Ecology and Natural Resources Evaluation Tool

2020 Curricular Materials Review

Idaho CTE Agriculture, Food, and Natural Resources (AFNR) Ecology and Natural Resources Program Standards[[1]](#footnote-1)

**Publisher information**

* Publisher Name:
* Title:
* Grade Level:
* ISBN #:
* Author:
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# Instructions:

Complete the Publisher Standards Alignment Report below. Please provide written justification as to how the material meets the standard along with location references. If a justification requires additional space, please submit response on an additional document.

# Publisher STANDARDS ALIGNMENT Report:

## Standard AENR.1.0: Explore Natural Resource Science and Management

### Performance Standard AENR.1.1 Investigate the Relationship between Natural Resources and Society, Including Conflict Management

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| --- | --- |
| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AENR.1.1.1 Define natural resource management. |  |
| CTE AENR.1.1.2 Summarize the history of natural resource conservation and policies. |  |
| CTE AENR.1.1.3 List and compare major natural resource management agencies, industries, and organizations. |  |
| CTE AENR.1.1.4 Describe human dependency and demands on natural resources. |  |
| CTE AENR.1.1.5 Explain natural resource conservation. |  |
| CTE AENR.1.1.6 Investigate the effects of multiple uses of natural resources (e.g., recreation, mining, agriculture, forestry, public lands grazing). |  |
| CTE AENR.1.1.7 Explore societal issues and conflicts related to natural resource management. |  |

### Performance Standard AENR.1.2 Explain Interrelationships between Natural Resources and Humans in Managing Natural Environments

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| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AENR.1.2.1 Identify the demands of population growth on natural resources and the environment. |  |
| CTE AENR.1.2.2 Examine the use and management of renewable and nonrenewable resources. |  |
| CTE AENR.1.2.3 Describe the role of individuals in stewardship of the environment. |  |
| CTE AENR.1.2.4 Research and debate current issues related to the conservation or preservation of natural resources. |  |

Standard AENR.2.0: Investigate Ecological Concepts and Scientific principles Related to Natural Resource Systems

### Performance Standard AENR.2.1 Explore Ecological Principles in Natural Resource Management

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| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AENR.2.1.1 Define ecosystems and biomes and identify ecoregions of Idaho. |  |
| CTE AENR.2.1.2 Identify natural processes that govern ecosystems over time. |  |
| CTE AENR.2.1.3 Describe the interdependence of organisms within an ecosystem (e.g., food chains and webs). |  |
| CTE AENR.2.1.4 Investigate the processes associated with ecological succession. |  |
| CTE AENR.2.1.5 Explain the importance of biodiversity. |  |

### Performance Standard AENR.2.2 Explore Properties of Soil

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| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AENR.2.2.1 Summarize soil formation factors. |  |
| CTE AENR.2.2.2 Identify soil texture. |  |
| CTE AENR.2.2.3 Describe soil conservation practices. |  |
| CTE AENR.2.2.4 Analyze and interpret soil data. |  |

### Performance Standard AENR.2.3 Explore Principles of Hydrology

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| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AENR.2.3.1 Define watersheds and explain their hydrological and ecological function. |  |
| CTE AENR.1.3.2 Discriminate between point and nonpoint pollution sources. |  |
| CTE AENR.2.3.3 Analyze and interpret water quality data. |  |
| CTE AENR.2.3.4 Describe the function of wetlands and importance of wetland management. |  |
| CTE AENR.2.3.5 Identify laws and regulations governing water. |  |

### **Standard AENR.3.0: Explore Principles of Rangeland Management**

### Performance Standard AENR.3.1 Identify Rangeland Types and Management Practices

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| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AENR.3.1.1 Define rangelands and identify key characteristics. |  |
| CTE AENR.3.1.2 Identify major rangeland types in Idaho. |  |
| CTE AENR.3.1.3 Compare public and private management of rangelands. |  |
| CTE AENR.3.1.4 Identify multiple uses of rangelands. |  |
| CTE AENR.3.1.5 Identify laws, policies, and managing entities of rangelands. |  |
| CTE AENR.3.1.6 Identify impacts of use on rangelands. |  |

