

CERTIFIED SUSTAINABLE TRAILS PROGRAM

Common Sense Conservation since 1938

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Since 1938, the Indiana Wildlife Federation has promoted the conservation, sound management, and sustainable use of Indiana's wildlife and wildlife habitat through education, advocacy, and action. A nonprofit, grassroots affiliate of the National Wildlife Federation, IWF is governed by a volunteer Board of Directors; our diverse membership consists of over 25 local conservation organizations and over 600 individuals, corporations, and businesses.

EXECUTIVE SUMMARY

The **Sustainable Trail Certification** program encourages sustainable and ecologically-friendly practices when constructing or modifying trails. By partnering with the Indiana Wildlife Federation (IWF) through this program, participants will receive guidance, feedback, and access to resources which will help them build and maintain wildlife-friendly trails. The intent of this program is to encourage the development of trails into thriving habitat corridors which are easier to manage, offer a greater benefit to trail users, and promote the conservation of local ecosystems through enriching human interaction with the environment.

Partners participating in the Sustainable Trail Certification program will actively incorporate sustainable design and quality habitat space for wildlife into their trail systems. By recognizing the impacts that trails have on local habitats and by implementing sustainable practices, partners will construct and transform trails to better serve the people that use them and the wildlife that live near them. Completion of this certification program qualifies the partner's property as an IWF wildlifefriendly wilderness trail.

Certification Goals

This program certifies trails throughout Indiana which display the specific criteria of a sustainable habitat corridor. These criteria include meeting the elements of a sustainable trail, incorporating wildlife habitat components, water conservation practices, sustainable land maintenance, and making the trail available for the benefit of the public. This program was developed to fill the conservation niche of trail development in a responsible and sustainable manner. These trails have the potential to be valuable assets in the effort to conserve native Indiana wildlife.

 The first goal of the Sustainable Trail Certification program is to promote the conservation,
enhancement, and restoration of wildlife habitat
surrounding developed trail areas.

• The second goal of the program is to **provide the four main components needed by wildlife**: food, water, shelter, and a place to raise young.

• The third goal is to **preserve and enhance the natural diversity of Indiana's habitats**. This includes removing non-native and invasive species from the ecosystem and replacing them with a diverse selection of plants native to the region.

• The final goal of this program is to **create an environmentally friendly corridor** that provides access for humans without compromising the activity of wildlife.

By committing to these goals, certified trail partners pledge to promote the health and well-being of local wildlife. By using the responsible trail management practices laid out in this guide, partners can be assured they are building trails intended to have a minimal negative impact on wildlife while also striving to connect fragmented habitats.



IWF has developed this program to address the need for natural outdoor recreation areas, especially in populous areas, while maintaining or restoring local ecology. By creating individual plans tailored to the needs of each trail manager and adhering to the criteria laid out in this document, IWF and trail partners will fulfill the need of people and wildlife to have access to healthy environments.

A tailored plan supported by a strong network of individuals and active leadership is crucial to developing a wildlife-friendly trail. This plan must be developed with foresight, but remain flexible enough to accommodate inevitable changes along the way.

Your Trail, Your Goals

Partners will set their own goals and priorities depending upon which level of certification they wish to achieve. This includes creating implementation strategies and goals based upon the needs of the trail stewards, the resources available to them, and the desired level of certification. For trails which already meet the certification criteria, IWF requires trail partners to implement one new project to achieve certification. This flexibility allows partners to work within their own limits rather than trying to fit their trail plan into a predetermined template. The role of project leaders and timeline of events will be discussed before the program commences.

Program Benefits

Certification under the Sustainable Trail program promotes the diversity of Indiana's wildlife by creating and enhancing healthy contiguous habitat. This program provides several additional benefits including educational opportunities, economic value, and public recognition.

Educational Opportunities

Trails must be transformed into sustainable habitat corridors before certification can be achieved. This transformation process presents excellent educational opportunities for anyone interested in habitat restoration. Trail stewards and volunteers can get experience identifying native and invasive species, learning signatures of native wildlife, and practice using land maintenance equipment. Coupled with corridor signage which explains local flora, fauna, and proper maintenance strategies, the habitat trail will become a valuable educational tool for the community. Some trails may even provide an opportunity for university researchers to better explore how humans are impacting the environment.

