Idaho
Master Naturalist Program

Guidelines for Volunteer Training

Contents

Idaho Master Naturalist Program Guidelines for Volunteer Training..... 3

Overview..... 3

Core Curriculum and Objectives..... 3

Complete List of Objectives..... 4

Approaching Adult Education
- A. Adults as Learners……. 8
- B. Place Based Education…… 7
- C. Experiential Learning…… 8
- D. Learning Styles and Multiple Inteligences……. ?

The Training Schedule..... 8

Sample Syllabi..... 9

Presenters..... 13

Readings and Course Materials..... 13

Training Fees and Expenses.....14

State Record Keeping System..... 14

Absenteeism.....15

Presenter and Training Evaluations..... 15

Graduation..... 15

Sources Used……. 16

Appendix I: The Idaho Master Naturalist Statewide Curriculum Objectives.....17

Overview

Many participants will be attracted to the Idaho Master Naturalist Program because of the opportunity for continuing education through the volunteer training course. It is important for chapter planners to remember that the course is intended to prepare the participants for volunteering as Master Naturalists. The course should be organized to give the volunteers the background knowledge and skills they need to be effective in their service projects.

Core Curriculum and Track Curriculum

The *minimum* volunteer training course requirements include 40 hours of combined classroom and field experiences, with at least 25% of that time spent in the field. Training must cover at least 15 of the 20 chapters provided in the core curriculum. In addition, the full track curriculum must be covered (either Citizen Science AND/OR Education). Because of its geographical diversity, the natural resources of Idaho vary widely. Therefore, each local chapter will customize their training program to focus on their local ecosystems. Over the the 40 hours of training, the course should include training to achieve the core training objectives for what Idaho Master Naturalist should know and be able to do. The Chapter Coordinating Committee may require more than 40 hours of training for certification, but no more than 50 hours.

Each track must be covered in no fewer than 8 hours. Track curriculum can be delivered as part of the 40 hours of required training OR as advanced training OR as a combination of both. For example:

Core Curriculum	32	Core Curriculum	40	Core Curriculum	40
1 Track	8	1 Track	8	Track	8
Advanced Training	8	Advanced Training	8	(track is advanced training)	
Total	48	Total	56	Total	48

An Idaho Master Naturalist should know…

- All aspects of their role as an Idaho Master Naturalist, the mission and objectives of the program, and the guidelines for participation
- What a naturalist is and does and the significance of naturalists and natural history
- The bioregions of Idaho, including the physiographic regions and the geological and ecological aspects that make them distinct
- Basic concepts of ecology
- Basic resource management principles
- Some native flora and fauna in the region

- The roles of Idaho state agencies in the management and conservation of natural resources

An Idaho Master Naturalist should be able to…

- Use a key to identify organisms
- Use a field guide
- Share knowledge with others (verbally and/or in writing)
- Make and record observations in nature
- Recognize when he or she does not know the answer to a question, but be able to seek out answers from people, books, or other reliable resources

Complete List of Objectives

To help guide the chapters as they plan their trainings, the Steering Committee developed a comprehensive list of curriculum objectives, organized by topic (Appendix I). Chapters can use these objectives to plan their syllabi and to choose appropriate presenters. It is recommended that chapters provide guest presenters with the list of objectives for their topics and ask the presenters to cover that material in their presentations.

Approaching adult education

Having a background in adult learning, place-based education, and experiential learning will help you maximize your success in the volunteer training. These topics are briefly discussed here. If you keep some of these concepts in mind as you prepare your Idaho Master Naturalist Chapters, you are more likely to plan a successful chapter and promote learning.

A. Adults as Learners

Since you are interested in starting an IMNP chapter, you probably also have an interest and/or experience in education. You may have been exposed to the principles of adult education. Below is an overview of the 6 principles of adult learning. For further reading, see *The Adult Learner* by Malcom Knowles. Keeping these principles in mind while planning for your chapter, may increase your success and aid in adult learning.