### Performance Standard AENR.3.2 Understanding the Historic, Environmental, Social, and Economic Importance of Idaho Rangelands

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| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AENR.3.2.1 Understand how rangelands have been important to humans throughout time. |  |
| CTE AENR.3.2.2 Identify the ecological services provided by rangelands. |  |
| CTE AENR.3.2.3 Recognize the value of rangelands to society. |  |
| CTE AENR.3.2.4 Understand the importance of working rangelands for the economic livelihood of Idaho and other parts of the country and world. |  |

### Performance Standard AENR.3.3 Identify Common Idaho Rangeland Plants

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| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AENR.3.3.1 Identify morphological characteristics of rangeland plants. |  |
| CTE AENR.3.3.2 Use a dichotomous key to identify rangeland plants. |  |
| CTE AENR.3.3.3 Assemble a plant collection. |  |
| CTE AENR.3.3.4 Identify important Idaho rangeland plants and evaluate their use by animals. |  |
| CTE AENR.3.3.5 Define native, introduced, invasive, noxious, and poisonous plants. |  |

### Performance Standard AENR.3.4 Identify Common Idaho Rangeland Plants

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| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AENR.3.4.1 Identify key components of a management plan. |  |
| CTE AENR.3.4.2 Identify rangeland management tools and techniques. |  |
| CTE AENR.3.4.3 Use rangeland measurement tools. |  |
| CTE AENR.3.4.4 Conduct a rangeland inventory and interpret data. |  |
| CTE AENR.3.4.5 Determine stocking rates based on animal demand and forage supply. |  |
| CTE AENR.3.4.6 Discuss the impacts of dynamic forces of change on rangelands (e.g., fire, weather, insects, disease, people, animals, invasive species) and identify management strategies. |  |

### **Standard AENR.4.0: Examine Forest Resources and Management**

### Performance Standard AENR.4.1 Identify Forest Types and Management Practices

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| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AENR.4.1.1 Define forests and identify key characteristics. |  |
| CTE AENR.4.1.2 Identify major forest types in Idaho. |  |
| CTE AENR.4.1.3 Assess different methods of forest management. |  |
| CTE AENR.4.1.4 Compare public and private management of forests. |  |
| CTE AENR.4.1.5 Identify multiple uses of forests. |  |
| CTE AENR.4.1.6 Identify laws, policies, and managing entities of forests. |  |
| CTE AENR.4.1.7 Identify impacts of use on forests. |  |

### Performance Standard AENR.4.2 Understanding the Historic, Environmental, Social, and Economic Importance of Idaho Forests

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| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AENR.4.2.1 Understand how forests have been important to humans throughout time. |  |
| CTE AENR.4.2.2 Identify the ecological services provided by forests. |  |
| CTE AENR.4.2.3 Recognize the value of forests to society. |  |
| CTE AENR.4.2.4 Understand the importance of working forests for the economic livelihood of Idaho and other parts of the country and world. |  |

### Performance Standard AENR.4.3 Identify Common Idaho Forest Plants

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| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AENR.4.3.1 Identify morphological characteristics of forest plants. |  |
| CTE AENR.4.3.2 Use a dichotomous key to identify trees, shrubs, and other forest plants. |  |
| CTE AENR.4.3.3 Assemble a plant collection. |  |
| CTE AENR.4.3.4 Identify important Idaho forest plants and evaluate their use by animals. |  |
| CTE AENR.4.3.5 Define native, introduced, invasive, noxious, and poisonous plants. |  |