A sustainable landscape reduces long-term maintenance costs. Choosing a sustainable landscaping plan will reduce fertilizer and pesticide use as well as water consumption. Planting native perennials that survive from year to year and require less maintenance avoids the costs of short-lived annuals or care-intensive exotics. Because natives have evolved in Indiana, they are able to grow in what we often consider to be poor soil, meaning they require no amendments or fertilizer. Native plants have also adapted to the local climate, meaning they better tolerate fluctuating or extreme conditions, such as periods of flood or drought.



The root systems of native plants can grow upwards of 10 or 12 feet, allowing them to reach deep water sources and requiring substantially less watering. Their extensive root systems filter pollutants from water before it reaches rivers and streams, improving water quality. These massive root systems also more effectively hold soil and reduce erosion, which is important to keeping natural habitats intact and slowing sediment pollution in our rivers.

Economic Value

The initial costs of implementing sustainable practices typically include the price of the plants, labor for planting and removal of invasives, and first year watering. The costs of implementation will quickly be returned in savings from reduced maintenance. For instance, in 2003 the EPA transformed two acres of lawn into a sustainable habitat for wildlife by planting hundreds of native plants and sowing seeds. The EPA estimated that by using this approach, the financial savings per year was \$3,000. These savings stemmed from reduced costs on lawn mowing labor, equipment wear and tear, and fuel consumption. For trails already located in more natural areas, establishing a strong native presence will greatly reduce the need for regular invasive removal and weed management as a healthy ecosystem balances itself.

Public Recognition

Participating trail systems will be recognized on IWF's website. In addition, IWF will publish articles on the trail projects in its quarterly newsletter, Hoosier Conservation, and promote projects through social media networks. Partners may choose to feature projects in their own newsletters, emails, magazines, or on website updates as well. To promote sustainability awareness among trail users, IWF will include a pre-drilled aluminum sign recognizing the trail certification. Additional signage will be available for purchase.



▼ Certified Trail Sign

PROGRAM CATEGORIES



The five categories upon which certification is based are as follows:

- 1. Elements of a sustainable trail
- 2. Wildlife habitat components
- 3. Water conservation, retention, and recycling
- 4. Sustainable maintenance
- 5. Public benefits

Elements of a Sustainable Trail

The elements of a sustainable trail are approaches to technical issues which might emerge during trail construction or throughout trail usage. These elements are intended to promote trails which are safe for the public to use and less susceptible to erosion and damage.

One of the biggest issues facing oft-used trails is the destabilization of travelling paths by erosion. Water will always flow down the path of least resistance. Through the process of clearing trees and groundcover to design a path, water will likely drain down the intended trail. Only through certain trail building practices can erosion be controlled sustainably. This category will highlight problems that can emerge as well as offer sustainable maintenance solutions to mitigate or avoid them.

1. Accommodation

• Trail entrances and exits should be easily accessible in order to accommodate all members of the public.

• If obstacles are present along the trail which may impede average users, signage or fair warning should be available to guests.

2. Length

• Trails should be a reasonable length in accordance with their intended use. For trails which are going to offer a longer hike, branching paths which allow for easy exit should be incorporated.

• Markers should be incorporated into trails which have a branching system so that guests can easily navigate.

3. Habitat Encroachment

• Trails are intended to improve habitat by maintaining or creating native ecosystems and, as such, should be built away from sensitive areas.

• Trails should never encircle important habitats, travel between habitats and a major water source such as a stream, or force wildlife to cross the trail when entering or exiting their habitat. Ideally, a trail would allow hikers to visit a habitat without having a disruptive presence.



4. Drainage

• While it is important to incorporate water into a healthy habitat, trails should be designed to eliminate standing water from the walking path.

• Incorporating minor grade changes can reduce pooling without putting significant strain on visitors.

5. Erosion

• Erosion is the biggest enemy of a trail, but it can be mitigated by incorporating grade reversals into a trail and taking outslope into consideration.