1. Learners need to know - This principle states that adults should be involved as collaborative partners for learning. Adults can choose what they want to study, what they want to learn and they can even choose how they want to learn it. This is not to say you should let them be the leader. You should lead, but allow some room for the group of Master Naturalists to direct some of the content and experiences. Adult learners need to know how learning will occur, what learning will take place, and why learning is

important (Knowles, 2005, p. 184). There is a danger in going to far with this principle. If you, as the facilitator give too much "power" to the participants to guide the learning, the training may be viewed as unplanned, unorganized, and low in value. Many adults enjoy being led, like they were when they were children, in school. Strive for a balance between instructor-led and planned activities and participant guided activities.

2. Self directed learning - Adults can be self-directed learners, more so than children. However, it is still debated whether self-directed learning is a characteristic of adult learning (Knowles, 2005, p. 185). More likely, it is a characteristic of some and an ability of all adult learners. Self directed learning can be viewed as self teaching (adults can teach themselves a concept or skill). It can also be viewed as personal autonomy ("…taking control of the goals and purposes of learning and assumes ownership of learning)."

This principle is related to the concept of locus of control. This concept states that there are external people and internal people. Externals assume that outside forces control events and situations. Internals believe that internal forces control events and situation. Internals are more likely to be self-directed learners whereas internals will look to the instructor for delivering learning opportunities.

3. Prior experience of the learner - Adults bring more experience to a learning situation than a child. Consider a third grade student compared to a 51 year old student. The adult brings knowledge of life, experiences, and education that far outweigh that of a third grader. This knowledge, experience, and education must be treated with respect and *used* to fuel the adult learning process. It has been shown that the experience that an adult learner brings to a learning situation can hinder learning too (Knowles, 2005, p. 189)! Adults are more set in their ways. Their experiences are real and have formed who they are and what they believe. Experiences teach us lessons and help shape how we view the world and form opinions.

As a facilitator in this adult educational pursuit, be aware of the benefits and drawbacks of the vast knowledge and experience adult learners will bring to the Idaho Master Naturalist Program. As a group, they know much more than you do! Tap into the experiences and knowledge of the participants. Don't hesitate to have one of the participants lead a discussion, share a story, or teach a skill.
Also remember that previous experience can mold ways of thinking so much, that new learning cannot take place.

4. Readiness to Learn - Life situations dictate when adults are ready to learn. For example, people are most ready to learn about parenting and babies when planning a family. As an adult educator, you can be more effective by being aware what your students are ready for. Teaching map and compass skills 4 months before the participant will ever use such skills might not be as effective as introducing the material a week before they need to use it. This principle also refers to adult's readiness to learn in a self-directed manor (principle 2). Some adults are ready to be self-directed learners and

others are not. Try to notice how much *direction* and/or *support* each particpant's need and provide these at different levels based on what they are ready for.

5. Orientation to learning and problem solving - Adults tend to like a "problem solving orientation" to learning over "subject–centered learning" (Knowles, 2005, p. 196). "Learning is the process whereby knowledge is created through transformation of experience" (Kolb, p.38 as cited in Knowles, 2005, p. 197). Using this idea, content is not best learned just by passing it from one person to another. Rather, content is best learned by the interaction between the content and an experience.

Kolb presents four steps in experiential learning

1. **Concrete experience**-simulations, case studies, field trips, real experience, and demonstrations
2. **Observations and reflection**-discussion, small groups, journal writing
3. **Formation of abstract concepts and generalization**-sharing content
4. **Testing implications of new concepts in new situations**-laboratory experiences, on the job experience, internships, practice

Consider implementing all these types of experiential learning in the training classes.

6. Motivation to learn - Another difference between adult learners and children is motivation. Children may be motivated to learn, but they attend school because they have to. Adults *choose* to further their education either formally or informally. They don't have to be there. Often, they are *paying* for the experience. Knowles model of andragogy (adult learning) suggests adult learners are motivated to learn when the learning will satisfy some need in their life, such as a job promotion, or the need to "give back" to their community. The TMNP's program evaluation showed the top five reasons for volunteering were;

- To learn more about nature
- Concerned about nature in my community
- Increase my awareness of current issues
- Sense of personal responsibility
- Interaction with resource professionals

Notice that none of the motivations for participating in the Texas program were external motivations, such as recognition or increased salary at their jobs. This is not to say adults are not motivated by external forces, but they are much more likely to be motivated by internal forces.

