Co-published by the University of California, Berkeley, Institute for Parks, People, and Biodiversity, and the George Wright Society.

_Parks Stewardship Forum_ explores innovative thinking and offers enduring perspectives on critical issues of place-based heritage management and stewardship. Interdisciplinary in nature, the journal gathers insights from all fields related to parks, protected/conserved areas, cultural sites, and other place-based forms of conservation. The scope of the journal is international. It is dedicated to the legacy of George Meléndez Wright, a graduate of UC Berkeley and pioneer in conservation of national parks.

_Parks Stewardship Forum_ is published through eScholarship, an open-access publishing platform subsidized by the University of California and managed by the California Digital Library. Open-access publishing serves the missions of the Institute for Parks, People, and Biodiversity and the George Wright Society to share, freely and broadly, research and knowledge produced by and for those who manage parks, protected/conserved areas, and cultural sites throughout the world.


_Parks Stewardship Forum_ is distributed under a Creative Commons Attribution-NonCommercial 4.0 International License (CC BY-NC 4.0) that allows others to copy, distribute, translate, adapt, and build upon original submissions to _Parks Stewardship Forum_, as long as they provide appropriate credit to the author(s) and do not use the submission for commercial purposes. Anyone who uses or redistributes the submission under this license must indicate any changes that were made, must link to the license, and cannot imply that the author endorses them or their use. More information about this license is available at https://creativecommons.org/licenses/by-nc/4.0/.

Some photos published in Parks Stewardship Forum are covered by other Creative Commons licenses, which can be found here. From time to time _Parks Stewardship Forum_ also reprints, with permission, previously published material. Such material is subject to its original copyright, as indicated.

_Parks Stewardship Forum_ is published at https://escholarship.org/uc/psf.

A version designed for online reading is also available at https://parks.berkeley.edu/psf.

PSF is designed by Laurie Frasier • lauriefrasier.com

**On the cover of this issue**


INSET Artwork depicting the dolphin as it might have appeared in life. TIM SCHEIRER/ CALVERT MARINE MUSEUM
EDITORIAL BOARD
Jonathan B. Jarvis, University of California, Berkeley,
Institute for Parks, People, and Biodiversity
Dr. Steven R. Beissinger, University of California, Berkeley
Rolf Diamant, George Wright Society
Professor Holly Doremus, University of California, Berkeley

EXECUTIVE DIRECTORS
Dr. Patrick Gonzalez, University of California, Berkeley,
Institute for Parks, People, and Biodiversity
David Harmon, George Wright Society

EDITORIAL STAFF
Dr. Rebecca Conard, Managing Co-editor
Dorothy A. Davis, Co-editor,
“The Photographer’s Frame”
Gary E. Davis, Co-editor,
“The Photographer’s Frame”
David Harmon, Managing Co-editor
Dr. Gary Machlis, Editor, “Verse in Place”

EDITORIAL & ADMINISTRATIVE OFFICE
George Wright Society
P.O. Box 65
Hancock, MI 49930-0065 USA
1.906.487.9722
psf@georgewright.org

CONTRIBUTING TO PARKS STEWARDSHIP FORUM
We welcome proposals for papers in PSF’s two main departments: “New Perspectives,” for non-peer-reviewed articles that will be evaluated solely by the journal’s editors; and “Advances in Research and Management,” for articles that will undergo formal peer review. We also invite proposals for “The Photographer’s Frame,” our regular feature in which contributors tell a compelling conservation story in photographs.

More information and manuscript submission guidelines: https://www.georgewrightsoociety.org/psfsubmissions

The University of California, Berkeley, Institute for Parks, People, and Biodiversity advances science and solutions to halt climate change, conserve biodiversity, and improve the experience of nature for all. The Institute conducts new scientific research and helps managers and policymakers apply the results to conservation of ecosystems around the world, especially in national parks and other protected areas.

Public protection of land and water serves important roles for climate change resilience and carbon solutions, endangered species, tropical forests, health and well-being, education, thriving economies, Indigenous cultures, and environmental justice. For these critical issues and other emerging questions, the Institute connects field managers and government policymakers to the high-level interdisciplinary research capabilities of the University of California, Berkeley. Institute researchers also communicate science-based solutions to motivate public action and cultivate future conservation leaders. With new scientific insights, the Institute aims to advance meaningful progress for nature and people.

https://parks.berkeley.edu

The George Wright Society advances the scientific and cultural resource values of parks, protected and conserved areas, cultural sites, and other forms of place-based conservation. The Society promotes research and resource stewardship across disciplines; brings practitioners together to share their expertise; provides avenues of communication among scholars, researchers, educators, practitioners, and the public; and supports informed conservation decisions and management actions that embrace these values. By uniting people from many different backgrounds around a common passion for protecting Earth’s natural and cultural heritage, we create the collaboration needed to meet today’s greatest conservation challenges.

https://www.georgewrightsoociety.org
POINTS OF VIEW

LETTER FROM WOODSTOCK
From Yosemite to Presidio: Everyone Welcomed
6 Rolf Diamant

CLIMATE CHANGE SOLUTIONS
Keeping Snow and Ice Frozen with Renewable Energy Solutions to Halt Climate Change
13 Patrick Gonzalez

Origins and Innovations of Science in the US National Parks:
The 2023 Leopold Lecture at the University of California, Berkeley
25

