

# OSM NATIONAL LIBRARY

July 9, 2010

## **Current Journal Contents**

**U.S. Office of Surface Mining/DOI  
1999 Broadway, Suite 3320  
Denver, CO 80202-3050**

This is the current compilation of the table-of-contents pages for journals received during the month of June in the Library. Individuals may have copies of specific articles by notifying the librarian either by phone, e-mail, or regular mail service. **(If you have more than one or two articles you want, please send a written or e-mail request.)**

Deborah K. McGinnis, Librarian  
[dmcginnis@osmre.gov](mailto:dmcginnis@osmre.gov)

**Tel: (303) 293-5073  
FAX (303) 293-5017**

[Search the OSM Library Catalog HERE](#)

### **NOTICE OF WARNING CONCERNING COPYRIGHT RESTRICTIONS**

The copyright law of the United States (Title 17, United States Code) governs the making of photocopies or other reproductions of copyrighted material.

Under certain conditions specified in the law, libraries and archives are authorized to furnish a photocopy or other reproduction. One of these specific conditions is that the photocopy or reproduction is not to be "used for any purpose other than private study, scholarship, or research." If a user makes a request for, or later uses, a photocopy or reproduction for purposes in excess of "fair use," that user may be liable for copyright infringement.

This institution reserves the right to refuse to accept a copying order if, in its judgment, fulfillment of the order would involve violation of copyright law.

# Coal Age

RECEIVED  
2010 JUN -2, PM 8:23

## FEATURE ARTICLES

- 20 Loading a Ship Under Seizure  
*North American Coal's Sabine Mining excels on overburden removal scheduling*
- 22 Four Draglines and Seven Splitting Seams  
*North American Coal's Sabine Mining excels on overburden removal scheduling*
- 30 Coal Industry Careers Pay Well  
*While the industry is seeing some turnover, employees remain fairly loyal and bonuses are a big incentive*
- 38 The UBB Explosion Investigation Begins  
*In the wake of the worst mining tragedy in 40 years, Massey Energy and MSHA prepare to defend their actions or lack thereof*
- 42 Latest IPCC Systems Provide Improved Operational Flexibility, Higher Capacity  
*New-project developers as well as mature-mine operators are showing renewed interest for in-pit crushing and conveying as a viable alternative to conventional truck and shovel mining*
- 46 Advancements in Longwall Roof Supports

## COAL IN THE NEWS

- 6 America mourns the loss of UBB miners; Massey Energy prepares to defend itself
- 6 Alliance resumes production at Doriki
- 7 MSHA launches nationwide inspection blitz
- 8 EPA clarifies its position; moves forward with stream conductivity
- 10 QSM to develop stream protection rule
- 12 National Coal sells assets
- 15 The EPA proposes to revoke NSR final rule
- 16 Tennessee property owners hold TVA accountable
- 18 Hazard complaints result in surprise inspection at three Massey-owned mines

## WORLD NEWS

- 7 Peabody ups the ante for Australia's Macarthur Coal  
*Australia's Coal & Allied plans production boost*  
*Russia's Mechel begins exchange trading*
- 8 CIL signs MoU with Indian Ministry of Coal  
*Ukrainian Coal Ministry to develop state coal mines in 2010*  
*Denarij signs joint venture for Chile's Lota Bay*
- 10 Indian ports to benefit from Colombian coal  
*Macarthur wins rail access to Goonyella rail expansion*
- 12 Japanese coal imports increase  
*Court directs Japanese government to pay damages*

## NEWS/6



## TRANSPORT TIPS/20



## MOVING OVERBURDEN/22



## SALARY SURVEY 2010/30



# THIS ISSUE

*This month, Coal Age profiles NACoal's Sabine Mining, which uses draglines to move more overburden effectively. (Photo: Lee Buchsbaum)*

## DEPARTMENTS

- 4 Editorial
- 6 Coal in the News
- 7 World News
- 14 People
- 16 Dateline Washington
- 18 Calendar
- 19 Awards
- 20 Transport Tips
- 46 Operating Ideas
- 48 Suppliers News
- 50 Product News
- 52 Classified
- 56 Legally Speaking



Next Issue:  
July / Surface Mining / Reclamation Mining

June 2010 Vol. 32 No. 6

Dedicated to Coal People Worldwide www.coalpeople.com

### Cover Feature



**Jim Bunn II: A Reluctant, Hesitant, Dedicated  
4<sup>th</sup> Generation Coal Man** ..... 20  
by Art Sanda

### Features

Alpha Natural Resources Breaks Ground for New Headquarters ..	12
Inductees, West Virginia Coal Hall of Fame .....	14
Below the Radar: Choosing the Best Path for Change .....	16
by Kay Sever	
Coal Ash Regulations EPA Speaks ..	18
by J. David Brittingham and Thomas P. Doyle	
A River Runs Through It .....	26
Coal Industry Veteran BYRD WHITE Loves West Virginia Whitewater and Sharing Coal Country With Others	
by Lynn Seldon	
The Combs Group, Inc .....	30

### 2010 Underground / Longwall Mining Buyer's Guide ..... 49-85

Featuring Products and Services Available for Underground and Longwall Mining. Featured Vendors are Indexed for Quick Access.

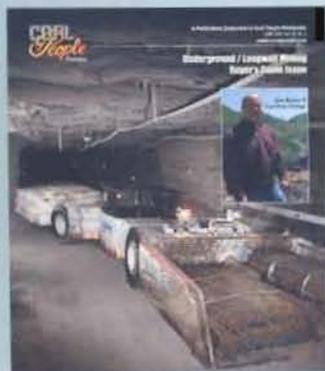
### Coal Prep 2010 Post-Show Section .....86-93

Featuring Mining Our Business, Show Photos



On the front cover...

Fairchild's 35C-WH2-30-AC Dual Tractor Workhorse Scoop underground at Coal River Energy's Fork Creek #3 mine.  
Inset: Jim Bunn II of Coal River Energy, No. 1 mine located in background.



### Departments

Editorial by Al Skinner .....	8
Buyer-Friendly Ad Index "Find it Fast" .....	6
Coal People Comments ..	10-11
Capsule News .....	32
Coal News Worldwide .....	43
Coal People in the News .....	46
Energy News ..	39
Product News .....	94
Advertising Index .....	102
Classified ..	98-101

### News Highlights

Macarthur Rejects Peabody's Bid ....	32
Arch Coal's East-Central Utah Mine Shut Down ..	32
Dotiki Mine Resumes Operations .....	32
America West Resources Signs Two Contracts ..	33
Rio Tinto Invest in Canadian Project .....	34
Massey Energy Acquires Appalachian Coal Reserves.....	34
Taggart Global Completes Acquisition of Controlling Interest in LSL/TEKPRO .....	38
Constellation Energy Completes Purchases of Gas Plants.....	39
Coal User Plant of the Year Award .....	39
China Takes Lead Role in Clean Coal Technologies.....	40
Peabody Energy Donates to University of Wyoming to Build Energy Research Center .....	42
Black Hills Corp. Names John Vering Interim President and General Manager of Oil and Gas Subsidiary.....	42
National Coal Corp. Completes Sale of Rail Line.....	42
Macarthur Coal Remains Long-Term Investment for Citic.....	43
Australia Opens Newcastle Coal Export Terminal .....	43
Russian Coal Industry Weakening .....	45
Arch Coal Names Rowlands to Lead Montana Project Development .....	46

"ENR"

June 14, 2010

Contents

Volume 264 • Number 18

RECEIVED

SPECIAL REPORT

Top 100 CM-for-Fee, PM

74 Agency CM and program-management firms have been hit by the recession, but as their services are not always tied to ongoing projects, many have fared better than other types of industry firms.



Cover Story: Vanir Adds Value

34 Mansour Aliabadi, CEO of Sacramento, Calif.-based Vanir Construction Management, sees high CM practitioner standards and market diversity as key to the 30-year-old company weathering the downturn.