Motivations for Idaho Master Naturalists will be measured in the evaluation. It is likely motivations will be similar to the results Texas received, since the programs are similar. Keep in mind these motivations when you are planning your chapter. Though your organization my be benefiting from the volunteer work Idaho Master Naturalists give, remember that you are fulfilling something for the participants as well. You are providing

them an opportunity to feel fulfilled and give back to their community. Successfully catering to their motivations will increase their satisfaction with the program.

B. Place-based education

Place based education has been described as a *methodology,* or an approach to teaching (Gruenewald, 2003) that can foster empathy, exploration, and social action (Gruenewald, 2003). The Place-based approach is appropriate for the Idaho Master Naturalist Program because in order for people to live and work to sustain the cultural and ecological integrity of the places they inhabit [conservation work], "they must first have knowledge of ecological patterns, systems of causation, and the long-term effects of human actions on those patterns" (Orr, 1994 as cited in Woodhouse and Clifford, 2001).

Janice Woodhouse and Clifford Knapp reviewed literature about Place-based education (PBE) and found 5 characteristics that may help to define what PBE is.

Place-based Education:

* It emerges from the particular attributes of a place. The content is specific to the geography, ecology, sociology, politics, and other dynamics of that place.

* It is inherently multidisciplinary.

* It is inherently experiential. In many programs this includes a participatory action or service learning component; in fact, some advocates insist that action must be a component if ecological and cultural sustainability are to result.

* It is reflective of an educational philosophy that is broader than "learn to earn." Economics of place can be an area of study as a curriculum explores local industry and sustainability; however, all curricula and programs are designed for broader objectives.

* It connects place with self and community. Because of the ecological lens through which place-based curricula are envisioned, these connections are pervasive. These curricula include multigenerational and multicultural dimensions as they interface with community resources.

Curriculum with an emphasis on getting to know places can deepen "empathetic connections" people have toward where they live. Promoting this empathy for familiar places can then move out toward eco regions and eventually toward social action (Gruenewald, 2003). The IMNP strives to connect participants with their community and the place they live. Curriculum has been written specific to Idaho. However, try to tailor the curriculum to your *region* as much as you can, by giving local examples and stories. This will increase the level of relevancy of the information for the participants. Provide

participants with opportunities to observe and explore their community and get to know both the ecology and the human dimensions by taking field trips to common and special places. Encourage participants to observe and connect to their yards and neighborhoods while you help them connect to their community and ecoregion.

C. Experiential Learning

Place-based education is intimately related to experiential learning. The IMNP is meant to be a hands-on and experiential program. Certainly not all your time needs to be, (or should be) in the field. Providing a mix of lectures, hands-on activities, field trips, projects, and readings will not only reach more of your participants, due to different learning styles, but will help keep the program diverse and interesting. Some of the participants will prefer the field trips. Some will prefer the classroom time. As a rule of thumb, try to plan your chapter training with at least 25% of your time in the field. 25:75 ration. Experiences should be specific and local, rather than broad and global.

A crucial part of experiential learning is *reflecting on an experience*. To provide an experience for the IMNP participants is important, but to provide them an opportunity to reflect is paramount to learning. Journal writing, group discussions, answering questions about their experience, and explaining the experience to others are all ways to allow the participants to reflect on what they have done.

Reflective time allows for participants to synthesize what they learned and connect it to concepts they already know. Reflection also provides an opportunity to express opinions about the experience, or ask questions about what they did or observed. Participant's reflections on experiences can also serve as feedback for you, as a facilitator.