• Outsloping is maintaining some of the grading of the hillside a trail traverses in order to ensure proper drainage. If a trail does not have outslope, a channel may form along the trail and lead to serious erosion.



• The Half Rule suggests that a trail should be no more than half the grade of the hill it traverses. This allows water to continue flowing across the trail and down the hill rather than flowing down the trail.



 Grade reversals are points along a rising trail where the trail briefly descends before rising again.
This allows water to run off at the low point rather than travel along the trail and erode the path.

Habitat Components

Incorporating habitat components for wildlife is the second certification category for a sustainable trail. This certification program was designed to benefit trail users while also ensuring the four requirements



🛦 Urban wildlife corridor

for healthy wildlife are met. Building wildlife-friendly trails supports existing native wildlife and creates a safe space for new wildlife to thrive.

1. Creating Wildlife Nesting Areas

• Retaining fallen trees and snags, encouraging native plant growth, and letting brush piles form all create naturally inviting nesting options

• Installing wildlife houses around the trail is a quick way to attract birds, squirrels, bats, bugs, reptiles, and amphibians to the habitat.

• An assortment of houses based on size and location is best for promoting species diversity.

2. Diversity of Plant Life

• Include a variety of trees, low lying shrubs, grasses, sedges, and perennials which bloom in different periods throughout the year. This promotes the sustainability of different species by providing an all-year food supply as well as opportunities for shelter and nest-building.

• Feeders can be installed to supplement wildlife until native plants have become established. After such time, feeders can be phased out.

3. Water



• Water is a crucial component to all life and can be incorporated in various ways. Bird baths provide small pools for birds and other animals. Ponds provide habitat for amphibians and can be resting points for migrating birds. Water features such as fountains may provide some use for wildlife, but often discourage insects which form an important foundation in the food web.

4. Habitat Corridors

 Designing a trail for human use affords the opportunity to build a wildlife corridor.

- Habitat corridors offer wildlife a safe path to travel between nesting areas, food sources, and water.
- They create safe places for wildlife to interact and even mate.

• Sustainable habitat corridors protect animals from urban threats such as vehicles and lawn mowers.

5. Landscaping with Natives

• Native plants and wildlife have evolved together over thousands of years and have developed important and often mutually beneficial relationships.

• 98% of insects are species-specific when it comes to breeding, only laying eggs on certain plants. Monarch butterflies, for example, cannot lay eggs on any plant besides milkweed.

• Native plants can survive in all natural conditions from constantly wet shaded soil to full summer sun.



Water Conservation

Water conservation, retention, and recycling is the third major focus of this certification program. Proper water management is important to all landscape design projects and is especially important to trail certification as water is one of the four essential needs of wildlife



Water resources for wildlife

1. Watering

· Water plants only when necessary, preferably in the morning to reduce evaporation and development of fungal diseases.

• Use in-ground moisture valves to determine when landscaped areas require water.

2. Water Supply

 Utilize rain barrels and cisterns to collect storm water for later irrigation.

3. Rain Gardens

 Install rain gardens and vegetated bioswales to slow storm water runoff and filter water before it enters rivers and streams.

• Rain gardens can bring life to an inundated area where nothing else will grow.

4. **Pervious Surfaces**

- Use pervious surfaces such as:
 - o Paving Stones
 - o Pervious Concrete or Porous Asphalt
 - o Dirt, Grass, Sand or Other Natural Material
 - o Crushed Limestone

• Pervious surfaces allow stormwater to percolate into the soil rather than sheet across it. Sheeting water can lead to increased erosion and can alter the temperature and chemical composition of river and streams at the outfall.

 Non-pervious surfaces prevent water from entering the soil where it falls, potentially harming nearby plants that may not receive an adequate supply. Impervious surfaces can also lead to pooling, where contaminants may collect.

Sustainable Maintenance

Sustainable maintenance is vital to the conservation of Indiana's natural habitats. Best practices include limiting or eliminating the use of pesticides, fertilizer, and only using herbicides in targeted applications such as the cut stump method of honeysuckle removal, and reducing the use of fertilizers.

