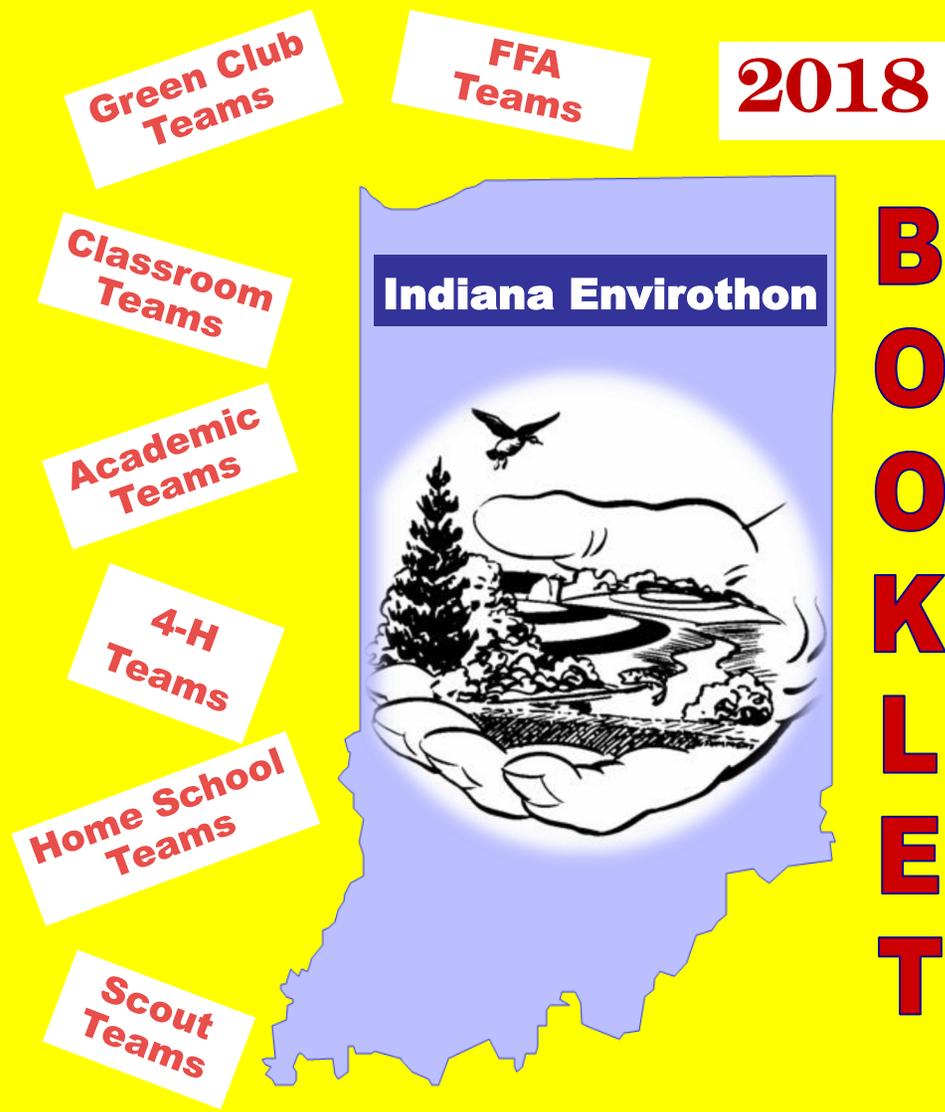


Indiana Envirothon
c/o Wayne County SWCD
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Richmond, IN 47374
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**Attn: Academic Club, Green Club, AG Dept, Science Dept, Quiz Bowl,
Home Schools, 4-H Clubs, Boy Scouts, Girl Scouts, Environmental Club**



The Indiana Association of
Soil and Water Conservation Districts;
Environmental Education Association of Indiana;
Hoosier National Forest;
Indiana Society of American Foresters;
Smithfield Foods; and Beck's Agricultural Center
are proud to sponsor Indiana Envirothon.

<http://iaswcd.org/events-2/envirothon/>
Look for Indiana Envirothon on Facebook!!

What is the Indiana Envirothon?

The Indiana Envirothon promotes environmental education to high school aged students. The goal is to raise awareness of the importance of achieving and maintaining a natural balance between the quality of life and of the environment.