### Performance Standard AENR.4.4 Apply Forest Management Practices

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| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AENR.4.4.1 Identify key components of a management plan. |  |
| CTE AENR.4.4.2 Identify forest management tools and techniques. |  |
| CTE AENR.4.4.3 Use forest measurement tools. |  |
| CTE AENR.4.4.4 Conduct a forest inventory and interpret data. |  |
| CTE AENR.4.4.5 Define silviculture and compare different timber harvest systems. |  |
| CTE AENR.4.2.6 Discuss impacts of dynamic forces of change (e.g., fire, weather, insects, disease, people, animals, and invasive species) on forests and identify management strategies. |  |

### **Standard AENR.5.0: Explore Fire Ecology and Management**

### Performance Standard AENR.5.1 Explore the Effects of Fire on Rangeland and Forest Ecosystems

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| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AENR.5.1.1 Explain the significance of each of the components of the “fire triangle.” |  |
| CTE AENR.5.1.2 Discuss the fire behavior triangle (fuel, weather, topography). |  |
| CTE AENR.5.1.3 Interpret the factors affecting fire frequency in Idaho past, present, and future. |  |
| CTE AENR.5.1.4 Describe the social, economic, and ecological effects of wildland fire. |  |
| CTE AENR.5.1.5 Examine the role of fuel management and the relationship between fuel load and fire effects in rangeland and forest ecosystems. |  |

### **Standard AENR.6.0: Understand the Importance and Application of GPS/GIS in Natural Resource Management**

### Performance Standard AENR.6.1 Investigate GPS/GIS Systems and Their Applications

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| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AENR.6.1.1 Define the uses of geographic information systems (GIS) and spatial analysis as it applies to natural resource management. |  |
| CTE AENR.6.1.2 Describe the purpose and function of a Global Positioning System (GPS). |  |
| CTE AENR.6.1.3 Demonstrate the ability to use a GPS unit by navigating and collecting waypoints. |  |

### Performance Standard ABM.6.2 Property Ownership, Transfer, and Leasing

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| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AENR.6.2.1 Use legal descriptions to identify locations and acreage. |  |
| CTE AENR.6.2.2 Identify symbols on topographical maps. |  |
| CTE AENR.6.2.3 Predict terrain based on topographical maps. |  |
| CTE AENR.6.2.4 Demonstrate the ability to find GPS locations on a topographic map. |  |

### **Standard AENR.7.0: Investigate Fish and Wildlife Ecology**

### Performance Standard AENR.7.1 Explore the Importance and Distribution Fish and Wildlife Resources in Idaho

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| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AENR.7.1.1 Identify the seven categories of wildlife. |  |
| CTE AENR.7.1.2 Connect the distribution of wildlife associated with private and public land. |  |
| CTE AENR.7.1.3 Describe the importance of wildlife, including indigenous and migratory species, their physical and behavioral characteristics, habitat and management. |  |
| CTE AENR.7.1.4 List impacts on wildlife habitat. |  |
| CTE AENR.7.1.5 Describe techniques used in harvesting of wildlife. |  |
| CTE AENR.7.1.6 Summarize appropriate outdoor safety practice. |  |
| CTE AENR.7.1.7 Describe techniques of wildlife habitat improvement. |  |

### Performance Standard AENR.7.2 Understand Wildlife Management

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| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AENR.7.2.1 Identify the agencies and organizations associated with wildlife management. |  |
| CTE AENR.7.2.2 Explore the role of USDA - Wildlife Services, DOI – US Fish and Wildlife Service, and Idaho Fish & Game concerning wildlife management. |  |

### **Standard AENR.8.0: Examine Mineral and Energy Resources Management**

### Performance Standard AENR.8.1 Examine Mineral Resources and Management

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| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AENR.8.1.1 Identify local mineral resources. |  |
| CTE AENR.8.1.2 Summarize the impact of mineral resources to society. |  |
| CTE AENR.8.1.3 Compare the various practices for obtaining mineral resources. |  |
| CTE AENR.8.1.4 Describe the impact of mining practices on the environment. |  |
| CTE AENR.8.1.5 Compare processes for reclaiming areas where minerals have been extracted. |  |