1. **Develop a sustainable fertilizing plan** that limits the use of excess nutrients.

Consult the four R's before fertilizing: right product, right rate, right time, and right place.

• *Right product:* Conduct a soil test to determine the appropriate levels of nutrients for the area being fertilized.

• *Right rate:* Avoid over-fertilizing by consulting rate recommendations.

• *Right time:* Fertilize minimally, preferably in the fall. Never fertilize frozen ground.

• *Right place:* Use proper equipment such as a drop spreader or rotary spreader, to apply fertilizer efficiently. Avoid fertilizing near water or impervious surfaces.

• Native plants typically do not require fertilizer and applications can often be eliminated completely; this is always the preferred option for sustainable trails.

2. **Mow higher** (only the top 1/3 of grass) to develop and maintain a strong root system. Healthy turf grass helps to prevent soil erosion and keeps nutrients in the area.

• Native grasses are also an excellent alternative for turf grass, require substantially less upkeep, and provide superior erosion control because of their extensive root systems.



Native wildflowers

3. Maintenance Plan

• Create a maintenance plan which delegates specific trail maintenance tasks to responsible parties.

• The plan should include information about: mowing, planting, watering, trail maintenance, tree maintenance, obstruction removal, invasive plant maintenance, and nuisance animal control.



Public Benefit

Public benefit is an important part of the Sustainable Trail Certification program. Not only is it important to enhance habitat, but it is equally important to promote the education and health of the trail's users.

1. Community Culture

• Trail activity should not harm the environment or users. Ideally, it should revitalize the social structure or culture of the community where the trail is located.

2. Physical Well-Being

• The trail should provide opportunities for outdoor exercise which are available to all community members.

3. Education

A sustainable trail should promote educational opportunities by sharing information about environmental conservation, and the native flora/fauna which may be found along the trail.

• Examples of these educational opportunities include, but are not limited to:

- o Pamphlets and trail maps.
- o Signs along the trail detailing specific local wildlife.

o Guided hikes educate and entertain entire families.

o Volunteer opportunities are a great way to keep the grounds maintained and educate volunteers on the importance of local habitats.

4. Accessibility

• Trails should be easily accessible to the public through combinations of public parking, public transit, and interconnecting walking/running/ biking trails.



Educational signage



Outdoor exercise on the trail

APPLICATION PROCESS



To be eligible for certification through this program, a trail program coordinator should fulfill the following requirements:

Meet to Discuss Goals

IWF and the trail partners must meet to discuss trail goals and limitations. Questions or concerns will be addressed at this point and throughout the process.

Statement of Agreement

The leader for this program, as determined by the trail partners, must sign a statement of agreement. This non-binding agreement states that the trail partners wish to pursue certification and acknowledges flexibility for partners to make changes to the landscape plan as needed and agreed upon by IWF.

Sustainable Maintenance Plan

The participants must create a new comprehensive trail maintenance plan, or amend an existing one, which describes current landscape management practices, goals to incorporate and/or increase sustainable conservation practices, and a timeline for how the plan will be executed. The timeline for completing selected practices is determined by the trail partners.

Implementation of New Project(s)

The participants are required to implement at least one new project, classified as a practice on the ground selected from the PROGRAM CATEGORIES or suggested by a partner and approved by IWF. By design, the new project(s) will address surface runoff, erosion protection, and/or add quality habitat space to trail property such as prairie planting, riparian buffer restoration, or bioretention features.

Current practices are eligible to count toward program criteria in addition to the new project(s) necessary for certification. Partners unable to complete this requirement must establish a plan to add sustainable elements to their landscape in the near future and meet criteria set forth in the LEVELS OF CERTIFICATION as a minimum for certification.



Pervious trail through field

Levels of Certification

Trails may achieve different levels of certification by completing specified sustainability goals listed in the **PROGRAM CATEGORIES** section. Goals are cumulative: a trail which has reached Bronze Level, for instance, should complete four more goals, including at least one from a new category, in order to reach Silver Level.