In-class curriculum is combined with hands-on field experiences to demonstrate the role people have in important environmental issues. Envirothon is an exciting, fun way for high school students to learn about the environment and the issues facing current and future generations.

At the completion of each contest, students are tested on five subjects: soils/land use, aquatic ecology, wildlife, forestry, and a current environmental issue, which changes each year.

Envirothon builds awareness. It helps show tomorrow's leaders the positive and negative effects individual actions have on the environment. Youth who take part understand differences between renewable and nonrenewable resources, understand environmental interactions and interdependencies, and know who provides information that can be used in the future for their benefit.

Students have fun while becoming environmentally aware during the competition!

How Envirothon Works

Teams of five students (grades 9-12), representing a school or organization, compete at Indiana Envirothon contests by answering questions and by studying resource problems in each of the five environmental areas which include: soils/land use, aquatic ecology, wildlife, forestry, and a current environmental issue.

Students begin training for Envirothon by studying the resource materials that cover each natural resource area and those objectives related to them. Natural resource professionals speak to teams on a rotating basis during the Regional Contests, sharing job experiences and information on the resource areas. The teams are given tests covering the five resource areas. **The top teams from each Regional Contest** will be invited to compete at the Indiana State Envirothon Contest.

12. The state winning team is eligible to compete at the NCF-Envirothon. If the state winning team cannot participate, the next place team may represent Indiana at the NCF-Envirothon competition.
(see clarifications below)
13. In the event a procedural dispute or question that is not covered in this information or in its addendum, the issue will be decided by the Indiana Envirothon Appeals Committee. With respect to test questions, the decision of the Indiana Envirothon Test Committee is final.
14. Participants must sign Code of Conduct form, photo/video release and medical release. These must be received for each student upon arrival the day of contest.
15. Possession or use of cell phones or other electronic devices by students at any Envirothon Contest is prohibited. Advisors may hold these items or they may be left in backpacks or locked vehicles.
16. Tobacco, intoxicants, or drugs are not allowed on site.

***Non-adherence to these rules may prevent a team from placing.**

Clarifications for teams representing Indiana at the NCF-Envirothon

The state winning team is eligible to compete at the NCF-Envirothon. (*The top 3 teams from the state contest must inform the Indiana State Envirothon Officers within 10 calendar days of the state contest of their availability to attend the NCF-Envirothon.*)

The team must consist of the 5 students that participated as a team during the state contest. If the state winning team cannot participate due to a team member or members being unable to participate, the team must forfeit the opportunity to compete and the next place team(s) may represent Indiana at the NCF-Envirothon competition. Registration fees cover only the 5 original team members and up to 2 chaperones. Any other guests will be charged additional fees.

The Indiana State Envirothon Officers and/or Committee will first offer the opportunity to the 2nd place team and if they are unable to participate, then the 3rd place team. If both of these teams are unable to participate, a final decision will be made by the Indiana State Envirothon Officers and/or Steering Committee to either continue down the list of teams to a pre-determined placement or choose not to have Indiana represented at the NCF-Envirothon.

The decision of the Indiana State Envirothon Officers and/or Steering Committee on this matter will be final.

The original winning team may request the Indiana State Envirothon Officers and/or Committee to petition the NCF-Envirothon for last minute replacements. The decision will be decided upon by the Indiana State Envirothon Officers and/or Steering Committee and that decision will be final. Replacement of team members will be based upon emergency situations.

Indiana Academic Standards—

Please check the Indiana Envirothon website for related standards.
<http://iaswcd.org/events-2/envirothon/>