### Performance Standard AENR.8.2 Recognize the Types and Importance of Energy Resources

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| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AENR.8.2.1 Differentiate between renewable and nonrenewable energy resources. |  |
| CTE AENR.8.2.2 Investigate types of renewable resources. |  |
| CTE AENR.8.2.3 Compare types of electrical power generation. |  |
| CTE AENR.8.2.4 Analyze positive and negative impact of energy development on the environment. |  |

### **Standard AENR.9.0: Explore Career Opportunities in the Natural Resource Industry**

### Performance Standard AENR.9.1 Understand Employment Fields in the Natural Resource Industry

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| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AENR.9.1.1 List and describe the types of employment opportunities in natural resource management. |  |
| CTE AENR.9.1.2 Explore education and training for different natural resource management careers. |  |
| CTE AENR.9.1.3 Describe the process of choosing a career path in the natural resource management industry. |  |

### **Standard AENR.10.0: Participate in Leadership Training Through Membership in a Student Leadership Organization**

### Performance Standard AENR.10.1 Recognize the Traits of Effective Leaders and Participate in Leadership Training Through Involvement in a Student Leadership Organization

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| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AENR.10.1.1 Expand leadership experience by serving as a chapter officer or on a committee. |  |
| CTE AENR.10.1.2 Exhibit leadership skills by demonstrating proper parliamentary procedure. |  |
| CTE AENR.10.1.3 Participate in a career development event at the local level or above. |  |

### **Standard AENR.11.0: Describe the Relationship between a Supervised Agricultural Experience (SAE) and Preparation of Students for a Career in Agriculture**

### Performance Standard ABM.11.1 Maintain a Supervised Agricultural Experience

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| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AENR.11.1.1 Accurately maintain SAE record books. |  |
| CTE AENR.11.1.2 Apply for a proficiency award related to the SAE program area. |  |
| CTE AENR.11.1.3 Actively pursue necessary steps to receive higher degrees or recognition in a student leadership organization. |  |

# Indicators of quality Rubric:

Standards aligned and Integrated Curriculum:

| Standards | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| 1. The curriculum is based on industry-validated technical standards and competencies.
 |  |
| 1. The curriculum is aligned with relevant content and standards for core subjects, such as reading, math and science, including federal, state and/or local standards, as appropriate.
 |  |
| 1. The curriculum incorporates employability skill standards that help students succeed in the workplace, such as problem solving, critical thinking, teamwork, communications and workplace etiquette.
 |  |
| 1. The curriculum allows for student application of integrated knowledge and skills in authentic scenarios.
 |  |
| 1. Materials used reflect current workplace, industry and/or occupational practices and requirements.
 |  |

Access and Equity:

| Standards | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| 1. Materials are provided in a way that ensures all students have the opportunity to achieve success in the program of study, including by meeting Title IX, Americans with Disabilities Act and other accessibility requirements.
 |  |
| 1. Materials and assessments are free from bias, inclusive and non-discriminatory, and offered in a way that ensures all students have the opportunity to achieve success in the program of study.
 |  |
| 1. Contains guidance to support differentiated and culturally responsive (i.e., purposefully represents diverse cultures, linguistic backgrounds, learning styles and interests) instruction in the classroom so that every student’s need are addressed by including:
	1. Suggestions for how to promote equitable instruction by making connections to culture, home, neighborhood, and community as appropriate.
	2. Appropriate scaffolding, interventions, and supports, including integrated and appropriate reading, writing, listening, and speaking alternatives (e.g., translations, picture support, graphic organizers) that neither sacrifice content nor avoid language development for English language learners, special needs, or below grade level readers.
	3. Digital and print resources that provide various levels of readability.
	4. Modifications and extensions for all students, including those performing above their grade level, to deepen understanding of the content.
	5. Materials in multiple language formats.
 |  |