The Training Schedule

Chapter Coordinating Committee sets their own training schedules. As the training classes are put together, remember that the time of day chosen to hold class sessions significantly influences the make up of the class. If training is offered during the daytime, individuals with flexible schedules (which may include self-employed, homemakers, retirees, and some individuals with disabilities), will be able to take the training, but this schedule will possibly exclude those who work full time or part-time. This schedule may also affect the speakers available to teach classes. Training in the evening may widen the participant group, but could open the training to individuals who cannot complete the volunteer service requirements or become active Idaho Master Naturalists. If all or most of the service opportunities require week day participation, make certain during screening that all individuals will be able to fulfill their certification requirements. If training is offered at night to accommodate trainees that are not available during the day, then there must be appropriate volunteer service opportunities available in the evening and weekend hours. Otherwise, offering training in the evening and having all volunteer opportunities during the day substantially lowers retention rates due to the individual's inability to volunteer during the times available.

Deciding when during the year to conduct the class also requires careful consideration. Spring, fall, and summer all offer more opportunities for outdoor field trips, although winter is often a less busy time for guest presenters. The decision of when to offer the training should also reflect the timing of the need for volunteer service.

The training schedules for the volunteer training courses may vary from a short period of very intensive training to a less time-intensive training spread over the course of six months or even a year. Some of the possible training schedules include:

- Once a week in classroom for 2 hours for 12 weeks, plus 16 hours of Saturday field trips
- Once a week in both classroom and field for 3 hours for 12 weeks, plus one 4 hour field trip
- Once a week on Saturdays for 5 hours, including both classroom and field time
- Two 5 hour Saturday classes during each of the 4 seasons, including both classroom and field time
- One intensive week-long 40 hour training (this option is not practical for most chapters, but may be an option for chapters based at residential facilities such as environmental education centers)

Chapters should consider the pros and cons of each of these schedules, as well as other possible schedules, and choose the schedule that best fits their community and volunteer needs.

Sample Syllabi

There are several possible approaches a chapter may take when matching curriculum topics with the chosen schedule to create a syllabus. One approach is topic-based and teaches each of the "-ologies" independently. Another approach is more system-based and integrates the "-ologies" into classes that focus on the ecology and management of each of the ecosystems that occur in the region. These two approaches may also be combined to form a hybrid approach. The broad outlines for several sample syllabi are presented here as examples.

Class 1: Introduction to the Idaho Master Naturalist program, personal introductions/icebreaker, history and basic skills of naturalists, nature journaling.

Class 2: Basic ecology

Class 3: Idaho bioregions, geology and soils, weather and climate, typical communities of each region, land use history

Class 4: Overview of natural resource management (forest, wetland, freshwater aquatic, urban/suburban

Class 5: Taxonomy, classification, and identification of species; botany

Class 6: Dendrology, Forest Ecology and Management

Class 7: Ornithology

Class 8: Herpetology, Wetlands Ecology and Management

Class 9: Mammalogy, Urban Ecology and Management

Class 10: Ichthyology, Aquatic Ecology and Management

Class 11: Invertebrate Biology/Entomology

Class 12: Catch-up

+ 2 field trips of 4-6 hours each

Systems approach for an IMNP Chapter

Class 1: Introduction to the Idaho Master Naturalist program, personal introductions/icebreaker, history and basic skills of naturalists

Class 2: Basic ecology

Class 3: Idaho bioregions, geology and soils, weather and climate, typical communities of each region, land use history

Class 4: Forests: Basic taxonomy, classification, and identification; dendrology, land use history, forest ecology and management

Class 5: Forests, continued: Botany, ornithology, mammalogy, invertebrate biology

Class 6: Wetlands: Botany, herpetology, invertebrate biology

Class 7: Wetlands, continued: Land use history, wetland ecology and management

Class 8: Streams, Lakes, and Rivers: Botany, mammalogy, ichthyology

Class 9: Streams, Lakes, and Rivers: Land use history, ecology and resource management

Class 10: Urban/suburban systems: Land use history, ecology and management, botany, dendrology, ornithology, herpetology, mammalogy, invertebrate biology

Class 11: Catch up

Class 12: Catch up

+ 2 field trips of 4-6 hours each

Hybrid Approach for an Idaho Master Naturalist Chapter

Class 1: Introduction to Program, personal introductions/icebreaker, history/skills of naturalist