Rules & Information*

1. Students must be currently enrolled in grades 9-12, as of the 2017-2018 school year at the time of the regional contest to be eligible to be contestants. Non-competing students/children cannot attend.
2. **Teams must consist of five contestants.** One alternate per team is **highly recommended.** Teams of 4 may use an alternate (1) from another willing team, but if that team places the team of 4 must have a candidate from their school/group to go to state contest. **Alternates not part of the 5 member team will not be allowed at the team table during testing. Alternates may be grouped together to take tests for exposure, but are not able to place at the contest.**
3. Schools or organizations may participate in only one regional competition annually.
4. Registration fee is **\$70** for each team. Fee covers lunches for six (6) students and one (1) advisor. Each additional person brought will be charged an \$8 fee per person. Lunch will be provided. **State registration fee is \$75 for each team.**
5. A school or organization may send up to two (2) teams to regional competition. Teams from the same school must participate in the same regional competition. Regional competitions are limited to the first 25 teams who register by post-mark per site. **If additional teams from the same school/organization would like to participate, permission must be requested from the regional coordinator and will be based on space availability.**
6. Coaches and alternates may accompany their teams during the resource presentations at Indiana Regional Contests. **Coaches and alternates are not to accompany teams to any testing area including the Hands-on Tour during the Indiana State Envirothon Contest or judging rooms during team presentations.**
7. A pre-designated time will be allowed at each station for resource presentations.
8. Notes may be taken during each resource presentation, but cannot be used during the testing period. Please bring your own materials.
9. Contest will consist of 20 questions per test. (100 questions total) All tests will be given at one time after teams have rotated through all five (5) resource presentations. Test questions will cover information in the suggested reference materials listed. Team members work together to answer test questions, submitting one completed test per team for each resource subject.
10. The top teams in each regional competition are eligible to compete at the state competition. In case of a tie, the CURRENT ISSUE test scores will be used to determine the teams' placements. If a tie still remains then a predetermined order of resource subject test scores will determine placement. If a tie should still remain, the regional coordinator will determine protocol for placement and the decision will be final.
11. School dress code/appropriate dress will apply. Be prepared for inclement weather. Contests will take place rain, snow or shine unless a weather emergency is declared for the area.

For this year's contests the top teams moving on to the State Contest will be determined as follows: Contests with 12 or more teams competing will send their top 3 teams; and contests with 11 or less teams competing will send their top 2 teams.

Before the Indiana State Envirothon Contest, the top teams from each regional contest will be provided a natural resource situation relating to the current environmental issue. At the contest, teams will conduct an oral presentation with their solution to a panel of judges.

The top team from the State Contest will represent Indiana in the (National Conservation Foundation) NCF-Envirothon Contest. The NCF-Envirothon is a multi-day event. In 2017, the contest was held at Mount St. Mary's University in Emmitsburg, Maryland. Over 50 participating teams from the U.S., Canada, and China merged the knowledge from their home state/provincial contests with hands-on teaching stations during this six day contest. Written tests and oral presentations were again part of the contest.

Awards & Recognition

1. Participation certificates are available upon request.
2. The top three placing teams at a regional event will receive medals for each of the five students on the team. The top teams will receive a plaque for their school.
3. At the Indiana Envirothon State Contest, medals will be given to the top three placing teams in each of the following categories: written tests, oral presentation, and overall. Plaques will also be given out for the top three teams. A traveling trophy will be given to the top overall team in the Indiana State Contest.
4. The team representing Indiana at the NCF-Envirothon competition will have registration fees paid for the 5 team members and 1 or 2 advisors, along with an additional undetermined monetary sponsorship to help defray other expenses by the Indiana Envirothon Committee. Travel expenses are the responsibility of the winning team. A portion of the expenses incurred MAY be reimbursed by Indiana Envirothon.

***Please Note: Some Objectives WERE re-written this year. Websites for recommended references ARE updated on a yearly basis. Please do not rely on previous year's printouts for website references.**

***Students should be able to relate all resource topics (soil/land use, aquatic ecology, forestry, wildlife) to Current Issue.**

2018 Contest & Dates

Teams will select the contest sites of their first and second choice. First choice will be given if space is available based on date registration is received. Two teams per school/organization may register. If additional teams from the school/organization would like to participate, permission must be requested from the regional coordinator and will be based on space availability. Regional Coordinators reserve the right to cancel contest if registration numbers are inadequate.