Cover photo and photo right courtesy of Dan Hood

FEATURE

TECHNOLOGY

80 Hospital owner's digital mandate gives builders a dose of reality

NEWS



Gulf oil-spill remediation efforts ramp up. Page 12

Environment

12 Oil Spill: As firms mobilize to fight the flow, debate rages on long-term impacts

UPCOMING ISSUES

- June 21 Web News and Updates
June 28 Second Quarter Cost Report
July 5 Top Green Design Firms
July 12 Web News and Updates

Buildings

- 14 Sustainability: New process shows dollar value of building 'green'
26 Green Building: Rating controversy heats up

Power & Industrial

- 15 Demolition: Long setup for fast implosion of second-largest cooling tower
17 Powerplant Construction: Coal power for Mississippi, but \$2.9-billion cost cap is set
25 Cranes: National inspector exam to come in 2011

Business & Economics

- 15 Companies: Public firms tell Wall Street of return to 'rational' markets
19 State Finance: Fiscal squeeze to continue in 2011

Transportation

- 18 Airports: FAA chief touts satellite-based revamps and multimodalism
18 Organizations: Transportation Secretary promises diversity efforts
21 Bridges: Test pontoon prepares team for real-time construction
22 Bridges: Despite bumpy bid process, Texas span work is under way

DEPARTMENTS

- 7 Letters
9 Construction Week
11 Washington Observer
31 Construction Economics
99 Products
100 Pulse
102 Official Proposals (cont. on p. 103)
104 Dialogue



For subscriber services call: (877) 876-8208 or (515) 237-3681

GO TO MY.ENR.COM FOR PASSWORD-PROTECTED ONLINE ACCESS.

Not getting ENR Insider and News Alerts? Please call (877) 876-8208

enr.com ADDITIONAL CONTENT ONLINE

Engineering News-Record

The McGraw-Hill Companies

Founded 1825

Two Penn Plaza, New York, N.Y. 10121-2298. Phone (212) 512-2000. Postmaster: Please send address changes to ENR/Engineering News-Record, Attention: Fulfillment Manager, P.O. Box 5730, Harlan, IA 51593. Periodicals postage paid at New York, N.Y., and at additional mailing offices. Canada Post Publication Mail Agreement No.40012501. Registered for GST as The McGraw-Hill Companies. GST #R123075873. RETURN UNDELIVERABLE CANADIAN ADDRESSES TO: DHL Global Mail, 355 Admiral Blvd-Unit 4, Mississauga, ON L5T 2N1. Email: enrcustomers@cdsfulfillment.com. Copyright, printing and reprinting: Titles Engineering News-Record (ENR) and CONSTRUCTION WEEK reg. ® in U.S. Patent Office. Copyright © 2010 by The McGraw-Hill Companies. All rights reserved. Officers of The McGraw-Hill Companies, Inc.: Harold W. McGraw III, Chairman, President, and Chief Executive Officer; Robert J. Bahash, Executive Vice President and Chief Financial Officer; Kenneth M. Vittor, Executive Vice President and General Counsel. McGraw-Hill Construction: Keith Fox, President;

ENR (Engineering News-Record), (ISSN 0891-9526). Published weekly 3 issues a month, 36 weeks a year by The McGraw-Hill Companies, 1221 Ave. of the Americas, New York, N.Y. 10020. Founder: James H. McGraw (1860-1948). Executive, editorial, circulation, advertising offices: John Murphy, Director, Finance. Where necessary, permission is granted by copyright owner for those registered with Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, Mass. 01923, www.copyright.com, to photocopy any article herein for personal or internal reference use only for the flat fee of \$1.20 per copy for each article. ENR Construction Economics, Top Rankings and Sourcebooks available for a fee in downloadable PDF format at www.enr.com. Send payment to CCC. ISSN 0891-9526/92. Copying for other than personal or internal reference use without express permission of The McGraw-Hill Companies is prohibited. Write the editor to request such permission. Printed in the USA. Subscription rates for individuals in the field of the publication: U.S. and possessions, \$82 per year (single copies \$9.95 in U.S.); Canada and Mexico, \$89 per year; outside North America, \$195 per year. Please allow four to six weeks for shipment. Subscriber service and single copies: (877) 876-8208 or (515) 237-3681. Send all correspondence, notices and subscription orders to Fulfillment Manager, ENR, P.O. Box 5730, Harlan, IA 51593. If possible, attach address label from a recent issue. Please contact customer service to change your name or address. If the postal authorities alert us that your magazine is undeliverable, we have no further obligation unless we receive a corrected address within two years. Please allow a month for change of address to take effect. Classified advertising: Send ads to ENR, Classified Advertising, Two Penn Plaza, 9th Floor, New York, NY 10121. Phone (212) 904-2915.

John Murphy, Director, Finance. Where necessary, permission is granted by copyright owner for those registered with Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, Mass. 01923, www.copyright.com, to photocopy any article herein for personal or internal reference use only for the flat fee of \$1.20 per copy for each article. ENR Construction Economics, Top Rankings and Sourcebooks available for a fee in downloadable PDF format at www.enr.com. Send payment to CCC. ISSN 0891-9526/92. Copying for other than personal or internal reference use without express permission of The McGraw-Hill Companies is prohibited. Write the editor to request such permission. Printed in the USA. Subscription rates for individuals in the field of the publication: U.S. and possessions, \$82 per year (single copies \$9.95 in U.S.); Canada and Mexico, \$89 per year; outside North America, \$195 per year. Please allow four to six weeks for shipment. Subscriber service and single copies: (877) 876-8208 or (515) 237-3681. Send all correspondence, notices and subscription orders to Fulfillment Manager, ENR, P.O. Box 5730, Harlan, IA 51593. If possible, attach address label from a recent issue. Please contact customer service to change your name or address. If the postal authorities alert us that your magazine is undeliverable, we have no further obligation unless we receive a corrected address within two years. Please allow a month for change of address to take effect. Classified advertising: Send ads to ENR, Classified Advertising, Two Penn Plaza, 9th Floor, New York, NY 10121. Phone (212) 904-2915.

# Environmental Impact Assessment Review Vol 30, no. 5 (Sept. 2010)

SPECIAL ISSUE: Conflict Mediation and Social Impact Assessment

Guest-editors: Rauno Sairinen, Chris Barrow and Timo P. Karjalainen

Environmental conflict mediation and social impact assessment: Approaches for enhanced environmental governance? <i>Rauno Sairinen, Chris Barrow and Timo P. Karjalainen</i>	289
How is environmental conflict addressed by SIA? <i>C.J. Barrow</i>	293
Contested environmental policy infrastructure: Socio-political acceptance of renewable energy, water, and waste facilities <i>Maarten Wolsink</i>	302
Environmental justice, impact assessment and the politics of knowledge: The implications of assessing the social distribution of environmental outcomes <i>Gordon Walker</i>	312
Negotiating river ecosystems: Impact assessment and conflict mediation in the cases of hydro-power construction <i>Timo P. Karjalainen and Timo Järviöskö</i>	319
Integrating impact assessment and conflict management in urban planning: Experiences from Finland <i>Lasse Peltonen and Rauno Sairinen</i>	328

RECEIVED

2010 JUN 29 AM 3:0

UNIVERSITY OF  
DENVER, COLORADO



0195-9255(201009)30:5;1-4

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

 ScienceDirect

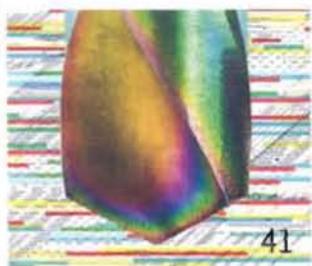
# Contents

JUNE 2010 VOL. 42 NO. 6

Government Executive  
COVER PHOTO: STEPHEN WEBSTER; BANK: ANTHONY TREMAGLIA



34



41



43

## IN EVERY ISSUE

### Editor's Notebook 4

The Defense secretary declares a budget emergency.  
By Tom Shoop

### The Briefing 7

Résumé tips, unhappy campers, iron woman wins again and charting a course.

