

SECOND EDITION

Natural Resources Systems

Travis Park • Tara Berescik Burke

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Preface

Educating society with foundational concepts about our natural resources and how we use those resources to feed, fuel, and sustain our growing population begins with today's students of agriculture and natural resources. *Natural Resources Systems* is a thoroughly modern, content-driven text for next generation agriculture students who want to learn how we impact Earth and how we can sustainably use our natural resources.

The authors of *Natural Resources Systems* have provided learners with a breadth of environmental knowledge while also creating awareness of careers and workplace skills needed to be successful in the twenty-first century. To help students achieve success, the authors have incorporated supplemental features and activities, such as historical and STEM Connections, and personalized Career Connections throughout the text. Many of the career profiles present students with real-life information, such as education and job requirements, willingness to move, and working in places like swamps and forests. Others present stories of real-life individuals in those careers with their words, stories, and nuggets of advice.

Natural Resources Systems is presented in 28 chapters to help readers develop a fundamental knowledge of natural resources systems and to build on this knowledge with ensuing topics. Each chapter begins with a literacy integration activity designed to help students engage more deeply with the agricultural content of the text. The text covers topics essential for students and clearly conveys the theory and practice of sustainability to guide students on their way to becoming our next-generation conservationists.

Hundreds of full-color images and illustrations and companion online resources are effective teaching and learning tools that help learners engage with all aspects of natural resources, including areas such as wildlife management, fisheries, and soil conservation. The text also seeks to help students develop critical thinking skills needed to compete in the twenty-first century with critical thinking questions and activities included in features, photo captions, and in the review materials at the end of each chapter.

Why is a new textbook about natural resources needed? Our world and the sciences of sustainability of the environment continue to change. As they change, the need arises to educate future generations about natural resources and managing them in a sustainable and productive way. The textbook was written with a key goal to engage a younger audience of potential conservationists.

Natural Resources Systems makes natural resources and their management come alive and become experiential for the reader. The textbook presents the most pertinent and compelling foundational principles of natural resources and their management in relatively short segments. Each segment presents information, provides graphics and illustrations to bring those concepts to life, and challenges students to think deeply about natural resources. Textbook features encourage students to learn and apply critical thinking skills to discuss important natural resources topics, such as the death of coral reefs, water rights, or drilling in Alaska's unspoiled wilderness.



What problems are solved with our approach? The textbook provides instructors with resources that cover many of the standards they are required to teach, whereas many of the competing textbooks were first written prior to the current standards movement. The organization and content coverage of *Natural Resources Systems* was developed with valuable insight from a panel of expert reviewers and with the National Agriculture, Food, and Natural Resources Standards and Common Core State Standards at the forefront. The textbook content also correlates to various state standards and to exam standards for *Career Skill Certification™* by *Precision Exams*.

Each chapter concludes with a chapter summary, vocabulary review, chapter review questions, and critical thinking questions and activities. STEM and integrated academic questions are also featured with additional ideas about incorporating the chapter's lessons into SAEs and FFA. These areas challenge students to engage with the content at a deeper level than most traditional natural resources texts. Most importantly, this entire textbook is supported with professional, user-friendly online resources. Quite simply, teachers have a full-service resource at their disposal to engage students in the classroom, online, and in their minds.

The material on every page conveys our passion for the gifts of nature in our modern world. The material also extends our message that working with nature and developing sustainable practices is an exciting area that allows students to express their passion for conservation and preservation of our natural resources. We hope you enjoy our presentation of natural resources for our modern society and continue to learn about Earth and its resources, and possibly find a career in this area that fulfills you.

About the Authors

Dr. Travis Park is a Professor at North Carolina State University, where he instructs the teaching methods course and coordinates student teaching. Travis also serves as the National FFA Advisor, Chair of the National FFA Board of Directors, and National Director for Agricultural Education. Dr. Park earned his bachelor's degree and master's degree from Purdue University, and his PhD from the University of Florida, all in agricultural education. Upon graduation, he was named the 1996 G. A. Ross Award winner, which recognizes the outstanding male student in the graduating class. After graduating from Purdue, Travis taught agriculture at Tri-County High School in Wolcott, Indiana, for 5.5 years. His agriculture program was recognized as one of the top six agriculture programs in the nation. Travis is happily married to his wife Lacy. Together, they are raising three creative, active, and strong daughters. They currently reside in Raleigh, North Carolina. In his spare time, Travis enjoys backpacking, camping, composting, crafting smoked meats and jerky, reading, and gardening with native plant species.