South Central ~ Wednesday, March 7th -

Lawrence County 4-H Fairgrounds (Bedford)

Coordinator: Christina Bruce e-mail: christina.bruce@in.nacdn.net

Southwest ~ Tuesday, March 13th

SIPAC—Southern Indiana Purdue Agricultural Center (Dubois)

Coordinator: Jeri Ziliak e-mail: jeri.ziliak@in.nacdn.net

North Central ~ Wednesday, March 14th -

Camp Buffalo (Buffalo)

Coordinator: Darci Zolman e-mail: darci.zolman@in.nacdn.net

West Central ~ Thursday, March 15th -

Wabash Valley Fairgrounds (Terre Haute)

Coordinator: Jan Came e-mail: jan.came@in.nacdn.net

Northwest ~ Thursday, March 15th -

Red Mill County Park (LaPorte)

Coordinator: Nicole Messacar e-mail: nmessacar@LaPorteCounty.org

Northeast ~ Thursday, March 15th -

Peabody Library (Columbia City)

Coordinator: Nadean Lamle email: nadean.lamle@in.nacdn.net

East Central ~ Wednesday, March 21st -

Hayes Arboretum (Richmond)

Coordinator: LuAnne Holeva e-mail: luanne.holeva@in.nacdn.net

Central ~ Thursday, March 22nd -

Hamilton County Fairgrounds (Noblesville)

Coordinator: Ginger Davis e-mail: ginger.davis@hamiltoncounty.in.gov

2018 Indiana State Contest ~ Wednesday, April 25th

Beck Agricultural Center (West Lafayette)

Coordinator: Darci Zolman e-mail: darci.zolman@in.nacdn.net

Local Coordinator: Leah Harden e-mail: leah.harden@in.nacdn.net

Phone: 765-659-1223 ext. 3

2018 NCF-Envirothon Contest ~ Sunday, July 22 to Thursday, July 26

Idaho State University, Pocatello, Idaho

See <http://www.envirothon.org> for details

Indiana Envirothon Officers

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*Chair—Appeals Committee

SECRETARY/TREASURER

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2018 Current Issue :

“Pasture Management:

Balancing Agriculture, Conservation and Wildlife”

Indiana Grazingland is privately owned but affects the states agriculture economy, public water supplies and wildlife habitat. Western rangeland management objectives include grazing, timber harvest, recreational uses (including hiking, camping, fishing, hunting, etc.) and mining on both private and publically owned lands.

*Note: the NCF Envirothon Current Issue is: Western Rangeland Management: Balancing Diverse Views

2018 Current Issue References:

1. Management-Intensive Grazing in Indiana
<https://www.extension.purdue.edu/extmedia/AY/AY-328.pdf>
2. Guide to Pasture Condition Scoring:
http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1044239.pdf
3. NRCS—IN Grazing and Foraging Website:
<https://www.nrcs.usda.gov/wps/portal/nrcs/main/in/technical/landuse/pasture/> (links: Growth Curves For Selected Forage Species, Pasture Condition Score Sheet, Beef Management Practices for Coping with short forage supply, Best Management Practices in Droughty Pasture)
4. Purdue Wildlife Management on Grasslands:
<http://www.agriculture.purdue.edu/fnr/wildlife/landowners/habitats/grasslands.html>
(links: Cool Season Grasses page & Warm Season Grasses page)
5. Indiana Conservation Partnership: <http://icp.iaswcd.org/about/contact/>
6. Indiana Forage Guide
https://mdc.itap.purdue.edu/item.asp?item_number=ID-317
May also find at county extension office or soil & water conservation district office

2018 Current Issue Learning Objectives:

1. Describe grazing and forage management practices, and explain how these practices are important to a sustainable agriculture economy, healthy water quality and healthy wildlife populations.
2. Identify common grass and legume species and describe their importance in grazing systems
3. Identify common pasture weed species and their effects on pasture health and on animal health.
4. Understand conservation practices and their effects on soil health of pastures.
5. Understand how the growth curves of forages affect forage availability and pasture rotations throughout a typical year.
6. Understand how to evaluate pastures with the Pasture Condition Scoresheet and the value in doing these assessments.
7. Describe the pros and cons of grazing woodlands.
8. Understand the grazing behavior of different species and their impact on pasture systems.
9. Understand the importance of fences and water in the layout and management of an effective grazing system.
10. Understand why pasture land is important to Indiana’s agricultural industry
11. Describe ways to balance livestock production with wildlife and water quality concerns.
12. Know the definition of stocking rates and how to calculate them.