### Perspectives 46

Feds, lobbyists and Wall Street all are in the salary spotlight.  
By Timothy B. Clark

### Correction

In the May article "Prize Performers," the information on Thomas S. Winkowski of Customs and Border Protection was incorrect. He developed national and international programs to support anti-terrorism efforts after Sept. 11, 2001, and is responsible for enforcing customs, immigration and agriculture laws at U.S. borders. We regret the error.

## FEATURES

### The Enforcer 22

John Morton and his agency have a lot to prove if comprehensive immigration reform is to become reality.  
By Katherine McIntire Peters

### Zoned Out 34

Acquisition officials walk a fine line after a court rules low-income areas trump veteran or minority status in competition for small business contracting dollars.  
By Elizabeth Newell

## TRENDS

### A Different Future 11

The Army focuses on discrete, networked combat systems.  
By Brittany Ballenstedt

### Bold Thinkers 14

Nextgov Awards honor eight managers who have conquered bureaucratic resistance to push through innovative ideas.  
Profiles by Dawn Lim

### Give and Take 18

Agencies see the potential for savings with cloud computing, but jobs could be on the line.  
By Emily Long

## ANALYSIS

### Drilling Down 41

**Managing Technology** Agencies use analytics software to comb filings for errors and fraud before payments go out.  
By Carolyn Duffy Marsan

### Political Hot Potato 43

**Management Matters** Career civil servants can't be expected to make all the hard decisions.  
By Brian Friel

### The Path to Partnership 2.0 44

**Viewpoint** Agency and union officials should draw on lessons from the Clinton years.  
By Hinda Sterling and Herb Selesnick

### A Hiring Offense 45

**Viewpoint** Requiring incoming contractors to retain incumbent workers could compromise service.  
By Stan Soloway

Cover photograph by James Kegley

# Contents

JUNE 15, 2010 VOL. 42 NO. 7

## THE CHIEFS

### Editor's Notebook 6

Government's top executives are front and center in implementing new priorities.

By Tom Shoop

# CIO

### NOW YOU SEE IT 12

From transparency to the cloud, CIOs weigh the costs and consequences of sharing more data.

By Aliya Sternstein

# CFO

### FINESSING FINANCES 20

CFOs are on the hook for \$100 billion in erroneous payments in 2009 and a host of other problems.

By Katherine McIntire Peters

# CHCO

### FACING THE MUSIC 28

The government's maestros of personnel must manage a series of high-profile challenges.

By Alyssa Rosenberg

# CAO

### PROCUREMENT PRESSURES 38

A flurry of policy changes creates an implementation headache for top acquisition officials.

By Robert Brodsky and Elizabeth Newell

# CTSO

### BREAKING THE CHAINS 48

CISOs must bust out of bureaucratic ruts and rethink their approach to cyber threats.

RECEIVED  
JUN 22 PM 11:13  
LIBRARY OF CONGRESS

Cover illustration by Stephen Webster

INTERNATIONAL JOURNAL OF MINING, RECLAMATION AND ENVIRONMENT

Volume 24 Number 2 June 2010

---

CONTENTS

<b>Editor's page</b> <i>Raj K. Singhal</i>	91
<b>Book reviews</b>	93
<i>In situ</i> colloid generation and transport in 30-year-old mine soil profiles receiving biosolids <i>Jarrod O. Miller, Anastasios D. Karathanasis and Ole O.B. Wendroth</i>	95
Landscape restoration after oil sands mining: conceptual design and hydrological modelling for fen reconstruction <i>Jonathan S. Price, Robert G. McLaren and David L. Rudolph</i>	109
Extractive activities start up and management: a computer assisted specially developed "Prevention through design" approach <i>Daniele Bersano, Caterina Cigna, Mario Patrucco, Jean Marie Pession, Pier Franco Ariano, Sergio Prato, Raffaele Romano and Giorgio Scioldo</i>	124
Composite paste barricade performance at Goldcorp Inc. Red Lake Mine, Ontario, Canada <i>P.B. Hughes, R. Pakalnis, M. Hitch and G. Corey</i>	138
Sludge dewatering by sand-drying bed coupled with electro-dewatering at various potentials <i>A.T. Pham, M. Sillanpää and J. Virkutyte</i>	151
Sustainable socio-economic development in mining communities: north-central British Columbia perspectives <i>Jacqueline L. Nelsen, Malcolm Scoble and Aleck Ostry</i>	163
Noise generation in water jet technology <i>Augusto Bortolussi, Valentina Dentoni and Giorgio Massucci</i>	180

RECEIVED  
2010 JUN -2 PM 8:2  
NEWVEN, COLORADO

## TABLE OF CONTENTS

- p. 1 of 2
- 913 EDITOR'S MESSAGE  
LETTER TO THE EDITOR
- 915 Foreign Language Abstracts in Scientific Journals: Please Write Them Well  
*Joaquín Luis Navarro*
- 916 Editor's Note  
*Eric C. Hellgren*
- COMMENTARY
- 917 Science and Values Influencing Predator Control for Alaska Moose Management  
*Rodney D. Boertje, Mark A. Keech, and Thomas F. Paragi*
- 929 Can Coyotes Affect Deer Populations in Southeastern North America?  
*John C. Kilgo, H. Scott Ray, Charles Ruth, and Karl V. Miller*
- 934 Using Advancements in Cable-Trapping to Overcome Barriers to Furbearer Management in the United States  
*Stephen M. Vantassel, Tim L. Hiller, Kelly D. J. Powell, and Scott E. Hygnstrom*
- 940 Nest Turnover Rates and List-Frame Decay in Bald Eagles: Implications for the National Monitoring Plan  
*Bryan D. Watts and Adam E. Duerr*
- MANAGEMENT AND CONSERVATION
- MAMMALS
- 945 Habitat Selection by Prairie Dogs in a Disturbed Landscape at the Edge of Their Geographic Range  
*Rafael Avila-Flores, Mark S. Boyce, and Stan Boutin*
- 954 Effects of Rain on Palm Springs Ground Squirrel Occupancy in the Sonoran Desert  
*Lianne C. Ball, Paul F. Doherty, Jr., Stacey D. Ostermann-Keim, and Matthew W. McDonald*
- 963 Pedigrees and the Study of the Wild Horse Population of Assateague Island National Seashore  
*Lori S. Eggert, David M. Powell, Jonathan D. Ballou, Aurelio F. Malo, Allison Turner, Jack Kumer, Carl Zimmerman, Robert C. Fleischer, and Jesús E. Maldonado*
- 974 Influence of Summer and Autumn Nutrition on Body Condition and Reproduction in Lactating Mule Deer  
*Troy N. Tollefson, Lisa A. Shipley, Woodrow L. Myers, Duane H. Keisler, and Nairanjana Dasgupta*
- 987 Home Range and Movement Rates of Female Exurban White-Tailed Deer  
*Craig L. Rhoads, Jacob L. Bowman, and Brian Eyler*
- 995 Does Supplemental Feed Increase Selective Foraging in a Browsing Ungulate?  
*Garrett R. Timmons, David G. Hewitt, Charles A. DeYoung, Timothy E. Fulbright, and Don A. Draeger*
- 1003 Deer Carrying Capacity in Mid-Rotation Pine Plantations of Mississippi  
*Raymond B. Iglay, Phillip D. Jones, Darren A. Miller, Stephen Demarais, Bruce D. Leopold, and L. Wes Burger, Jr.*
- 1013 Living on the Edge: Viability of Moose in Northeastern Minnesota  
*Mark S. Lenarz, John Fieberg, Michael W. Schrage, and Andrew J. Edwards*
- 1024 Compensatory Growth Limits Opportunities for Artificial Selection in Alpine Chamois  
*Marco Rughetti and Marco Festa-Bianchet*
- 1030 Diet, Prey Selection, and Predation Impact of Black-Backed Jackals in South Africa  
*Unn Klare, Jan F. Kamler, Ute Stenkewitz, and David W. Macdonald*
- 1043 Surveying Predicted Rendezvous Sites to Monitor Gray Wolf Populations  
*David E. Ausband, Michael S. Mitchell, Kevin Doherty, Peter Zager, Curt M. Mack, and Jim Holyan*
- 1050 Efficient, Noninvasive Genetic Sampling for Monitoring Reintroduced Wolves  
*Jennifer L. Stenglein, Lisette P. Waits, David E. Ausband, Peter Zager, and Curt M. Mack*
- BIRDS
- 1059 Comparative Analysis of Mourning Dove Population Change in North America  
*John R. Sauer, William A. Link, William L. Kendall, and David D. Dolton*
- 1070 Calibrating Recruitment Estimates for Mourning Doves From Harvest Age Ratios  
*David A. Miller and David L. Otis*
- 1080 Effectiveness of Raptor Perch Deterrents on an Electrical Transmission Line in Southwestern Wyoming  
*Steven J. Slater and Jeff P. Smith*