Class 2: Basic Ecology

Class 3: Idaho geology/physiographic regions/soils/climate and weather

Class 4: Botany/Taxonomy/Plant Communities

Class 5: Forest Ecosystems - Characteristics/Ecological Processes/Community Dynamics, Ornithology

Class 6: Forest Ecosystems – Management, Dendrology, Entomology

Class 7: Wetlands Ecosystems – Characteristics, Ecological Processes, Community Dynamic, Herpetology

Class 8: Wetlands Ecosystems – Management, Mammalogy

Class 9: Stream/River Ecosystems – Characteristics, Ecological Processes, Community Dynamics, Ichthyology

Class 10: Stream/River Ecosystems – Management, Aquatic Inverts

Class 11: Urban Systems – Characteristics, Ecological Processes, Management, Restoration

Class 12: Catch up

+4 field trips - one for each of Ecosystems (Forest/Wetlands/Stream/Urban), 4 hours each

Presenters

Guest presenters should be experts in one or more aspects of the Master Naturalist curriculum as well as *excellent educators* who can engage the trainees in the material at hand. They should have strong knowledge of the local natural resources in your chapter's community. Local staff from the program's sponsoring agency and local partners are often willing to be instructors. The community is a great source for additional instructors with natural resource knowledge and experience. City and county professionals, local high school and college faculty, nature center staff, and others can be ideal presenters. Please try to use presenters from as local an area to your chapter as possible. If you have speakers traveling from long distances, consider collaborating with a nearby chapter to offer the training jointly. This saves the chapters time, resources, and effort; saves speakers from making the same presentation numerous times; and also allows for collaboration among Master Naturalist chapters.

Prepare a tentative schedule of presentations and presenters, then contact each speaker to see if he or she is willing and able to present on the particular topic and date. Once the speakers have agreed to dates and topics, confirmation packages should be sent to the presenters. Each presenter should receive a letter that thanks him/her for agreeing to present and restates the dates, times, topics, and objectives for the presentation. Directions to the training facility and a map should also be included with the letter. It is helpful to include a list of any related readings or reference materials that the trainees will have read ahead of time. Instructors also can be asked to provide ahead of time quiz questions (optional) based on the material they will present. These questions assist in evaluating whether or not the trainees understood the lecture topic and if the topic was presented well. Instructors should also be asked what AV equipment they need, and it should be clear who is responsible for providing the equipment.

A follow-up note, phone call, or e-mail one week before the presentation reminds the instructor of the class and avoids potential confusion. Thank-you letters sent after the presentation are also greatly appreciated.

Readings and Course Materials

A state-wide core curriculum binder has been developed to be used for Master Naturalist training and is required for every participant. This curriculum is a work in progress! Comments, improvements, and suggestions on the manual are appreciated. Additional readings or publications can be added to the binder or organized in the file box. These readings may be gathered from a variety of sources. A good option is to ask guest presenters for suggested readings relating to their topics. One chapter chose to use a general field guide to eastern forests as a text for the course, supplemented by handouts and additional readings. Keeping a list of additional reading materials and references can help other Idaho Master Naturalist Chapters. It is important that any readings used for the course be unbiased and research-based. However, biased readings can be excellent for discussions and starting dialog about opinions. Materials provided by Idaho's natural resource agencies and universities are good choices. Please also make sure that you have permission to photocopy any copyrighted materials.

Training Fees and Expenses

Training volunteers to become IMNs is not without its costs; expenses, however, can be minimized and managed. Basic costs include the cost of the core curriculum for each participant, a duplication costs for class handouts, copies of any field guides or texts the chapter wishes to use, mailings, speaker "thank yous," refreshments, nametags for volunteers, and other items. Additional costs can include room rental fees to use a particular facility. Depending on the size of a class and expenses covered, the fee could easily exceed $100 per trainee.

There are several ways for the chapter to reduce the cost per person for the training. Choose teaching space without a rental fee and speakers without honoraria or travel expenses. To reduce costs, have trainees develop their own system to provide class refreshments.