Wildlife References:

1. http://www.fws.gov/endangered/esa-library/pdf/ESA_basics.pdf
ESA Basics
2. ***Animal Tracks of IN***; Tamara Eder; Lone Pine Publishing, 2001;
ISBN:1-55105-307-1
3. ***American Wildlife & Plants A Guide To Wildlife Food Habits***,
Martin, Zim, Nelson; Dover Publications, Inc., 1951; ISBN: 0-486-20793-5
4. <http://www.in.gov/dnr/fishwild/> —be familiar with the following on this site:
About Us; Hunting Guide; 2017-2018 Seasons; Fishing Guide; Nongame & Endangered Wildlife (Endangered Species List); and *Wildlife Resources links: Animals, Invasive Species* (Spot the Threat – Aquatic and Terrestrial), *Nuisance Wildlife, and Wildlife Diseases*
5. <https://extension.purdue.edu/extmedia/FNR/FNR-500-W.pdf> - The Hardwood Ecosystem Experiment: Indiana Forestry and Wildlife
6. <https://www.fws.gov/pollinators/pdfs/PollinatorBookletFinalrevWeb.pdf> - Attracting Pollinators to Your Garden
7. <https://www.envirothon.org/wildlife-glossary> - be familiar with wildlife terms.

Wildlife Objectives:

1. Understand the role of federal and state agencies, & the programs and laws that govern Indiana wildlife & the protection, conservation, management, and enhancement of Indiana's wildlife & their habitat through improvement practices
2. Identify Indiana wildlife species (mammals, birds, reptiles, amphibians, fish, crustaceans, mussels, insects, spiders, etc.) by physical characteristics, tracks, movement patterns, habitat suitability, & other unique characteristic signs
3. Identify and differentiate between extinct, extirpated, endangered, threatened, & species of special concern. Understand the importance of biodiversity and the implications of its loss. Describe factors affecting Indiana species and the methods being used to improve existing populations
4. Describe the current struggles of native Indiana wildlife species impacted by biological & physical agents as well as the introduction of invasive non-native species & cite examples of current and potential concerns to native populations
5. Identify basic wildlife survival needs of Indiana wildlife, the niche they serve, & habitats where they may be found. Describe specific adaptations of Indiana wildlife species to its environment and its role in the ecosystem
6. Describe situations that limit or enhance population growth and discuss the concept of carrying capacity & limiting factors. Be familiar with examples that have or may occur in Indiana
7. Be able to name habitat requirements for wildlife and the factors that affect suitability. Recognize the importance of wildlife adapting to its environment and be able to explain advantages of anatomical, physiological, and/or behavioral adaptations of wildlife to their environment
8. Understand wildlife & wildlife related terminology such as: habitat, ecosystem, biodiversity, herbivore, endangered, food web, niche, invasive, etc.
9. Be familiar with current events that may be impacting Indiana wildlife, whether year-round residents or migratory species (*Due to how current the event there might not be a cited reference for this objective.*)

*******REFERENCE MATERIALS FOR ALL SUBJECT AREAS*******

References listed were current and active on September 12th.
If one of the web links is no longer valid please contact your regional coordinator and check the Indiana Envirothon website for any updates

Aquatic Ecology References:

1. http://www.in.gov/idem/riverwatch/files/volunteer_monitoring_manual.pdf
Volunteer Stream Monitoring Training Manual by Hoosier Riverwatch, current edition. (Riverwatch Training Manual only)
2. <http://water.usgs.gov/education.html> USGS Water Resources
Only the following links under Water Basics:
The Water Cycle
Surface Water: Lakes and Reservoirs; Rivers; Rivers and the Landscape; Watersheds
Groundwater: What is Groundwater; Aquifers
3. <https://engineering.purdue.edu/watersheds/resources/WatershedAgencies.pdf>
Be familiar with the agencies, programs, and roles of each
4. <http://www.in.gov/dnr/3123.htm>
Indiana DNR Spot the Threat—Aquatic (Water) Invasives links
5. <https://www.extension.purdue.edu/extmedia/WQ/WQ-7.html> - Animal Agriculture's Effect on Water Quality Pastures and Feedlots

Aquatic Ecology Objectives:

1. Identify assisting agencies and laws that govern Indiana waters, and develop a working understanding of the programs which benefit our water resources
2. Define a watershed and the interaction of its components
3. Define and understand the difference between non-point source and point source water pollution, as well as types of water pollution (organic, inorganic, thermal, toxic, etc.) and their impacts
4. Be able to conduct water tests and interpret data for assessing water quality ie: dissolved oxygen, BOD5, turbidity, nitrate/nitrite etc.
5. Identify aquatic organisms, be able to classify them by pollution tolerance groups, and determine their indication of aquatic health
6. Understand the unique characteristics of freshwater resources (lakes and ponds, rivers and streams, reservoirs, wetlands, and groundwater)
7. Understand the basic concepts of hydrology and the water cycle
8. Be familiar with the distribution of the Earth's water and understand water's changing states and processes of the Water Cycle.
9. Understand Best Management Practices that improve water quality in an urban setting, an agricultural setting and specifically in a grazing system.
10. Understand the impacts of aquatic invasive species on water quality and the strategies for preventing their spread.

Forestry References:

1. <https://www.envirothon.org/the-competition/curriculum-guidelines> - Forestry heading; linked resources under all 4 key forestry points.
2. <https://mdc.itap.purdue.edu/category.asp?CatID=13>
Type into the Store Search box and free download the following publication numbers individually: FNR-4-W, FNR-88, FNR-180 (Part 1 only), FNR-218, FNR-219, FNR-IDNR-36
3. 50 trees of Indiana, T.E. Shaw,
Purdue publication 4-H-15-80
https://mdc.itap.purdue.edu/item.asp?Item_Number=4-H-15-80
Call your Purdue 4-H Extension Agent or 1-888-EXT-INFO.
4. <http://www.in.gov/dnr/forestry/4411.htm> - All links and publications in "The Practice of Forestry in Indiana" except the complete final report for IN resident's perceptions.

Forestry Objectives:

1. Know the parts of a tree, & be able to explain the tree's life cycle.
2. Identify common tree species without a key, & identify specific or unusual trees & shrubs through the use of a key.
3. Understand the term silviculture, & be able to explain the uses of the following silviculture techniques: thinning, prescribed burning, single tree & group tree selection, shelterwood method, clear-cutting with & without seed trees, & coppice management.
4. Know how to use forestry tools & equipment in order to measure tree diameter, height & basal area.
5. Understand how the following issues are affected by forest health & management: biodiversity, forest fragmentation, forest health, air quality, aesthetics, fire, global warming & recreation.
6. Understand how economic, social & ecological factors influence forest management decisions.
7. Understand the economic value of forests & know many of the products they provide to people & society.
8. Know the typical forest structure: canopy, understory and ground layers and crown classes.
9. Understand forest ecology concepts and factors affecting them, including the relationship between soil and forest types, tree communities, regeneration, competition, and primary and secondary succession.
10. Understand the importance and value of trees in urban and community settings, and the factors affecting their health and survival.

Soils/Land Use References:

1. https://www.agry.purdue.edu/soils_judging/new_manual/index.html
Indiana Soils: Evaluations and Conservation - be familiar with all chapters
2. <http://icp.iaswcd.org/about/contact/>
Indiana Conservation Partnership, including partnering agencies links
3. www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/edu/kthru6/?cid=nrcs142p2_054311
Guide to Texture by Feel
4. www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052489.pdf
Soil Biology and Land Management
5. www.nrcs.usda.gov/wps/PA_NRCSCconsumption/download?cid=nrcseprd621806&ext=pdf
You will need to open with Adobe Acrobat or download
Grazing Management and Soil Health

Soils/Land Use Objectives:

1. Identify partnering agencies and be aware of the programs that assist land users with soil issues
2. Know and understand the 5 soil forming factors, their influence on soil properties, and the soil forming processes
3. Be able to recognize and identify features of soil profiles, properties, characteristics, structures; and be able to determine soil texture
4. Recognize the importance of soil and that biological diversity is important for soil health and the health of those connected to the soil
5. Understand the relationships of soil ecosystems as well as hydrologic, carbon, and nutrient cycles to soil management
6. Understand that soil fertility relates to physical and chemical properties of the soil including quantity of nutrients essential for plants, and why it reflects the physical, chemical, and biological state of the soil
7. Understand how different land uses and conservation practices impact soils and erosion, and the importance of soil management to agriculture/rural areas, urban environments, and to clean water, including point and non-point source pollution
8. Understand the 8 Land Capability Classes and their importance in determining appropriate land use
9. Understand key terminology relating to soils and land use.
10. Understand grazing management strategies and their impacts on soil health.