1089 Novel Scavenger Removal Trials Increase Wind Turbine-Caused Avian Fatality Estimates  
*K. Shawn Smallwood, Douglas A. Bell, Sara A. Snyder, and Joseph E. DiDonato*

1098 White-Headed Woodpecker Nesting Ecology After Wildfire  
*Catherine S. Wightman, Victoria A. Saab, Chris Forristal, Kim Mellen-McLean, and Amy Markus*

1107 Population Structure of Tundra Swans Wintering in Eastern North America  
*Khristi A. Wilkins, Richard A. Malecki, Patrick J. Sullivan, Joseph C. Fuller, John P. Dunn, Larry J. Hindman, Gary R. Costanzo, Scott A. Petrie, and Dennis Luszc*

#### TOOLS AND TECHNOLOGY

1112 Ranking Mahalanobis Distance Models for Predictions of Occupancy From Presence-Only Data  
*Suzanne C. Griffin, Mark L. Taper, Roger Hoffman, and L. Scott Mills*

1122 Comparing Ground Telemetry and Global Positioning System Methods to Determine Cougar Kill Rates  
*Toni K. Ruth, Polly C. Buotte, and Howard B. Quigley*

1134 Encounter Rates From Road-Based Surveys of Rio Grande Wild Turkeys in Texas  
*Devin R. Erxleben, Matthew J. Butler, Warren B. Ballard, Mark C. Wallace, Jason B. Hardin, and Stephen J. DeMaso*

1141 Traditional Versus Multivariate Methods for Identifying Jaguar, Puma, and Large Canid Tracks  
*Carlos De Angelo, Agustin Paviolo, and Mario S. Di Bitetti*

1154 A Modified Track Tube for Detecting Beach Mice  
*Ronald E. Loggins, Jeffery A. Gore, Laurinda L. Brown, Laura A. Slaby, and Erin H. Leone*

1160 Sound Intensity of Booming in Lesser Prairie-Chickens  
*Matthew J. Butler, Warren B. Ballard, R. Douglas Holt, and Heather A. Whitlaw*

#### HUMAN DIMENSIONS OF WILDLIFE MANAGEMENT

1163 Using Citizen Science to Map Human-Coyote Interaction in Suburban New York, USA  
*Mark E. Weckel, Deborah Mack, Christopher Nagy, Roderick Christie, and Anastasia Wincorn*

#### BOOK REVIEWS

1172 A Field Guide to the Mammals of Central America and Southeast Mexico, by Fiona A. Reid  
*E. Alejandro Lozano-Cavazos*

Jrnl. of ~~Wildlife~~ Wildlife  
Management  
Vol. 74, no. 5 (July 2010)

RECEIVED  
JUN 22 2010

RECEIVED  
JUN 22 2010

RECEIVED

# Land and Water

THE MAGAZINE OF NATURAL RESOURCE MANAGEMENT AND RESTORATION

Volume 54, Number 3

May/June 2010

## DEPARTMENTS

- 6 Tell It Like It Is  
54 Showcase  
53 EquipBoard  
54 Advertiser's Index

## FEATURES

### STORMWATER MANAGEMENT

- 8 **Underground Stormwater Detention Systems**  
Developers in Camden, New Jersey turned to a geosynthetic system to replace combined sewers and stormwater drains which overflowed into the Delaware River.  
*by Terence Shandari and Timothy D. Stark*

### COMPOST BMPs

- 14 **Going Green**  
Terraseeding used to stabilize and re-vegetate disturbed soil on stalled land development sites.  
*by Jonathan Koepke, CPESC, LEED-AP*

### DREDGING/SEDIMENT REMOVAL

- 19 **Muck and Gunk**  
Dredging and geotextile tubes help clean up a pond in Wisconsin.  
*by Kent Peterson*

### STREAM RESTORATION

- 22 **Sullivan Branch Stream Restoration**  
Stream restoration techniques combine with traditional drainage control on a Maryland highway project.  
*by Eileen Stroughan and Malissa Hartinski*

### SHORELINE RESTORATION

- 28 **Los Serranos Lake**  
Bioengineering erosion control solution leads to shoreline restoration in Southern California.  
*by Jack W. Greening, Jr.*

### STORMWATER MANAGEMENT

- 35 **Stormwater Treatment in Tough Terrain**  
Even in tough terrain, a stormwater management installation must comply with EPA regulations.  
*by Steve Cooper*

## ABOUT THE COVER

Otterbine 3HP Sunburst Aerating Fountain, along with a Sub-Triton Aspirator is used to induce oxygen into this pond in order to control algae and maintain water quality while providing aesthetic enhancement.



### FLOOD CONTROL

- 38 **South Platte River**  
The largest flood control project to date was recently completed, improving over 7,000 linear feet of the South Platte River in Colorado.

### EROSION & SEDIMENT CONTROL

- 43 **Farewell To Our Erosion/Sediment Control Industry**  
Don Lutyens shares his opinion on some key points of what he has learned about erosion control blankets over the last 40 years in the industry.  
*by Don Lutyens*

### LAKE MANAGEMENT

- 48 **Lake Management Tool Box**  
A few of the many companies providing tools to help with water quality problems in lakes and ponds.

### LAND IMPROVEMENT

- 49 **The Offer "Fit Like A Glove"**  
Getting to know Burke Boyer, one of the original founders of Kansas LICA.  
*by Shanna M. Egli*

*Something New! Check out the new "Project location" found at the end of the articles... this gives you, the valued reader, an exact location of each project. Land and Water's digital version (visit [www.landandwater.com](http://www.landandwater.com)) takes you to a "birds-eye-view" of the project via Google maps simply by clicking on the location link!*

## STAFF

**Kenneth M. Rasch**  
President

**Jane Rasch**  
Vice President

**Amy Dencklau**  
Publishing Editor  
[landandwater@frontiernet.net](mailto:landandwater@frontiernet.net)

**Shanna Egli**  
Assistant Editor  
[lweditor@frontiernet.net](mailto:lweditor@frontiernet.net)

**Martha Steinkamp**  
Circulation Manager  
[lwsub@frontiernet.net](mailto:lwsub@frontiernet.net)

**Emily Jones**  
ESCN News Coordinator  
[escn\\_news@frontiernet.net](mailto:escn_news@frontiernet.net)

**Angela Dougall**  
Accounting  
[lwacct@frontiernet.net](mailto:lwacct@frontiernet.net)

**Bob Oertel**  
Contributing Writer

**Issy Weaver**  
Photographer

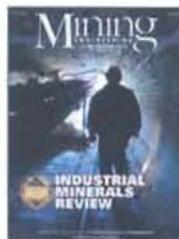
## SALES

**Gail Henry**  
Account Executive  
[landandwater@frontiernet.net](mailto:landandwater@frontiernet.net)  
phone: 515-576-3191

**Kim M. Kline**  
Account Executive  
[kimlandandwater@gmail.com](mailto:kimlandandwater@gmail.com)  
phone: 970-846-9015, or 515-576-3191

RECEIVED  
 DENVER, CO 80202  
 N-WRC  
**MINING**  
 ENGINEERING  
 OFFICIAL PUBLICATION OF SME  
 VOL. 62 NO. 6 JUNE 2010

COVER STORY



CONTENTS —

Promising research in underground communication and tracking systems will help mining companies enhance worker safety and routine production. Designing mesh communications networks underground is outlined beginning on page 16. This year's annual review of industrial minerals features profiles on 40 commodities, page 39. Cover photo shows the Caltanissetta sulfur mine in Sicily, Italy.