Tara Berescik Burke teaches agricultural education for Tri-Valley Central School in Grahamsville, New York. Grahamsville is located in the watershed for New York City, which inspires students to learn about the watershed and enroll in environmental science and conservation science classes. In addition to the environmental and conservation science classes, Tara's courses include large animal production; small animal care; anatomy and physiology; floral design; international agriculture and sustainability; and middle school agriculture and technology. Her courses focus on hands-on learning and building career skills.

Tara and her students operate the Tri-Valley Blooms Flower Shop where they often design floral arrangements for full-scale weddings, and they also oversee a 40-raised-bed community garden. With her guidance, Tara's students help protect the environment where they live through conservation efforts and participation in research projects. They also educate the public about the importance of native species in the Catskills through their management of a native fruit orchard and a native species nursery.

Tara is actively involved in her school serving as the Theater Club Advisor and the advisor to the Tri-Valley FFA Chapter, for which she has been coaching students in National FFA Career Development and Leadership Development Events for over 23 years.

Tara has been recognized as the National Association of Agricultural Educators Region XI Outstanding Teacher; the Program, Mentor, and Ideas Unlimited Award winner; and the Association of Career and Technical Educators Teacher of the Year in 2014. Tara is an alumnus of Virginia Polytechnic Institute and State University where she earned her bachelor's degree in animal science and her master's degree in vocational technical education.

Reviewers

The authors and publisher wish to thank the following industry and teaching professionals for their valuable input into the development of *Natural Resources Systems*.

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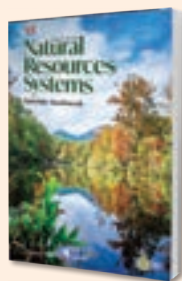
Jacob Zuniga, Deer Park Parks and Recreation

TOOLS FOR STUDENT AND INSTRUCTOR SUCCESS

Student Tools

Student Text

Natural Resources Systems introduces students to conservation and natural resources management. The *Natural Resources Systems* textbook provides an exciting, full-color, and highly illustrated learning resource. Topics include an overview of renewable and nonrenewable natural resources, environmental cycles, the challenges of achieving sustainability, and much more.



Lab Workbook

- Hands-on practice includes questions and lab activities.
- Organized to follow the textbook lessons to help students apply and extend key learning outcomes.

G-W Digital Companion

- E-flash cards and vocabulary exercises allow interaction with content to create opportunities to increase achievement.
- Videos enrich learning and explore concepts and processes introduced in the text.

Online Learning Suite

- Provides easy-to-use access and navigation
- Includes accessible resources for all learners
- Encourages exploration and discovery (or practice and repetition)

Instructor Tools

LMS Integration

Integrate Goodheart-Willcox content within your Learning Management System for a seamless user experience for both you and your students. EduHub LMS-ready content in Common Cartridge® format facilitates single sign-on integration and gives you control of student enrollment and data. With a Common Cartridge integration, you can access the LMS features and tools you are accustomed to using and G-W course resources in one convenient location—your LMS.

G-W Common Cartridge provides a complete learning package for you and your students. The included digital resources help your students remain engaged and learn effectively:

- **Digital Textbook**
- Online **Workbook content**
- **Videos**
- **Vocabulary Activities**

When you incorporate G-W content into your courses via Common Cartridge, you have the flexibility to customize and structure the content to meet the educational needs of your students. You may also choose to add your own content to the course.

For instructors, the Common Cartridge includes the Online Instructor Resources. QTI® question banks are available within the Online Instructor Resources for import into your LMS. These prebuilt assessments help you measure student knowledge and track results in your LMS gradebook. Questions and tests can be customized to meet your assessment needs.

