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Welcome to the Klamath Basin Birding Trail Education Crater Lake NP Kit!

Welcome to the Klamath Basin Birding Trail Crater Lake National Park Edition Education Kit! Here you will find exciting new resources and lesson plans that will guide your teaching about birds' habitats. The purpose of the kit is to provide place-based, science, and natural resources lesson plans to encourage the study and conservation of local birds and habitats. Thus, the kit has been specially designed to fit Crater Lake National Park and the birds and habitats here. In the following pages, you will find an array of lesson plans focusing on three subjects: What is a Bird?, Birding and Studying Birds, and Bird Conservation.

The curriculum contains four sections: 1) lesson plans 2) student journals 3) teacher answer keys and 4) appendices with additional resources and websites. Each lesson plan provides background information, simple and clear procedures, helpful teacher tips, supplementary extensions, "fun fact" side panels, and other field trip ideas. To accompany the curriculum are all of the resources necessary for teaching about birds. Essentially, you should be able to pick a lesson plan and have all the information you need without additional research. The lesson plans are aligned to Oregon and California State Science Standards, allowing you to meet them. Student journal sheets are provided to advance critical thinking and scientific inquiry learning for each lesson. We encourage you to collate these journal sheets and have students make personalized journal cover sheets for their final products. Students can share their birding experiences with family and friends far into the future.

The kit was designed by Klamath Bird Observatory (KBO) educators (www.KlamathBird.org/) with support from Klamath Wingwatchers, Inc., OSU Klamath Basin Research and Extension Center and Klamath County teachers. Funding for curriculum development, teacher training, and resources was provided by a Klamath County Title III Forest Education Grant. Photographic images used throughout curriculum and resources were donated by Southern Oregon resident, Jim Livaudais, California resident Tom Grey, and the National Parks Service. A complete kit (with same content) will be available from OSU Klamath Basin Research and Extension Center in Klamath County for local teachers, non-formal educators, and community members to use. To check out kits for up to two weeks, call 541-883-7131 or reserve online (<http://oregonstate.edu/dept/kbrec/>).

Klamath Bird Observatory would like to thank you for your interest in the Klamath Basin Birding Trail Crater Lake National Park Education Kit. Klamath Bird Observatory is a non-profit organization advancing bird and habitat conservation through science, education, and partnerships. If you have additional questions about KBO or the KBBT Education Kit please contact us:

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Sincerely,

Ashley Dayer
Education & Outreach Director



Klamath Bird
Observatory

Importance of Studying & Teaching About Birds



Scientific Discovery

Birds are fascinating creatures and are found in almost every habitat, ranging from wilderness areas to urban landscapes. For this reason, birds are easily observable and open the doorway to scientific and wildlife study. By studying birds, students can engage in scientific inquiry and critical thinking. Additionally, students can become citizen scientists by sharing their scientific bird data with biologists across the world, and, thereby, helping protect bird populations.

Ecological Services

Birds play an important role in the ecosystem. Birds disperse seeds, control insects, pollinate plants, and serve as prey for predators.

Indicator Species

Birds are also great indicators of habitat health. They are highly sensitive to environmental change. If they are living in an unhealthy habitat their populations will quickly decline. Also, their relationships with aspects of their habitat is well-known. Each bird species can be thought of as a “measuring stick” for an element of a healthy habitat. For example, if you find ample Yellow Warblers in a riparian habitat you know it includes ample insect populations. They are also relatively easy to observe and study. For these reasons, scientists use birds to monitor the health of forests and other environments. The Klamath Basin Birding Trail Crater Lake National Park Education Kit provides lesson plans focusing on the relationship between birds and habitats.

Stimulating the Local Economy

Birding has become one of the fastest growing outdoor recreational activities. Unlike some other recreational outdoor sports, birding often generates little ecological impact or wildlife disturbance. In addition, birding can provide substantial economic benefit to local communities. Not only do birders invest large amounts of money on birding gear such as binoculars, field guides, and spotting scopes, but they also support local businesses during their birding trips. They stay in hotels, dine in local restaurants and cafes, and join local birding tours. Birding trails nationally and internationally are being developed to encourage birding in local areas and its resulting economic benefit for communities. The Klamath Basin Birding Trail aims to bring an economic boost to local communities from birding tourists.

How to Use the KBBT Crater Lake NP Kit

The KBBT Kit is simple and easy to use. This summary guides you through the contents and organization of the KBBT Kit.

Part One: KBBT Crater Lake National Park Kit Introduction

The KBBT Kit provides resources and the following introductory information to help you select KBBT lesson plans for your needs.