Copyright 2010 by the Society for Mining, Metallurgy and Exploration, Inc. All rights reserved. MINING ENGINEERING (ISSN 0026-5187) is published monthly by the Society for Mining, Metallurgy, and Exploration, Inc., at 8307 Shaffer Parkway, Littleton, CO, 80127-4102. Phone 1-800-763-3132 or 303-948-4200. Fax: 303-973-3845 or e-mail: sme@smenet.org. Website: www.smenet.org. Periodicals postage paid at Littleton, CO and additional mailing offices. Canadian post: publications mail agreement number 0689688. **POSTMASTER:** Send changes of address to MINING ENGINEERING, 8307 Shaffer Parkway, Littleton, CO, 80127-4102. Article copies and back issues available on microfilm or microfiche from Linda Hall Library in Kansas City, Mo. Printed by Cummings Printing Co.

COAL

16

**Designing and modeling mesh communications in underground coal mines**

*Michael E. Karmis, Steven J. Schafrik and Kenneth R. Griffin*

FEATURE ARTICLES

37

**The best personal protective equipment is your brain**

*Emily Wortman-Wunder*

39

**Industrial minerals review 2009**

TECHNICAL PAPERS

*(peer-reviewed and approved)*

90

**Reducing the fire and explosion hazards of flame-cutting and welding in underground coal mines**

*W.D. Monaghan*

SPECIAL EDITORIAL SECTION

TUNNELING & UNDERGROUND CONSTRUCTION

7

**Tunneling under the gateway to New York Harbor**

*Colin Lawrence*

11

**In soft ground, adaptable muck removal is key**

*Desiree Willis*

14

**Accessing deep orebodies using mechanical excavation equipment**

*W. Burger, F. Delabbio and C. Frenzel*

18

**Tunnel education in the United States**

*Gary Brierley and Andre Hawks*

DEPARTMENTS

4

The drift of things

6

Presidents page

8

Washington survey

10

Industry newswatch

97

Professional Engineers Exam Committee

98

SME Foundation

100

Young Leaders Committee

101

SME Tech Online

101

Local section news

105

In the aggregate

106

Rock in the box

107

Fine grind

110

Coming events

112

New products

115

New media

117

Classifieds

123

Professional services

128

Index of advertisers

**Reproduction:** More than one photocopy of an item from SME may be made for internal use, provided fees are paid directly to the Copyright Clearance Center, 27 Congress St., Salem, MA, 01970, USA. Phone 978-750-8400, fax 978-750-4470. Any other form of reproduction requires special permission from, and may be subject to fees by SME. SME is not responsible for any statements made or opinions expressed in its publications. Member subscription rate included in dues. Nonmember subscription rate, \$245; in Europe, \$275. Single copies \$25. July directory issue, \$150.

## Volume 32 No. 3 June 2010

Published bimonthly:

February, April, June, August, October, December

Copyright 2010 by the Society for Range Management

### EDITOR-IN-CHIEF

Lori Hiding

Managing Director  
Consortium for Science, Policy and Outcomes  
Arizona State University  
PO Box 875603  
Tempe, AZ 85287-5603

### MANAGING EDITOR

Erica Goodoff

9513 Fairlake Lane  
Richmond, VA 23294  
(804) 747-4624  
E-Mail: egoodoff@allenpress.com

### YOUTH EDITOR

Kim McReynolds

University of Arizona Cooperative Extension  
450 S Haskell Avenue  
Willcox, AZ 85643, USA  
kimm@cats.arizona.edu

### RANGELANDS STEERING COMMITTEE

Joel Brown – Chair

David Bradford

Mark Brunson

Dave Engle

Ed Fredrickson

Mel George

Chan Glidewell

Ann Hild

John Tanaka

### RANGELANDS EDITORIAL BOARD

Jerry Barker, Boulder, Colorado – Chair

Jay Davison, Fallon, Nevada

Jerry Dodd, Lawton, Oklahoma

Michael Frisina, Butte, Montana

Kimberly Halle, Bryan, Texas

Kim McReynolds, Willcox, Arizona

John Mitchell, Fort Collins, Colorado

Tom Monaco, Logan, Utah

Ed Rhodes, College Station, Texas

Jim Thorpe, Newkirk, New Mexico

RANGELANDS (ISSN 0190-0528) is the official publication of the Society for Range Management (SRM) and is published bimonthly in February, April, June, August, October, and December. Publishing services are provided by Allen Press Publishing Services, 810 East 10th Street, Lawrence, Kansas 66044. SRM members receive *Rangelands* as a benefit of membership. Calendar-year subscription prices are \$56–103 for individuals and \$148–218 for institutions. Additional surface charges may apply to subscribers located outside of the USA. The online version of *Rangelands* can be found online at [www.srmjournals.org](http://www.srmjournals.org). Subscriptions, changes of address, and requests for missing issues should be sent to Allen Press Association Management, P.O. Box 7065, Lawrence, Kansas 66044. Claims for copies lost in the mail must be received within 90 days (180 days foreign) of the issue date to insure replacement at no charge.

Editorial correspondence should be addressed to Lori Hiding, Consortium for Science, Policy and Outcomes, Arizona State University, PO Box 875603, Tempe, AZ 85287-5603. Page proofs should be returned to the Managing Editor, Erica Goodoff, 9513 Fairlake Lane, Richmond, VA 23294.

PERIODICALS POSTAGE paid at Denver, Colorado, and additional offices.

POSTMASTER: Address service requested to *Rangelands*, PO Box 7065, Lawrence, Kansas 66044.

PRINTED IN USA

## Feature Articles

- 2 Learning Natural Resource Assessment Protocols: Elements for Success and Lessons From an International Workshop in Inner Mongolia, China  
*Guodong Han, Jeffrey E. Herrick, Brandon T. Bestelmeyer, David A. Pyke, Patrick Shaver, Mei Hong, Mike Pellant, Fee Busby, and Kris M. Havstad*
- 10 Managing for Biodiversity and Livestock  
*Theodore P. Toombs, Justin D. Derner, David J. Augustine, Bryce Krueger, and Seth Gallagher*
- 16 Determining Drought on California's Mediterranean-Type Rangelands: The Noninsured Crop Disaster Assistance Program  
*M. R. George, R. E. Larsen, N. M. McDougald, C. E. Vaughn, D. K. Flavell, D. M. Dudley, W. E. Frost, K. D. Striby, and L. C. Forero*
- 21 Ranch-Level Economic Impacts of Predation in a Range Livestock System  
*Benjamin S. Rashford, Thomas Foulke, and David T. Taylor*
- 27 Evolution by the Grassroots  
*Olivia Judson*
- 30 Editor's Note  
*Lori Hiding*
- 32 Essays of a Peripheral Mind  
*K. M. Havstad*
- 35 An interview with a cow  
*Susan R. McGuire*

## Departments

- 38 Letter to the Editor
- 39 Listening to the Land
- 41 Browsing the Literature
- 44 Highlights, *Rangeland Ecology & Management*, May 2010

RECEIVED  
0610 JUN 22 PM 11:00  
LAWRENCE, KS

Front and Back Cover: Wild horses from the South Unit of Theodore Roosevelt National Park in North Dakota. Photo courtesy of Kelly Krabbenhoft, Hazen, North Dakota, USA.