THEME ARTICLES

NATIONAL PARK SERVICE PALEONTOLOGY
Vincent L. Santucci and Justin S. Tweet, guest editors

The National Park System fossil record: Uncovering significant new paleontological
discoveries through inventory, monitoring, research and museum curation
27 Vincent L. Santucci, Justin S. Tweet, Christy Visaggi, and John-Paul M. Hodnett

Ancient bat remains illustrate the role of caves as habitat anchors in the temporally dynamic
landscape of the Grand Canyon
39 Carol L. Chambers, Shawn Thomas, Vincent L. Santucci, Hattie Oswald, and Jason Ballensky

Sharks in the dark: Paleontological resource inventory reveals multiple successive
Mississippian Subperiod cartilaginous fish (Chondrichthyes) assemblages within Mammoth
Cave National Park, Kentucky
53 John-Paul M. Hodnett, Rickard Toomey, Rickard Olson, Kelli Tolleson, Richard Boldon,
Jack Wood, Justin S. Tweet, and Vincent L. Santucci

Incredible discoveries and devastation of paleontological resources in a changing world
preserved at White Sands National Park
69 David Bustos, Vincent L. Santucci, Daniel Odess, Patrick J. Martinez, and Clare J. Connelly

Past, present, and future: A synthesis of paleontological resource monitoring and
management at Badlands National Park
81 Wayne A. Thompson and Ellen N. Starck
<table>
<thead>
<tr>
<th>Title</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Checking in on fossil sites: Advancing monitoring protocols and techniques for paleontological localities in National Park Service units</td>
<td>91</td>
</tr>
<tr>
<td>Aubrey M. Bonde, Vincent L. Santucci, and Torrey Nyborg</td>
<td></td>
</tr>
<tr>
<td>How protecting shark teeth can lead to finding dolphins:</td>
<td>103</td>
</tr>
<tr>
<td>George Washington Birthplace National Monument as a case study in developing and implementing paleontological resource monitoring</td>
<td></td>
</tr>
<tr>
<td>Justin S. Tweet and Vincent L. Santucci</td>
<td></td>
</tr>
<tr>
<td>Research put into action: How a fossil inventory informed paleontological resource monitoring efforts preceding road construction at Theodore Roosevelt National Park</td>
<td>115</td>
</tr>
<tr>
<td>Charles Salcido, Justin S. Tweet, and Vincent L. Santucci</td>
<td></td>
</tr>
<tr>
<td>The dinosaur-bearing rocks of Aniakchak National Monument and Preserve: A fossil resource of global interest</td>
<td>127</td>
</tr>
<tr>
<td>Anthony R. Fiorillo and Troy Hamon</td>
<td></td>
</tr>
<tr>
<td>Microtomography of an enigmatic fossil egg clutch from the Oligocene John Day Formation, Oregon, USA, reveals an exquisitely preserved 29-million-year-old fossil grasshopper ootheca</td>
<td>139</td>
</tr>
<tr>
<td>Jaemin Lee, Nicholas A. Famoso, and Angela Lin</td>
<td></td>
</tr>
<tr>
<td>Fossil woods of Yellowstone National Park</td>
<td>181</td>
</tr>
<tr>
<td>Elisabeth A. Wheeler</td>
<td></td>
</tr>
<tr>
<td>New perspectives on NPS paleontological resource stewardship:</td>
<td>197</td>
</tr>
<tr>
<td>Scientific, curatorial, and educational outcomes at Petrified Forest National Park</td>
<td></td>
</tr>
<tr>
<td>William G. Parker, Adam D. Marsh, Matthew E. Smith, Ben T. Kligman, Deborah E. Wagner, Phillip Varela, and Diana M. Boudreau</td>
<td></td>
</tr>
<tr>
<td>Breaking out of the fishbowl: Integrating paleontological resource management and public engagement while inspiring stewardship through an open-door fossil preparation lab at Badlands National Park</td>
<td>211</td>
</tr>
<tr>
<td>Ed Welsh, Mary Carpenter, and Ellen Starck</td>
<td></td>
</tr>
<tr>
<td>Updating conservation techniques for paleontology collections associated with Florissant Fossil Beds National Monument</td>
<td>217</td>
</tr>
<tr>
<td>Conni J. O’Connor, Elizabeth Burr, Catherine Cooper, and Herbert W. Meyer</td>
<td></td>
</tr>
</tbody>
</table>
Discovery, preservation, and protection of notable paleontological resources from Dinosaur National Monument, Utah and Colorado
Rebecca Hunt-Foster

Interdisciplinary approaches to reconciling legacy paleontological collections to advance discovery and improve resource management
Lauren E. Parry and Erin E. Eichenberg

The price of neglect: Revisiting Fossil Cycad National Monument (1922–1957)
Vincent L. Santucci, Justin S. Tweet and Tim Connors

ADVANCES IN RESEARCH AND MANAGEMENT

Health challenges of rangers—a planetary health workforce
Francois Rerolle, Rohit Singh, Thomas Mascari, Hamera Aisha, Felipe Spina Avino, Osvaldo Barassi Gajardo, Melina Urh, Drew Mcvey, Mike Belecky, and William Moreto

No longer news that’s fit to print? Climate change goes missing from national park newspapers
Robert B. Lull and Wesley Wise

THE PHOTOGRAPHER’S FRAME
Find hope with climate crisis triage
Gary E. Davis and Dorothy A. Davis

VERSE IN PLACE
Almost Human
Peter Markus