Bronze Level: Wildlife Sponsor Complete a total of eight subcategories

from three different certification categories

Silver Level: Sustainability Advocate Complete a total of twelve subcategories from four different certification categories

Gold Level: Conservation Champion Complete a total of sixteen subcategories from five different certification categories

A trail will be awarded certification once the application process outlined above is complete. Certification requires a \$250.00 fee. This one-time payment includes an aluminum sign stating that the trail has received the Sustainable Trail Certification and covers the resources and recognition provided by IWF. The level of certification will be determined by the number of practices completed from the five program categories.

Additional recognition is available, such as press releases, articles, and social media outreach. A webpage (http://www.indianawildlife.org/habitatprograms/sustainable-wilderness-trail/) for this program has been created with the intent to share



updates on trail projects and congratulate partners that earn certification. An article describing the trail partner's efforts will be published in the IWF quarterly newsletter, and published in our annual report. After certification, the partners will be responsible for continuing to incorporate sustainable landscaping practices and should provide a report on updated practices every three years in order to retain its certification.

Recertification

Every three years trail partners should check in to make sure the sustainable maintenance plans are up to date and being used efficiently. If a trail partner adds goals to the plan, it is possible to earn a higher level of certification. The check-in will be directed by IWF and is meant to collect information on the successes and/or failures of the program.

RESOURCES



Certifications

IWF Wildlife Friendly Habitat Program

http://www.indianawildlife.org/habitat-programs/ wildlife-friendly-certification-program/

This website has specific, detailed resources for the habitat certification program including an informational brochure and an explanation of the benefits to enrolling.

National Recreational Trail

http://www.americantrails.org/nationalrecreationtrails/ ApplyNRT.html

The NRT program designates trails that 1) provide public access, 2) follow best management practices for the expected use, 3) comply with laws, including environmental and land use regulations, 4) will be open for a minimum of 10 years, and 5) are supported by all owners of properties that the trail crosses. This certification places a trail in a register of official NRTs across the country.

Sustainable SITES Initiative

http://www.sustainablesites.org/benefits/

The SITES initiative is a program aimed at certifying sites with sustainable landscape practices around the nation. It complements the USGBC LEED program although certification is focused on land design and management and applies to sites both with and without buildings. SITES v2 Rating System and Reference Guide was released in 2014.

Sustainable Landscaping

Lawn Reform Coalition

http://www.lawnreform.org/

A great resource for all lawn owners, this website describes the basic needs of a lawn and offers environmentally friendly techniques for establishing lawns.

US Department of Agriculture, Natural Resources Conservation Service

http://nrcs.usda.gov/wps/portal/nrcs/main/national/ technical/

NRCS provides recommendations for a number of conservation practices including mulching, nutrient management, water conservation, planting trees, etc. Implementing these suggestions can help restore an area and make it attractive to wildlife.

Pesticide/Herbicide Use

Office of State Chemist

http://www.isco.purdue.edu/pesticide/index_pest1. html

As a state agency with authority over pesticide use, this website provides information on the latest alerts of rules and articles of interest. This site hosts important information on regulations for professional applicators.

USDA NRCS, Pest Management

http://go.usa.gov/KoK

This informative website describes how to identify pests and best manage pesticide use. NRCS covers a wide array of pests and suggests additional ways to control these problems without using pesticides.

Native Plant Species Selection

Cardno Native Plant Nursery

http://cardnonativeplantnursery.com

An ecological consulting company, Cardno focuses on restoration of ecosystems and conservation of natural resources. The Cardno Native Plant Nursery has more than 350 species of native plant and seed in stock.





Indiana Native Plant and Wildflower Society

http://www.inpaws.org/

INPAWS explains how to garden with native plant species, gives opportunities to volunteer, and details how to keep conservation in mind while landscaping.

Spence Restoration Nursery

http://www.spencenursery.com/Index/home.php

This company sells a variety of plant mixes depending on your habitat type and provides examples of projects featuring bioswale development, wetland restoration, lake enhancement, prairie establishment, and more.

Water Conservation & Recycling

Purdue University, Irrigation Practices

http://www.agry.purdue.edu/turf/homeowner.html The turfgrass specialists at Purdue provide basic information on the best irrigation practices including how often to water, how much to use, and how to adapt to uneven land. This fact sheet is a wealth of knowledge which explains how to efficiently water turf grass.