CONTENTS  
RECEIVED

Feature Articles

Taxonomic status and species limits of *Perognathus* (Rodentia: Heteromyidae) in the southern Great Plains. *Brandi S. Coyner, Thomas E. Lee, Jr., Duke S. Rogers, and Ronald A. Van Den Bussche* . . . . . 1

Survival of western cottonmouths (*Agkistrodon piscivorus leucostoma*) in a pulsing environment. *Francis L. Rose, Thomas R. Simpson, James R. Ott, Richard W. Manning, and Julien Martin* . . . . . 11

Activity patterns of two sympatric species of skunks (*Mephitis mephitis* and *Spilogale gracilis*) in Texas. *Sean A. Neiswenter, Robert C. Dowler, and John H. Young* . . . . . 16

Effects of prescribed fire on winter assemblages of birds in ponderosa pine forests of northern Arizona. *Theresa L. Pope and William M. Block* . . . . . 22

Home ranges of two populations of urban-nesting white-winged doves (*Zenaida asiatica*) in Texas. *Michael F. Small, John T. Baccus, Thomas R. Simpson, and Michael C. Frisbie* . . . . . 29

Use of habitat during drought by the common muskrat (*Ondatra zibethicus*) in southwestern Oklahoma. *Brandon McDonald* . . . . . 35

Distribution of the eastern fox squirrel (*Sciurus niger*) in southern California. *Julie L. King, Min Chung Sue, and Alan E. Muchlinski* . . . . . 42

Small mammals associated with colonies of black-tailed prairie dogs (*Cynomys ludovicianus*) in the southern High Plains. *Alison L. Pruett, Clint W. Boal, Mark C. Wallace, Heather A. Whitlaw, and James D. Ray* . . . . . 50

Intake of mast by wildlife in Texas and the potential for competition with wild boars. *Jennifer J. Elston and David G. Hewitt* . . . . . 57

Comparative digestion of food among wildlife in Texas: implications for competition. *Jennifer J. Elston and David G. Hewitt* . . . . . 67

Changing fish faunas in two reaches of the Rio Grande in the Albuquerque Basin. *Christopher W. Hoagstrom, W. Jason Remshardt, Jude R. Smith, and James E. Brooks* . . . . . 78

Ecology of western pond turtles (*Actinemys marmorata*) at sewage-treatment facilities in the San Joaquin Valley, California. *David J. Germano* . . . . . 89

Diet of two populations of *Sceloporus grammicus* (Squamata: Phrynosomatidae) from Hidalgo, Mexico. *Adrian Leyte-Manrique and Aurelio Ramirez-Bautista* . . . . . 98

Characteristics and use of the tail in signaling by the zebra-tailed lizard (*Callisaurus draconoides*). *Douglas A. Eifler and Maria A. Eifler* . . . . . 104

Notes

Foods of the pallid bat, *Antrozous pallidus* (Chiroptera: Vespertilionidae), in the Chihuahuan Desert of western Texas. *Paul A. Lenhart, Vicente Mata-Silva, and Jerry D. Johnson* . . . . . 110

Consumption of eggs of the endangered fountain darter (*Etheostoma fonticola*) by native and nonnative snails. *C. T. Phillips, M. L. Alexander, and R. Howard* . . . . . 115

Distribution and conservation status of the giant anteater (*Myrmecophaga tridactyla*) in Honduras. *Hector Orlando Portillo Reyes, Wilfredo Antonio Matamoros, and Sheri L. Glowinski* . . . . . 118

Predation by age-0 smallmouth bass (*Micropterus dolomieu*) on bigscale logperch (*Percina macrolepida*) in the Pecos River, New Mexico. *Thomas P. Archdeacon and Stephen R. Davenport* . . . . . 120

Endangered Mount Graham red squirrel (*Tamiasciurus hudsonicus grahamensis*) uses nest following lightning strike. *Melissa J. Merrick, R. Nathan Gwinn, Rebecca L. Minor, Rosa R. Jessen, Timothy G. Jessen, Vicki L. Greer, and John L. Koprowski* . . . . . 123

Reproductive characteristics of two syntopic whiptail lizards, *Aspidoscelis marmorata* and *Aspidoscelis tesselata*, from the northern Chihuahuan Desert. *Vicente Mata-Silva, Aurelio Ramirez-Bautista, and Jerry D. Johnson* . . . . . 125

Sound production and spawning behavior in *Cyprinella lepida*, the Edwards Plateau shiner. *Catherine T. Phillips, Carol E. Johnston, and Andrew R. Henderson* . . . . . 129

Reptilian prey of the Sonora mud turtle (*Kinosternon sonoriense*) with comments on saurophagy and ophiophagy in North American turtles. *Jeff Lovich, Charles Drost, A. J. Monatesti, Dennis Casper, Dustin A. Wood, and Michele Girard* . . . . . 135

Collared peccary (*Pecari tajacu*) in Bastrop County, Texas. *Kendra K. Bauer, John C. Abbott, and Kate Quigley* . . . . . 138

Distributional and ecological records of the Mexican hairy dwarf porcupine (*Sphiggurus mexicanus*) from Michoacán, Mexico. *Tiberio C. Monterrubio-Rico, Juan Manuel Ortega-Rodriguez, Nefialí Mendoza-Cárdenas, Ramón Cancino-Murillo, and Alejandro Pérez-Arteaga* . . . . . 139

Announcements . . . . . 143

Cover: Western spotted skunk (*Spilogale gracilis*). Photo by Jerry W. Drago.

CONTENTS

RECEIVED

Feature Articles

2010 JUN 20 11:11 AM

Spatial and temporal variation in fishes of the upper Red River drainage (Oklahoma–Texas). <i>Chad W. Hargrave and Christopher M. Taylor</i> . . . . .	149
Use of space by western cottonmouths ( <i>Agkistrodon piscivorus</i> ) inhabiting a variable flow stream. <i>Francis L. Rose, Thomas R. Simpson, James R. Ott, and Richard W. Manning</i> . . . . .	160
Effects of landscape on behavior of black-tailed prairie dogs ( <i>Cynomys ludovicianus</i> ) in rural and urban habitats. <i>Jennifer E. Ramirez and Gregory S. Keller</i> . . . . .	167
Activity patterns of the desert nightsnake ( <i>Hypsiglena chlorophaea</i> ). <i>Robert E. Weaver</i> . . . . .	172
Entomofauna of the introduced Chinese tallow tree. <i>Guy N. Cameron and Stephen R. Spencer</i> . . . . .	179
Effects of burns conducted in summer and winter on vegetation of Matagorda Island, Texas. <i>Carlton M. Britton, Sandra Rideout-Hanzak, and Steven D. Brown</i> . . . . .	193
Effectiveness of chemical repellents in deterring red imported fire ants ( <i>Solenopsis invicta</i> ) from Sherman live traps. <i>Sarah E. Kraig, Steven M. Roels, and Monte L. Thies</i> . . . . .	203
Occurrence and activity of bats at three national monuments in central Arizona. <i>Melanie Bucci, Yar Petryszyn, and Paul R. Krausman</i> . . . . .	207
Effects of fire on endangered Mount Graham red squirrels ( <i>Tamiasciurus hudsonicus grahamensis</i> ): responses of individuals with known fates. <i>Katherine M. Leonard and John L. Koprowski</i> . . . . .	217
Evaluation of a new technique for determining sex of adult white-winged doves ( <i>Zenaida asiatica</i> ). <i>Timothy B. Fredricks, Alan M. Fedynich, and Steve J. Benn</i> . . . . .	225
Evaluating translocation of the Apache trout ( <i>Oncorhynchus apache</i> ) to nonhistorical renovated streams. <i>Mark T. Porath, Heidi B. Blasius, Jeffrey A. Conn, Kirk L. Young, and L. Stewart Jacks</i> . . . . .	229
Herpetofauna of the Rincon Mountains, Arizona. <i>Aaron D. Flesch, Don E. Swann, Dale S. Turner, and Brian F. Powell</i> . . . . .	240
Plant diversity in an imperiled gamagrass community in northeastern Texas. <i>Aditi Sinha, Jeffrey G. Kopachena, and Jim Eidson</i> . . . . .	254
Relative size of males and competition for females induces homosexual behavior in the western mosquitofish ( <i>Gambusia affinis</i> ) under laboratory conditions. <i>James C. Cureton, II, Jason L. Randall, and Raelynn Deaton</i> . . . . .	263