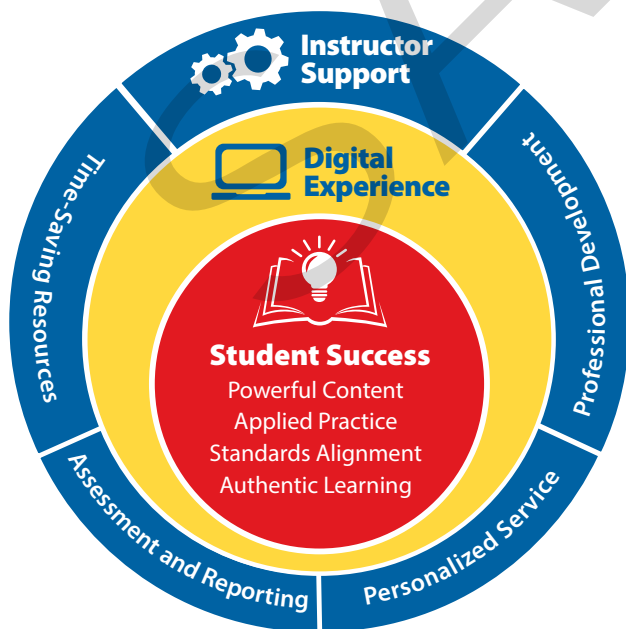
Online Instructor Resources

- The **Instructor Resources** provide instructors with time-saving preparation tools such as answer keys, editable lesson plans, and other teaching aids.
- **Instructor's Presentations for PowerPoint®** are fully customizable, richly illustrated slides that help you teach and visually reinforce the key concepts from each chapter.
- Administer and manage assessments to meet your classroom needs using **Assessment Software with Question Banks**, which include hundreds of matching, completion, multiple choice, and short answer questions to assess student knowledge of the content in each chapter.

See www.g-w.com/natural-resources-systems-2025 for a list of all available resources.

Professional Development

- Expert content specialists
- Research-based pedagogy and instructional practices
- Options for virtual and in-person Professional Development



Credentialing Partners and Support

Goodheart-Willcox appreciates the value of industry credentials, certifications, and accreditation. We are pleased to partner with leading organizations to support students and programs in achieving credentials. Integrating industry-recognized credentialing into a career and technical education (CTE) program provides many benefits for the student and for the institution. By achieving third-party certificates, students gain confidence, have proof of a measurable level of knowledge and skills, and earn a valuable achievement to include in their résumés. For educators and administrators, industry-recognized credentials and accreditation validate learning, enhance the credibility of programs, and provide valuable data to measure student performance and help guide continuous program improvement.

Natural Resources Systems is correlated to the *Natural Resources and Ecology* and *Natural Resources Systems* credentials offered by NOCTI and to the *Natural Resource Science I and II* certification offered by YouScience.

NOCTI NOCTI Certifications

Goodheart-Willcox is pleased to partner with NOCTI, a leading provider of industry certification solutions for CTE programs across the nation. With over 50 years of experience, NOCTI is a valuable partner in the CTE community's efforts to improve America's workforce. Goodheart-Willcox has created correlations between select products and the standards and competencies that make up the NOCTI credentials, to the benefit of states, instructors, and students working to achieve NOCTI credentials.

NOCTI certifications (knowledge-based and skill-based) are developed by national teams of subject matter experts as part of the process that meets personnel accrediting standards and requirements under ISO 17.024, resulting in credentials measuring skills and competencies critical for learner success outside the classroom. From online test delivery and psychometric services to digital badging and professional development, NOCTI uses the latest tools and methods to provide relevant solutions for those in CTE. For more information about NOCTI, visit www.nocti.org.



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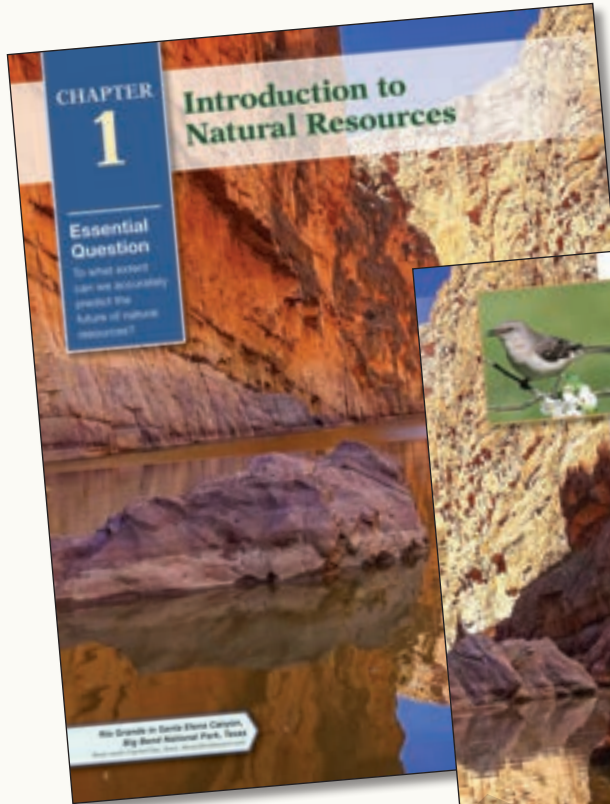
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To see how *Natural Resources Systems* correlates to credentialing and certification standards, visit the Correlations tab at www.g-w.com/natural-resources-systems-2025.