***KBBT Information**

Learn about the Klamath Basin Birding Trail sites and where to take students when studying about the birds and habitats of the Klamath Basin.

***Standards Checklist**

Browse the checklist to find a KBBT lesson plan aligned to a standard and grade level you need to fulfill. The KBBT Kit also provides detailed science standard information covered by each lesson plan in Appendix C.

***Three Topics**

Lesson plans are divided into What is a Bird?, Birding and Studying Birds, and Bird Conservation. Choose a lesson plan or follow the suggested sequence. See below for more information.

Part Two: KBBT Crater Lake National Park Lesson Plans

Each KBBT kit lesson plan is formatted in a similar fashion and provides the following information to help guide your teaching of birds.

***Introductory Side Panel**

The left side panel is a brief guide to the lesson plan and includes lesson plan overview, materials included and/or needed, science standards covered, & lesson vocabulary.

***Background Information**

You do not need to be a bird expert to teach about the local birds! Read the background information provided in each lesson plan to help guide your teaching of birds.

***Learner Objectives**

A summary of the learner objectives are included on each front page of each lesson plan. You can adopt these.

***Connections**

Many of the lesson plans complement each other as indicated by the *Connections* box in the right side panel. For instance, *Binoculars Bonanza!* could be used with *Creating Field Journals*.

***Procedures**

Lesson plan procedures overview the basic steps to teach the lesson. Procedures allow you to prepare for the lesson (Getting Ready!), conduct an indoor pre-lesson (Discuss!), and lead an outdoor lesson (Investigate!).

***Teacher Tips**

Most lesson plans provide teacher tips to guide teaching of the lesson plan. Teacher tips include advice about how to best present the given bird-related topic.

***Fun Fact Side Panels**

Fun facts are presented throughout the lesson plan in right side panels and provide information to ensure accurate teaching of the bird related topic.

***Student Journals**

Each lesson plan provides a journal for students to use. Journals are appropriate for nestlings only (grades K-3) and/or fledglings (grades 4 and up).

***Teacher Keys**

Answers or suggestions to the student journals are available for each lesson plan.

Part Three: Appendices

Additional resources are provided in the KBBT Binder to help with lesson plans and field trips.

***Appendix A**

Supplemental bird books and websites are suggested. Browse the list for extensions and additional projects.

***Appendix B**

A field trip checklist is provided to help you prepare your classroom for a field trip in your schoolyard or at a KBBT site.

***Appendix C**

A detailed description of National, Oregon and California Science Standards cited in the lesson are provided.

***Appendix D**

Vocabulary from KBBT lesson plans are defined here.

Part Four: Bird Education Resources

The KBBT Crater Lake National Park Kit includes bird resources listed below to help you teach about birds. Some are used in lesson plans and others are for education enrichment!

***KBBT Crater Lake National Park Curriculum Binder**

***Binoculars**

***“Life of Birds” DVD**

***Laminated Bird Focus Cards**

***Laminated Birds of Crater Lake National Park Field Guides**

***Laminated Klamath Basin Birding Trail Map**

***Common Birds of Crater Lake National Park PowerPoint CD and Script**

***Bird Olympics Station Cards**

***Bird song CD**

***Clipboards**

***Audubon stuffed birds**

***Crater Lake National Park Trail Map**

***“Birds of Oregon” field guide**

***“Fine Feathered Friends”– All about Birds book**

***Hand lenses**

***Feathers**

***Props for Migration Obstacle Course (available for separate checkout)**

***Props for Clark’s Nutcracker and Whitebark Pine Game**

***Global Climate Change PowerPoint CD and Script**

Ten Reasons to Use KBBT Kit

1. Place-based

Lesson plans provide activities about birds and habitats of Crater Lake NP. Using a KBBT activity is a great way to guide a student's learning about and interest in the local environment.

2. Fun & Exciting

The KBBT kit provides hands-on resources and interactive lesson plans to be used in your schoolyard or on a KBBT trail.

3. Easy to Use

The KBBT kit includes simple and clear procedures that can be easily used. You do not have to be a bird expert to teach about birds! You will be able to pick a KBBT lesson plan and have all the information and resources at your finger tips.

4. Engaged Students

Students actively participate in learning with student journal pages. Completed journals are a great way for students to share their scientific discoveries with family and friends.