If the training has been planned as prudently as possible and there are still expenses involved, a reasonable fee is suggested. It is important, however, to remember that training courses are not meant to be fund raisers for the program. Charging a small fee can help increase commitment to the program. Free programs are sometimes lack value in people's minds. Higher fees may deter or prevent some people from participating. Fees should be set at whatever amount per person will cover the costs of training. Once the cost per person has been determined, it should be included in the PR materials. Current costs in other Master Naturalist courses around the country range from $65 to $165 per trainee. Chapters may also raise funds through dues or donations to provide scholarships for potential participants.

State Record Keeping System

Each program participant must be entered into the State Record Keeping System (currently in development). This will register the individual locally as well as on a state-wide basis to cover liability issues and so that he/she receives mailings from the state office for the program. Chapters may also use the State Record Keeping System to track attendance at their classes. Each class can be entered as an event, and trainee hours at the classes can be reported the same way volunteer hours are reported. For now, the record keeping system is a paper system. Soon, it will be computerized and participants will be able to track their training and service through a website.

Absenteeism

Anticipating the need to set standards for maintaining class attendance, the State Steering Committee has set the following policy: Each chapter may set a local standard for the maximum number of classes that may be missed during a given training cycle without forfeiting the right to earn certification. Chapters are encouraged to set this standard at no more than one or two missed classes. However, regardless of the number of missed classes that a chapter allows, a trainee must make up any missed class(es) by attending the appropriate class(es) within 12 months of the completion of the training. "Appropriate" means the chapter can allow an advanced training class to count as make-up or the chapter may require that it be the same subject class presented during the next training cycle. If an advanced training class is used as make-up, then for that individual, it does not also count as advanced training. In this case the class must account for only one type of training --initial training OR advanced training. A participant may also attend the same subject class of a neighboring chapter within the same physiographic region, given adequate prior notification

and space availability of the neighboring chapter. If a participant must miss more classes than the local standard allows then the respective chapter may consider an exception to their rule in special circumstances, such as medical problems, family illness, accidents, etc. However this should be the exception not the rule. Until these classes are made up, a volunteer cannot become a Certified Idaho Master Naturalist, but may continue to earn volunteer service hours or advanced training hours towards certification. Upon completion of all training coursework, it is recommended that the volunteer be recognized by the State Program as a *Idaho Master Naturalist Member*. Upon completion of all the requirements within the 12 months following the end of training, an Idaho Master Naturalist volunteer is awarded a state certificate and is recognized by the State Program as a Certified Idaho Master Naturalist.

Presenter and Training Evaluations

It is important to evaluate guest speakers and the local training program to determine quality and effectiveness. Trainees should provide feedback after each speaker by means of a class evaluation form. The evaluation forms should be provided before class, completed at the end of class, and collected before the trainees leave. The feedback from these forms will be helpful in determining whether or not speakers were effective in teaching their topics and communicating and can be referred to in planning subsequent training programs.
At the conclusion of the classroom portion, the training will be evaluated. This will help the chapter in making the entire recruitment and training process more effective and efficient for everyone. Questions regarding the recruitment and application process should also be included in the evaluation so that the following year's process can be improved. A standard program evaluation has been created. You can customize this questionnaire to gather more specific information. The IMNP state coordinator will help you with this step.

Graduation

At the completion of the training class, a graduation should be planned so that the achievements of these volunteers are recognized and each trainee can be promoted to the Idaho Master Naturalist Member level. Local programs should provide each individual who successfully completes the training receives a certificate indicating that he/she is now an "Idaho Master Naturalist Member". A template for the certificate may be obtained by contacting the State Program Coordinator. Some chapters may decide to have a party or potluck luncheon for the graduation event. Town or county officials can be invited to the event in recognition of the achievement. This is often done when the class graduation is coupled with a recognition ceremony for those individuals who have completed their 40-hour volunteer internships and advanced training and are now certified Idaho Master Naturalists. Individuals who have completed their certification would receive certificates reading, "Certified Idaho Master Naturalist" since they have completed the requirements. These certificates will be provided by the state office.

An Idaho Master Naturalist Pin will be awarded along with the certificate. These pins are available only to those participants that have met the requirements of training and service within one calendar year of the first training day.