Guided Tour

The instructional design includes student-focused learning tools to help students succeed. This visual guide highlights the features designed for the textbook.



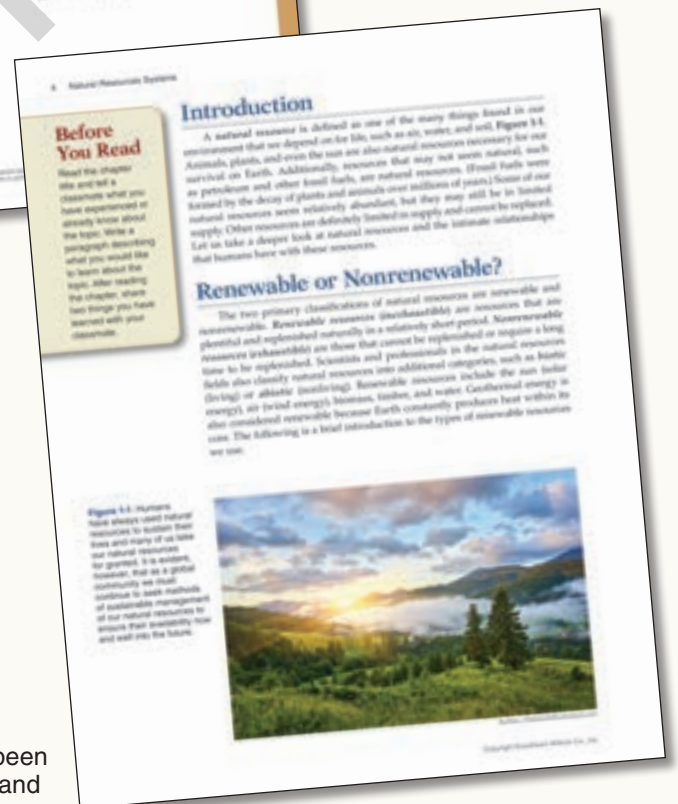
Essential Questions at the opening of each chapter stimulate thought and provoke thoughtful student answers and questions



Learning Outcomes clearly identify the knowledge and skills to be obtained when the chapter is completed

Key Terms list the vocabulary to be learned in the chapter

Before You Read literacy integration activities at the beginning of each chapter encourage development of confidence and skill in literacy and learning



Illustrations have been designed to clearly and simply communicate specific topics



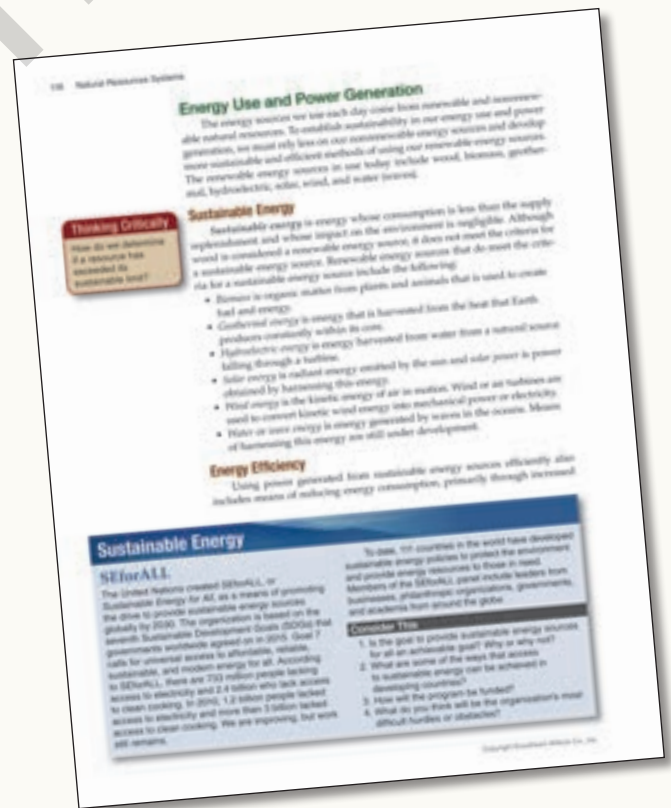
Did You Know? features point out interesting and helpful facts about natural resources and conservation