5. Easy to Modify

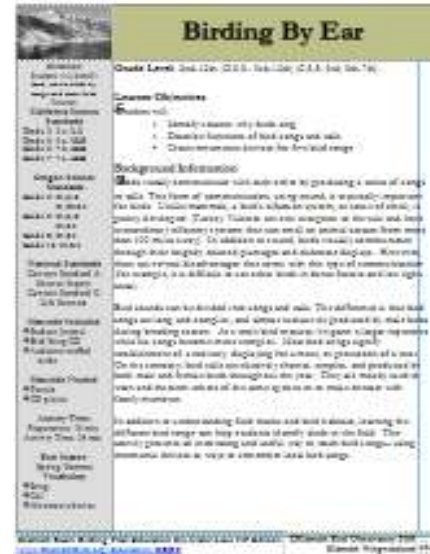
The KBBT lesson plans can be easily modified to fit your classroom style or age group. You are the teacher and know your students best! Use the KBBT lesson plans as a guide for your teaching of birds. Original copies of student journals can be found on KBBT kit CD's for you to edit.

6. Scientific Inquiry

Lesson plans have been designed by a science and education organization. Thus, they have scientific accuracy and offer innovative ways to encourage scientific inquiry and learning. Through the use of the KBBT lesson plans students will engage in bird counts, collect bird data, create graphs, and make conclusions about their studies.

7. Science Standards

Having trouble teaching Science Standards in your classroom? The KBBT Kit is here to help! Each KBBT lesson plan is specially designed and correlated to Oregon and California State and National Science Standards.



Sample KBBT Crater Lake NP Lesson Plan

8. Citizen Science

Students can become citizen scientists through recording and archiving “real data.” Citizen science allows you to contribute this data to real scientists and help them answer conservation questions.

9. Non-formal education

The KBBT lesson plans can also be used with non-school groups or by non-formal education centers as well.

10. Additional Resources

In addition to the hands-on resources included in the kit, additional resources such as book references, websites, and word definitions are offered.

What is the Klamath Basin Birding Trail Crater Lake National Park Education Kit?



The Klamath Basin Birding Trail (KBBT) is a network of 47 nature sites in Southern Oregon and Northern California. The northern most site of the birding trail is Crater Lake National Park, a unique high elevation habitat that boasts the seventh deepest lake in the world. The plants and animals at Crater Lake National Park are well adapted for life at high elevations and heavy snow. Crater Lake National Park typically receives over 500 inches of snow annually that stays on the ground from October until June. Even in summer months patches of snow are still visible. The unique habitats and wildlife at Crater Lake National Park inspired a special edition of the Education Kit that focuses on the plant and animal life in the Park. Here you will find numerous resident birds throughout the year like the Clark's Nutcracker, Gray Jay and Mountain Chickadee, as well as seasonal visitors such as the Chipping Sparrow and Western Bluebird.

The Birding Trail was initiated by Klamath/Lake/Modoc/Siskiyou Outdoor Recreation Working Group and variety of partners including federal agencies, non-profit organizations, and local Chambers of Commerce. To learn more about birding trail sites in your area that may include parks, recreation areas, National Wildlife Refuges, reservoirs, and privately owned lands visit the KBBT website <http://www.klamathbirdingtrails.com/> and brochure for trail maps, detailed descriptions of sites, and suggested driving routes.

How to read the State Standards:

- 1) California Science Standards are noted first on the top row
- 2) Oregon Science Standards are noted second on the bottom row
- 3) California has Investigation and Experimentation (I&E) as well as Life Science (L.S.)
- 4) Oregon has Life Science (L), Scientific Inquiry (S), Engineering and Design (D), and Earth and Space Science (E)
- 5) In California Science Standards the grade level is listed first followed by a dash denoting the standard
- 6) In Oregon Science Standards the grade level is listed first followed by a dot then a number indicating the core standard (1= Structure & Function; 2= Interaction & Change; 3= Scientific Inquiry; 4=Engineering & Design) and the discipline followed by a dot denoting the content standard number

How to read National Standards:

- 1) Standard A: Scientific Inquiry– participate in some aspect of the inquiry process
- 2) Standard C: Life Science