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Appendix I: The Idaho Master Naturalist Statewide Curriculum Objectives

Individual Idaho Master Naturalist chapters may assemble the curriculum in an order that best fits their training agenda. Chapter objectives are listed below each chapter heading. These objectives should be shared with guest instructors to communicate expectations and objectives for their presentations. Ideally, the presenters will address these objectives and will customize their presentations to the very specific issues of the local area.

Chapter: Intro to the Idaho Master Naturalist Program

- Describe what a Master Naturalist is
- Identify and communicate the mission and goals of the Master Naturalist program
- Identify and communicate the requirements and responsibilities of a Idaho Master Naturalist
- Discuss the purpose and requirements of the file box and bound curriculum
- Identify partnering organization's mission and philosophies
- Understand how Idaho's Master Naturalists are organized
- Describe the relationship of the Master Naturalist organization with sponsoring agencies
- Identify how Master Naturalists find/chose projects to work
- Describe the resources available to Idaho Master Naturalists
- Become familiar with administrative processes such keeping track of hours and volunteer recruitment

Chapter: Your Nature Journal

- Describe what a naturalist Journal is
- Discuss the reasons for keeping a naturalist journal
- Describe different types of entries that can be used in a nature journal

Chapter: American Naturalists

- Understand the history and current status of natural history as a discipline.
- Identify significant naturalists throughout American history and discuss their accomplishments
- Describe the basic skills of a naturalist (e.g. observation, field journaling, species identification, sharing knowledge) and how to apply them in field studies.

Chapter: Environmental Ethics and Decision Making (Chapter not done)

- Discuss some historical ways of thinking about nature and leaders of those movements
- Identify some Idaho Naturalists
- Understand the importance of expeditions and surveys in the natural history of Idaho

Chapter: Land Use and Ownership in Idaho

- Distinguish different land management agencies in Idaho.
- Understand the different values for which public land is managed

Chapter: Ecological Concepts

- Explain the ecological principles that apply to individual organisms, populations, communities, and ecosystems
- Explain the balances that exist between ecosystems and what factors are necessary to keeping ecosystems in balance
- Explain how different ecosystems are determined largely by different environmental factors
- Become familiar with and recognize and explain the principle causes of biodiversity loss

Chapter: Ecosystem Management

- Understand and discuss the seven principles of ecology
- Describe management, ecosystems, and ecosystem management
- Identify the five ecological principles that can help assure the Earth's ecosystems

Chapter: Ecological Regions of Idaho

- Identify and differentiate the features of Idaho's ecological regions
- Understand and communicate the need for different maps denoting various ecological regions of Idaho
- Explain the factors creating the great ecological diversity occurring in Idaho

Chapter: Geology and Soils of Idaho

- Trace the geologic history of Idaho
- Describe the various landform regions of Idaho
- Discuss the hydrologic cycle and describe all possible sources of water
- Describe the physical and chemical properties of soil
- Discuss ways to prevent soil erosion

Demonstrate the ability to get information about soils on a site form a soils survey booklet

Chapter: Ornithology

- Understand the causes for bird diversity
- Understand and discuss the habit of bird migration
- Explain bird behavioral characteristics and their adaptations to environments and environmental changes
- Develop an awareness of how birds populations are monitored and managed
- Identify and communicate how birds function within ecosystems
- Become aware of and communicate conservation concerns for birds

Chapter: Entomology **(Chapter not done)**

- Discuss why insects are so biologically diverse, why this diversity is threatened, and why the conservation of insect biodiversity is important
- Demonstrate familiarity with the insect fauna of Idaho at the order level
- Discuss basic principles of insect behavior and ecology and relate these to environmental adaptations
- Demonstrate knowledge about the general characteristics of the major groups of insects
- Understand the role that insects play in local ecosystems and various other ecosystems in Idaho
- Discuss the habitat needs of various groups of insects
- Demonstrate knowledge of methods for collecting insects
- Recognize rare or special species that indicate habitat qualities

Chapter: Ichthyology (Fishes)

- Demonstrate an appreciation for fishes and an interest in ichthyology
- Discuss the diversity of fishes in Idaho and demonstrate familiarity with the different groups of fishes
- Understand the relationship among various groups of fishes
- Demonstrate knowledge about the general characteristics of the major groups of fishes
- Discuss basic principles of fish behavior, physiology, and ecology and relates these principles to environmental adaptations
- Discuss the habitat needs of various groups of fishes
- Describe how water quality and quantity effects fish habitat needs and reproductive capabilities.