STEM Connection features integrate all four components of STEM education as well as the social sciences and language arts

Thinking Critically questions develop higher-order thinking skills, problem-solving skills, personal skills, and workplace skills



History Connection features show students how we can learn from our mistakes and introduce the people who were behind the initial fight to preserve our natural areas



Environmental Features challenge students to think deeply about environmental issues and encourage them to apply critical thinking skills when discussing natural resources topics

Guided Tour

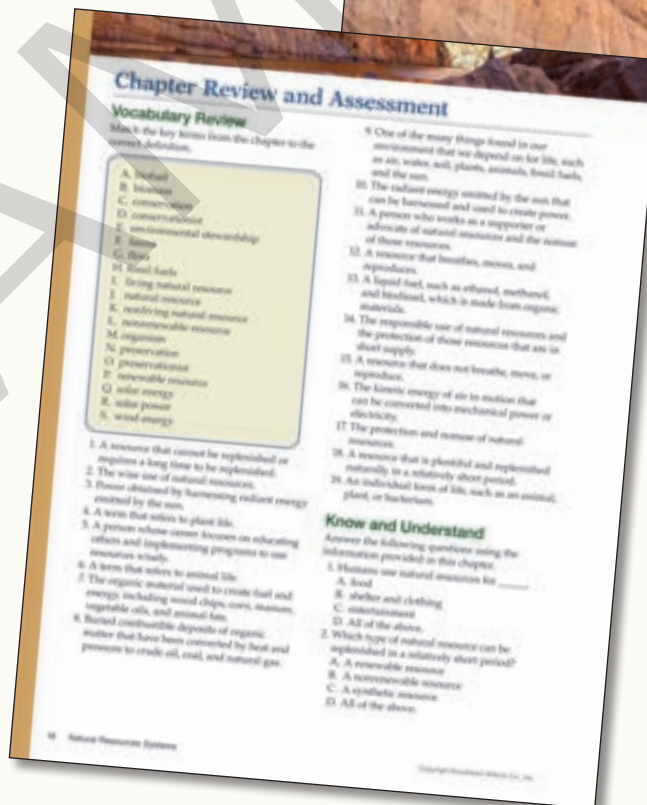
Career Connection features introduce students to careers in different areas of conservation and resource management



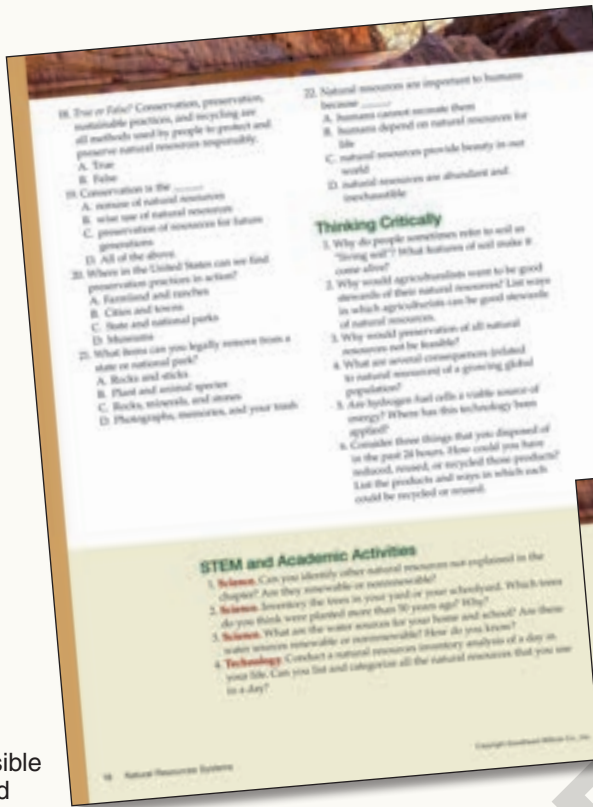
Summary features provide an additional review tool for the student and reinforces key learning outcomes