Science Standard Education Correlations

Activity	Grade Level	California/Oregon State Standards	National Standards	Best Season
What Makes a Bird a Bird?	3rd-8th	I&E: 5-6.g,6-7.b,7-7.a 3.1L.1 , 3.2L.1 , 3.4D.3 / 4.2L.1 / 5.2L.1 / 8.1L.1	Standard A & C	All Seasons
Bird Olympics	K-8th	L.S.: 1-2.a.b.c., 2-2.c, 3-3.b, 4-3.b, 7-3.a 1.1L.1 / 4.2L.1 / 5.2L.1 / 8.2L.1	Standard C	All Seasons
Migration Obstacle Course	K-6th	L.S.: K-2.a, 1-2.a.b, 2-2.b, 3-3.a.c.d 2.2L.1 / 3.2L.1 / 4.2L.1 / 5.2L.2 / 6.2L.2	Standard C	Spring/Fall
Crater Lake National Park Habitats	3rd-8th	L.S.: 3-3.b.c.d, 4-3.b, I & E: 7-7.c 4.2L.1 / 5.1L.1	Standard A & C	All Seasons
Winter Adaptations	1st-6th	L.S.: 1-2a; 3-3a,b, 4-3b 1.2L.1 / 2.2L1 / 3.2L.1 / 4.2L.1 / 5.2L.1	Standard C	Winter
Binoculars Bonanza!	All Ages	I&E: 6-7.b, 7-7.a.d. 1.3S.1 / 2.3S.3 / 3.4D.3	Standard A	All Seasons
Bird ID Experts	1st- 8th	I&E: 1-4.a, 2-4.c; L.S.: 3-3.b 1.1L.1 , 1.3S.1 / 2.3S.3 / 4.2L.1 / 5.1L.1 / 5.3S.1 / 8.1L.1	Standard A & C	All Seasons
Using Bird Field Guides	3rd-12th	I&E: 6-7.b, 7-7.a.c 4.2L.1 / 6.2L.2 / 8.1L.1	Standard A	All Seasons
Using Plant Field Guides	3rd-12th	I&E: 6-7.b; 7-7.a .c 8.1L.1	Standard A	Spring/Summer

Science Standard Education Correlations

Activity	Grade Level	California/Oregon State Standards	National Standards	Best Season
Birding by Ear	All Ages	L.S.: 3-3.a.; I & E: 5-6.a.; 6-7.b., 7-7.a. 2.3S3 / 4.2L.1, 4.3S.2 / 6.3S.2 / 8.1L.1 / H.3S.2	Standard A & C	Spring/Summer
Counting Birds	2nd-12th	I&E: 5-6.c, 6-7.a.b., 7-7.a.c, 8-9.a.e 2.3S.2-3 / 3.3S.2 / 4.2L.1, 4.3S.1.2 / 6.2L.2, 6.3S.2 / 7.3S.1,3 / H.3S.1.2	Standard A	All Seasons
Raptors Along the Road	3rd-5th	L.S.: 3-2.a.; 4-3.b. 4.2L.1 / 5.2L.1	Standard A	Winter/Spring
Create a Field Journal!	3rd-12th	I&E: 6-7.b, 7-7.a.c. 2.3S.1,2 / 4.3S.2,3 / 5.3S.1	Standard A	All Seasons
Bird Banding Reveals	3rd-12th	I&E: 6-7.b, 7-7.a.b 3.3S.2 / 4.3S.2,3	Standard A	Fall/Spring
Clark's Nutcracker and Whitebark Pine Forests	2nd-8th	L.S.: 3-3.a,b; 4-3.c; 6-5.c; HS-6.c; I&E: 3-5.e;4-6.c;5-6.c-e; 2.3S.2 / 4.2L.1 / 5.2L.1, 5.3S.1 / 6.2L.2	Standard A & C	All Seasons
Citizen Science	4th-12th	I&E: 6-7.b, 7-7.a.b 6.2L.2, 6.4D.1 / 7.3S.1,3 / H.3S.1,2	Standard A	All Seasons
Birding Economics	7th-12th	I&E: 6-7.b, 7-7.a.c. 6.3S.2 / 8.3S.2 / H.3S.4	Standard A	All Seasons
Take Action!	4th-12th	I&E: 6-7.b; 7-7.a.b 4.2L.1 / 6.2L.2	Standard A	All Seasons
Crater Lake National Park Habitat Assessment	3rd-8th	L.S.: 3-3.b.c.d; 4-3.b; I&E.: 7-7.c 4.2L.1	Standard A	All Seasons
Global Climate Change and Life at High Elevation	3rd-12th	LS: 3-3a-d; 8-6a; HS-6a,b; ES: HS-6c 4.2L.1 / 6.2L.2 / 7.2E.1,2 / 8.2E.4 / H.2L.2	Standard A & C	All Seasons
Crater Lake National Park Inventory and Monitoring	6th-12th	I&E: 4-6a,e; 6-7a,b,c,d,g,h; 8-9a,e; HS-1 a-n 6.2L.2 / 7.3S.1,3 / H.2L.2	Standard A & C	All Seasons