SustainIndy, Department of Public Works

http://www.indy.gov/eGov/City/DPW/SustainIndy/

Supporting sustainability in Indianapolis, this program's website has information on several projects including the green roof at the Nature Conservancy Indianapolis office and a bioretention cell near Fall Creek. Ideas for how trail partners can collaborate with surrounding communities can be gathered from these city projects.

US Geological Survey, Water Resources of Indiana

http://in.water.usgs.gov/

This resource center has extensive real-time and historical data concerning water quality, streamflow, and groundwater. Reviewing this data is critical to understanding the water resources located in your watershed.

Sustainable Trail Examples

National Park Service: National Trails System http://www.nps.gov/nts

As the government agency connecting the general populous with our national parks, the NPS has adopted many sustainable trail development techniques to keep our environment safe while still promoting recreational use. This resource is excellent for providing information on trail locations and current conditions.

Burke-Gilman Trail (Seattle, WA)

http://www.seattle.gov/parks/burkegilman/bgtrail.htm The Burke-Gilman Trail, cutting through downtown Seattle, displays many of the same conservation approaches that are also utilized in the Sustainable Wilderness Trail program. The Seattle Department of Transportation teamed up with Seattle Parks and Recreation to enact a successful vegetation management plan along the trail. The management plan's three main goals are: enrich wildlife habitats, reduce homogeneity of the landscape, and reduce non-native exotics that invade the trail.

Wheeler Geologic Area Trail

http://www.americantrails.org/resources/ ManageMaintain/WheelerGeol-CO.html

Located out in Rio Grande National Forest, Colorado, the Wheeler Geologic Area is based on coarse volcanic tuff. The volcanic tuff is sized anywhere between dust particles to meter wide boulders, and is very loosely packed. Since the pack is so loose, the erosion became a serious issue in the beautiful mountain area. By utilizing volunteer workers the secluded park went under multiple sustainability renovations which have proved successful for the park operations.

Muddy Mountain Environmental Education Area

http://www.blm.gov/wy/st/en/field_offices/Casper/ recreation/muddyeea.print.html

Run by the Bureau of Land Management in Wyoming, the Muddy Mountain Environmental Education Area offers many popular recreation activities. The BLM developed a 2-mile Interpretive Nature Trail which holds 28 interpretive signs to educate trail users about

REFERENCES



their surroundings. There are also 13 more miles of trail, leave no trace campgrounds, and many more environmentally friendly activities located at Muddy Mountain.

Trail Development & Management Training

American Trails: Webinars

http://www.americantrails.org/store/webinars/ A national resource for all information related to recreational trails, AT, offers free or low-cost advanced training in trail design, permitting, funding, stewardship, maintenance, and much more. In particular, they offer webinars on "The Art of Sustainable Trail Management" and "Integrating Habitat and Trails."

Rails to Trails Conservancy

http://www.railstotrails.org/build-trails/trail-building-toolbox/

This online toolbox offers several articles for all aspects of trail building, from choosing appropriate surfaces to handling bridges and crossings to conducting surveys and tracking trail use.

California Department of Parks and Recreation

http://www.parks.ca.gov/?page_id=23419

The California DPR provides an extensive list of trailrelated resources, many of which are on the national scale. This is a useful source to find research on the economic, health, and environmental impacts of trails.

Indiana Trails Advisory Board

http://www.in.gov/dnr/outdoor/4094.htm

The trails advisory board (TAB) is not responsible for creating legislation and does not represent the DNR, but they do advise the DNR on trails-related policy and represent trail developers and users from a broad range of categories.

Financial Assistance

Indiana Department of Natural Resources http://www.in.gov/dnr/outdoor/4101.htm

IDNR offers a recreational trail program grant for those who qualify. The program funds the acquisition and development of multi-use recreational trails.

American Trails

http://www.americantrails.org/resources/funding/ American Trails offers a list of potential grants and funding sources for trail developers. They are an extensive, national level trails organization and are a wealth of information.

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