Vocabulary Review formatted as a matching activity to reinforce vocabulary development and retention



Know and Understand questions allow students to demonstrate knowledge, identification, and comprehension of chapter material

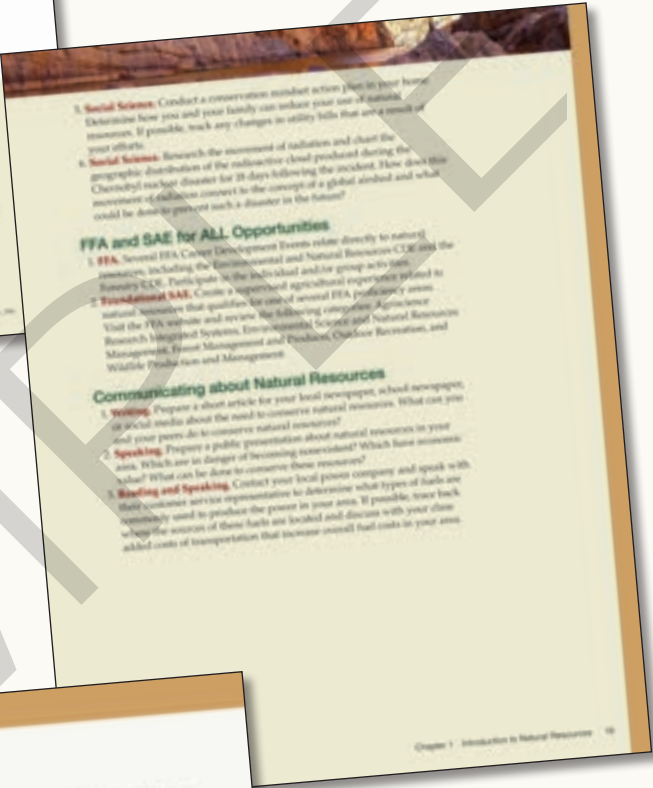


Thinking Critically questions develop higher-order thinking skills, problem-solving skills, personal skills, and workplace skills

FFA and SAE for ALL Opportunities help students make real-life connections to a variety of new and interesting SAE and FFA opportunities

STEM and Academic Activities include plausible individual and group activities in which students can apply their knowledge and use methods covered throughout the textbook

Communicating about Natural Resources questions and activities help integrate reading, writing, listening, and speaking skills while extending their knowledge on the chapter topics



Illustrated Glossary includes equipment and supplies, native species, invasive plants, and invasive animal species listed in the FFA CDE for Natural Resources



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Horseshoe Bend, Colorado River, Page, Arizona
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Lake Michigan, Sleeping Bear Dunes
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Firehole River, Yellowstone National Park
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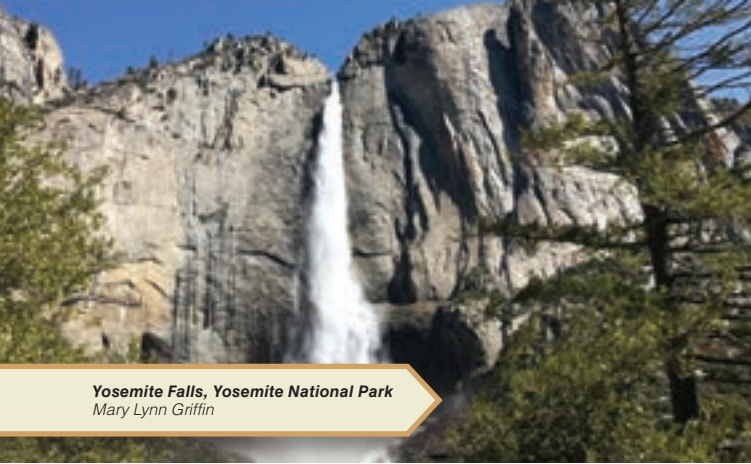
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Kansas Tallgrass Prairie National Preserve
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