardens?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>4. Are the school grounds used for teaching and learning?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>5. Does the garden(s) meet the American with Disabilities (ADA) accessibility standards?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure</p>
<p>6. Does the garden(s) include interpretive signage that is multi-lingual?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>7. Are there existing places/structures on the school site that serve as an outdoor classroom where students can gather, listen, dialogue and learn?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>

Think about the following question as you summarize the information in Chart 6.

1. Briefly explain what's changed since conducting the baseline audit?

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

1. Are students more engaged in what is happening on the school grounds as it related to the natural world?
2. 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 and practices?
3. Did team members/classes work with the state-based fish and wildlife agency on projects related to threatened or endangered species or habitat restoration?
4. If creating and maintaining a food garden was a part of the Eco-Action Plan, briefly describe who is benefiting from this agricultural endeavor?
5. How did teams/classes work with the community or share the experience?
6. Are the garden(s) considered a safe place for all students? A place for learning, reflection, meditation?

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Review of All Data

1. Based on what is known and has been learned, explain how the data as a whole helped facilitate the building and/or expansion of the Schoolyard Habitat®.
2. What **cause and effect relationships** have the teams/classes observed? How have these relationships helped students in the design and build process?
3. How have the identification of **systems and using system models** helped in understanding the how a wildlife habitat functions not just at the school, but within an ecosystem?
4. Explain the importance of stability and change (both positive and negative) within a wildlife habitat?