Notes

Size and fidelity of home ranges of male white-tailed deer ( <i>Odocoileus virginianus</i> ) in southern Texas. <i>Stephen L. Webb, Stephen Demarais, Robert E. Zaiglin, Matthew T. Pollock, and Donald G. Whittaker</i> . . . . .	269
Lactating North American beavers ( <i>Castor canadensis</i> ) sharing dens in the southwestern United States. <i>Justin W. Fischer, Roger E. Joos, Melissa A. Neubaum, Jimmy D. Taylor, David L. Bergman, Dale L. Nolte, and Antoinette J. Piaggio</i> . . . . .	273
<i>Acomatacarus arizonensis</i> (Acari: Leeuwenhoekiiidae): new records from three species of lizards in the Mexican Chihuahuan Desert. <i>Cristina Garcia-De la Peña, Ricardo Paredes-León, Barry O'Connor, Héctor Gadsden-Esparza, and Cameron W. Barrows</i> . . . . .	278
Molecular evidence for parthenogenesis in the Sierra garter snake, <i>Thamnophis couchii</i> (Colubridae). <i>David J. Germano and Paul T. Smith</i> . . . . .	280
Pronghorn ( <i>Antilocapra americana</i> ) locked in fight becomes prey of coyotes ( <i>Canis latrans</i> ). <i>Jennifer G. Chipault and Dustin H. Long</i> . . . . .	283
Recent records of <i>Cycleptus</i> in the Río Conchos, Chihuahua, Mexico. <i>Ma. de Lourdes Lozano-Vilana</i> . . . . .	284
Red crossbill ( <i>Loxia curvirostra</i> ) in Nuevo León, Mexico. <i>Armando J. Contreras-Balderas and Blanca L. Gaspar-Rodríguez</i> . . . . .	287
Continuing range expansion of the northern pygmy mouse ( <i>Baiomys taylori</i> ) in northeastern Texas. <i>Nicholas S. Green and Kenneth T. Wilkins</i> . . . . .	288
Ecology of Georgetown salamanders ( <i>Eurycea naufragia</i> ) within the flow of a spring. <i>Benjamin A. Pierce, James L. Christiansen, Alexis L. Ritzer, and Taylor A. Jones</i> . . . . .	291
First account of a living population of Texas fawnsfoot, <i>Truncilla macrodon</i> (Bivalvia: Unionidae), in the Brazos River, Texas. <i>Charles R. Randklev, Benjamin J. Lundeen, Robert G. Howells, and James H. Kennedy</i> . . . . .	297
Obituary for James Franklin (Jim) Scudday . . . . .	299
Announcements . . . . .	304

Cover: Burrowing owl (*Athene cunicularia*). Photo by Troy L. Best.

RECEIVED

2010 JUN 30 AM 3: 34

# WATER RESOURCES RESEARCH

Volume 46 Number 5 May 2010

WRERAC(5) W05301-W05302; W05501- W05601;  
W05801-W05901, W00C01-W00C13; W00D03 (2010)  
ISSN 0043-1397

The online article is the official version and may contain additional content not available in this print issue. To access the full article, including multimedia, enhanced figures, auxiliary materials, and other nonprinted content, go to <http://www.agu.org/journals/wrr>.

## Opinion

p. 1 of 4

- W05301** *Thorsten Wagener, Murugesu Sivapalan, Peter A. Troch, Brian L. McGlynn, Ciaran J. Harman, Hoshin V. Gupta, Praveen Kumar, P. Suresh C. Rao, Nandita B. Basu, and Jennifer S. Wilson*  
The future of hydrology: An evolving science for a changing world (doi 10.1029/2009WR008906)
- W05302** *Sally Russell and Kelly Fielding*  
Water demand management research: A psychological perspective (doi 10.1029/2009WR008408)

## Regular Articles

- W05501** *G. P. Mathews, G. M. Laudone, A. S. Gregory, N. R. A. Bird, A. G. de G. Mathews, and W. R. Whalley*  
Measurement and simulation of the effect of compaction on the pore structure and saturated hydraulic conductivity of grassland and arable soil (doi 10.1029/2009WR007720)
- W05502**  *Hrvoje Gotovac, Vladimir Cvetkovic, and Roko Andrievic*  
Significance of higher moments for complete characterization of the travel time probability density function in heterogeneous porous media using the maximum entropy principle (doi 10.1029/2009WR008220)
- W05503** *William P. Anderson Jr. and Ryan E. Emanuel*  
Effect of interannual climate oscillations on rates of submarine groundwater discharge (doi 10.1029/2009WR008212)
- W05504** *Peter Bayer, Michael de Paly, and Claudius M. Bürger*  
Optimization of high-reliability-based hydrological design problems by robust automatic sampling of critical model realizations (doi 10.1029/2009WR008081)
- W05505** *V. Cvetkovic, H. Cheng, J. Byegård, A. Winberg, E.-L. Tullborg, and H. Widestrand*  
Transport and retention from single to multiple fractures in crystalline rock at Äspö (Sweden): 1. Evaluation of tracer test results and sensitivity analysis (doi 10.1029/2009WR008013)
- W05506** *V. Cvetkovic and A. Frampton*  
Transport and retention from single to multiple fractures in crystalline rock at Äspö (Sweden): 2. Fracture network simulations and generic retention model (doi 10.1029/2009WR008030)
- W05507** *Claudio I. Meier and F. Richard Hauer*  
Strong effect of coarse surface layer on moisture within gravel bars: Results from an outdoor experiment (doi 10.1029/2008WR007250)
- W05508** *Filippo Catani, Samuele Segoni, and Giacomo Falorni*  
An empirical geomorphology-based approach to the spatial prediction of soil thickness at catchment scale (doi 10.1029/2008WR007450)
- W05509** *R. Ma, C. Zheng, H. Prommer, J. Greskowiak, C. Liu, J. Zachara, and M. Rockhold*  
A field-scale reactive transport model for U(VI) migration influenced by coupled multirate mass transfer and surface complexation reactions (doi 10.1029/2009WR008168)
- W05510** *N. A. Sheffer, E. Dafny, H. Gvirtzman, S. Navon, A. Frumkin, and E. Morin*  
Hydrometeorological daily recharge assessment model (DREAM) for the Western Mountain Aquifer, Israel: Model application and effects of temporal patterns (doi 10.1029/2008WR007607)

(cont.)