Chapter: Idaho's Weather and Climate (Chapter not done)

- Identify three processes that affect the temperature
- Become familiar with the main processes driving weather and climate
- Become familiar with cloud formations and the weather and climate they can predict or represent
- Describe Idaho climate and factors affecting rainfall
- Describe a typical year of weather in your ecoregion
- Climate change here?

Chapter: Nature of Naming

- Demonstrate an ability to classify
- Discuss the uses and importance of the classification system
- Identify main parts of a scientific name
- Understand why the binomial classification system is important

• Discuss the pitfalls of using common names
• Discuss changes that genetics research have had on plant and animal classification (lumping and splitting species).
• Demonstrate the ability to use a dichotomous key to identify a species

Chapter: Plants

• Explain why it is important to be familiar with plant names and some cases where knowing plant names can help
• Describe the classes of plants
• Become familiar with and describe the parts of a plant
• Compare and contrast the four classes of plants
• Become familiar with leaf and flower, types, placement, and arrangements to identify plants
• Explain what an invasive plant is and give some examples

Chapter: Herpetology (Power Point Presentation)

• Become familiar with and be able to explain the herpetological conservation topics relevant to Idaho
• Become familiar with and recognize the common characteristics of amphibians and reptiles and how they differ from other vertebrates
• Become familiar with the natural history and diversity of amphibians and reptiles in Idaho
• Outline and communicate the issues affecting the conservation of Idaho herpetofauna

Chapter: Mammalogy

• Demonstrate an appreciation for mammals and an interest in mammalogy
• Discuss the diversity and distribution of mammals in Idaho and demonstrate familiarity with the different groups of mammals
• Understand the systematic relationships among various groups of mammals
• Demonstrate knowledge about the general characteristics of the major groups of mammals
• Discuss basic principles of mammal behavior, physiology, and ecology and relate these principles to environmental adaptations
• Discuss the habitat needs of various groups of mammals
• Understand the role that mammals play in local ecosystems and various other ecosystems in Idaho
• Demonstrate knowledge of estimating/measuring mammal populations
• Demonstrate knowledge of methods for trapping, marking, monitoring, and observing mammal populations
• Understand and communicate the 11 major characteristics of mammals
• Become familiar with the three major taxonomic groups of mammals and what characteristics make

Chapter: Wetlands Ecology and Management

- Explain what a wetland is
- Become knowledgeable of types of wetlands
- Become familiar with wetlands of Idaho
- Describe the wetland types of Idaho
- Become aware of an familiar with the state and federal regulations affecting and governing wetland conservation in Idaho

Chapter: Aquatic Ecology and Management

- Describe the characteristics of water
- Communicate the characteristics and properties of aquatic systems
- Understand and communicate how aquatic systems function
- Become familiar with management techniques for aquatic systems
- Understand and communicate threats to aquatic systems

Chapter: Forest Ecology and Management

- Explain major forested regions of Idaho
- Compare/contrast the major factors affecting forest ecology
- Understand and describe five stages of succession in forested ecosystems
- Describe the primary social pressures on forest ecosystems today.
- Describe methods or tools of forest management
- List and discuss the benefits of urban forests and their management

Chapter: Rangeland Ecology and Management (Chapter not done)

- Define and describe rangeland
- Define rangeland management
- Describe why range management is different from agricultural vocations
- List the basic component categories of range management
- List and describe the four founding principles of grazing management
- Understand and be able to communicate the importance of land management goals
- Describe how native grasses grow
- Describe, compare and contrast rangeland management tools.

Chapter: Urban Systems

- Describe how urban environments affect wildlife populations
- Identify techniques to attract and nurture wildlife in urban areas