Student Focus:

| Standards | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| 1. The material supports the sequential and cumulative development of foundational skills and progresses in specificity to build students’ depth of knowledge and skills. Those skills are necessary for a student’s independent comprehension of grade-level complex texts and mastery of tasks called for by the standards.
 |  |
| 1. Content and standards within the program of study are non-duplicative and vertically aligned to prepare students to transition seamlessly to the next level of education.
 |  |
| 1. The material provides many and varied opportunities for students to work with each standard within the grade level.
 |  |
| 1. The material cross-refers and integrates other content areas.
 |  |
| 1. The material has a balance of text types and lengths that encourage close, in-depth reading and rereading, analysis, comparison, and synthesis of texts.
 |  |
| 1. The material includes sufficient supplementary activities or assignments that are appropriately integrated into the text.
 |  |
| 1. The material has activities and assignments that develop problem-solving skills and foster synthesis and inquiry at both an individual and group level.
 |  |
| 1. The material has activities and assignments that reflect varied learning styles of students.
 |  |
| 1. The material includes appropriate instructional strategies.
 |  |
| 1. Project-based learning and related instructional approaches, such as problem-based, inquiry-based and challenge-based learning, are fully integrated into the material.
 |  |

Pedagogical Approach:

| Standards | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| 1. Provides guidance for teachers throughout for how learning experiences build on each other to support students in developing a deep understanding of the content.
 |  |
| 1. Provides scaffolded supports for teachers to facilitate learning of the content so that students are increasingly responsible for making sense of the content.
 |  |
| 1. The material provides opportunities for supporting English language learners to regularly and actively participate with grade-level text.
 |  |
| 1. The material gives clear and concise instruction to teachers and students. It is easy to navigate and understand.
 |  |
| 1. Includes appropriate academic and content-specific vocabulary in the context of the learning experience that is accessible, introduced, reinforced, reviewed, and augmented with visual representations when appropriate.
 |  |
| 1. Allows teachers to access, revise, and print form digital resources (e.g., readings, labs, assessments, rubrics).
 |  |
| 1. Uses varied modes (selected, constructed, project-based, extended response, and performance tasks) of instruction-embedded pre-, formative, summative, peer, and, self-assessment measures of learning.
 |  |
| 1. Includes editable and aligned rubrics, scoring guidelines, and exemplars that provide guidance for assessing student performance and to support teachers in planning instruction and providing ongoing feedback to students.
 |  |
| 1. Provides multiple opportunities for students to demonstrate and receive feedback on performance of practices connected with their understanding of concepts.
 |  |

Presentation and Design:

| Standards | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| 1. The material has an aesthetically appealing appearance.
 |  |
| 1. Digital and print materials are consistently formatted, visually focused, and uncluttered for efficient use.
 |  |
| 1. The material has a reasonable and appropriate balance between text and illustration. The material has grade-appropriate font size.
 |  |
| 1. The illustrations clearly cross-reference the text, are directly relevant to the content (not simply decorative), and promote thinking, discussion, and problem solving.
 |  |
| 1. Non-text content (performance clips, images, maps, globes, graphs, pictures, charts, databases, and models) are accurate and well integrated into the text.
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Technology:

| Standards | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| 1. Technology and digital media support, extend, and enhance learning experiences.
 |  |
| 1. The material has “platform neutral” technology (i.e., cloud based) and availability for networking.
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| 1. The material has a user-friendly and interactive interface allowing the user to control (shift among activities).
 |  |

For Questions Contact

Content & Curriculum

Idaho State Department of Education

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1. [Idaho AFNR Ecology and Natural Resources Program Standards](https://cte.idaho.gov/wp-content/uploads/2018/07/Ecology-and-Natural-Resource-Management-Program-Standards1.pdf) [↑](#footnote-ref-1)