- W05511** *Christoph von Rohden, Andreas Kreuzer, Zongyu Chen, Rolf Kipfer, and Werner Aeschbach-Hertig*  
Characterizing the recharge regime of the strongly exploited aquifers of the North China Plain by environmental tracers (doi 10.1029/2008WR007660)
- W05512** *Yongqiang Zhang, Ray Leuning, Lindsay B. Hutley, Jason Beringer, Ian McHugh, and Jeffrey P. Walker*  
Using long-term water balances to parameterize surface conductances and calculate evaporation at 0.05° spatial resolution (doi 10.1029/2009WR008716)
- W05513** *Stephen T. Gray and Gregory J. McCabe*  
A combined water balance and tree ring approach to understanding the potential hydrologic effects of climate change in the central Rocky Mountain region (doi 10.1029/2008WR007650)
- W05514** *Eduardo Rubio-Álvarez and James McPhee*  
Patterns of spatial and temporal variability in streamflow records in south central Chile in the period 1952–2003 (doi 10.1029/2009WR007982)
- W05515** *Ning Lu, Jonathan W. Godt, and David T. Wu*  
A closed-form equation for effective stress in unsaturated soil (doi 10.1029/2009WR008646)
- W05516** *Michael M. Lorant, D. Scott Mackay, Brent E. Ewers, Elizabeth Traver, and Eric L. Kruger*  
Contribution of competition for light to within-species variability in stomatal conductance (doi 10.1029/2009WR008125)
- W05517** *Min-Hui Lo, James S. Famiglietti, P. J.-F. Yeh, and T. H. Syed*  
Improving parameter estimation and water table depth simulation in a land surface model using GRACE water storage and estimated base flow data (doi 10.1029/2009WR007855)
- W05518** *S. Molin and V. Cvetkovic*  
Microbial risk assessment in heterogeneous aquifers: 1. Pathogen transport (doi 10.1029/2009WR008036)
- W05519** *S. Molin, V. Cvetkovic, and T. A. Stenström*  
Microbial risk assessment in heterogeneous aquifers: 2. Infection risk sensitivity (doi 10.1029/2009WR008039)
- W05520** *S. O. Ochs, H. Class, A. Färber, and R. Helmig*  
Methods for predicting the spreading of steam below the water table during subsurface remediation (doi 10.1029/2007WR006401)
- W05521** *Benjamin Renard, Dmitri Kavetski, George Kuczera, Mark Thyer, and Stewart W. Franks*  
Understanding predictive uncertainty in hydrologic modeling: The challenge of identifying input and structural errors (doi 10.1029/2009WR008328)
- W05522** *Julien J. Harou, Josué Medellín-Azuara, Tingju Zhu, Stacy K. Tanaka, Jay R. Lund, Scott Stine, Marcelo A. Olivares, and Marion W. Jenkins*  
Economic consequences of optimized water management for a prolonged, severe drought in California (doi 10.1029/2008WR007681)
- W05523** *Luis Samaniego, Rohini Kumar, and Sabine Attinger*  
Multiscale parameter regionalization of a grid-based hydrologic model at the mesoscale (doi 10.1029/2008WR007327)
- W05524** *D. N. Raad, A. N. Sinske, and J. H. van Vuuren*  
Comparison of four reliability surrogate measures for water distribution systems design (doi 10.1029/2009WR007785)
- W05525** *John Doherty and David Welter*  
A short exploration of structural noise (doi 10.1029/2009WR008377)
- W05526** *John A. Dunbar, Peter M. Allen, and Sean J. Bennett*  
Effect of multiyear drought on upland sediment yield and subsequent impacts on flood control reservoir storage (doi 10.1029/2008WR007519)
- W05527** *H. A. Michael, H. Li, A. Boucher, T. Sun, J. Caers, and S. M. Gorelick*  
Combining geologic-process models and geostatistics for conditional simulation of 3-D subsurface heterogeneity (doi 10.1029/2009WR008414)

(cont.)

## Technical Notes

- W05601** *G. Schumann, G. Di Baldassarre, D. Alsdorf, and P. D. Bates*  
Near real-time flood wave approximation on large rivers from space: Application to the River Po, Italy  
(doi 10.1029/2008WR007672)

## Commentaries

- W05801** *Jack Lewis, Leslie M. Reid, and Robert B. Thomas*  
Comment on "Forest and floods: A new paradigm sheds light on age-old controversies" by Younes Alila et al.  
(doi 10.1029/2009WR008766)
- W05802** *Younes Alila, Robert Hudson, Piotr K. Kuras, Markus Schnorbus, and Kabir Rasouli*  
Reply to comment by Jack Lewis et al. on "Forests and floods: A new paradigm sheds light on age-old controversies"  
(doi 10.1029/2009WR009028)

## Corrections

- W05901** *R. Willem Vervoort and Sjoerd E. A. T. M. van der Zee*  
Correction to "Stochastic soil water dynamics of phreatophyte vegetation with dimorphic root systems"  
(doi 10.1029.2010WR009373)

## Special Section: Hydrology and Mechanical Coupling in Earth Sciences and Engineering: Interdisciplinary Perspectives

- W00C01** *S. Yoshida and P. D. Hallett*  
Impact of hydraulic suction history on crack growth mechanics in soil (doi 10.1029/2007WR006055)
- W00C02** *Pierre Gerard, Robert Charlier, René Chambon, and Frédéric Collin*  
Influence of evaporation and seepage on the convergence of a ventilated cavity (doi 10.1029/2007WR006500)
- W00C03** *A. P. S. Selvadurai*  
On nonclassical analytical solutions for advective transport problems (doi 10.1029/2007WR006312)
- W00C04** *N. Khalil*  
Two-phase fluid flow through fractured porous media with deformable matrix (doi 10.1029/2007WR006555)
- W00C05** *Simonetta Cola, Lorenzo Sanavia, Paolo Simonini, and Bernhard A. Schrefler*  
Coupled thermohydrromechanical analysis of Venice lagoon salt marshes (doi 10.1029/2007WR006570)
- W00C06** *Gerald A. Miller, Charbel N. Khoury, Kanthasamy K. Muraleetharan, Chunyang Liu, and Tohren C. G. Kibbey*  
Effects of soil skeleton deformations on hysteretic soil water characteristic curves: Experiments and simulations  
(doi 10.1029/2007WR006492)
- W00C07** *A. Kolyt, P. Lehmann, L. Vulliet, L. Laloui, A. Carminati, P. Vomobel, and R. Hassanein*  
Assessment of structural evolution of aggregated soil using neutron tomography (doi 10.1029/2007WR006297)
- W00C08** *P. Devillers, M. S. El Youssoufi, and C. Saix*  
A framework for the construction of state surfaces of unsaturated soils in the elastic domain  
(doi 10.1029/2007WR006573)
- W00C09** *M. Berli, A. Carminati, T. A. Ghezzehei, and D. Or*  
Evolution of unsaturated hydraulic conductivity of aggregated soils due to compressive forces  
(doi 10.1029/2007WR006501)
- W00C10** *G. Musso, S. Chighini, and E. Romero*  
Mechanical sensitivity to hydrochemical processes of Monastero Bormida clay (doi 10.1029/2007WR006533)
- W00C11** *Majdi Abou Najm, Rabi H. Mohtar, Jason Weiss, and Erik Braudeau*  
Assessing internal stress evolution in unsaturated soils (doi 10.1029/2007WR006484)

(cont.)

W00C12 *Tom Schanz and Snehasis Tripathy*

Swelling pressure of a divalent-rich bentonite: Diffuse double-layer theory revisited (doi 10.1029/2007WR006495)

W00C13 *David F. Boutt, Laurel Goodwin, and Brian J. O. L. McPherson*

Role of permeability and storage in the initiation and propagation of natural hydraulic fractures  
(doi 10.1029/2007WR006557)

W00D03 *Núria M. Pinyol, Eduardo E. Alonso, and Sebastià Olivella*

Rapid drawdown in slopes and embankments (doi 10.1029/2007WR006525)

The following article, which printed December 2008, is part of this special section and is linked to it online.

W12412 *Enrique Romero and Cristina Jommi*

An insight into the role of hydraulic history on the volume changes of anisotropic clayey soils  
(doi 10.1029/2007WR006558)

Special Section In Progress

The Author Index appears at the end of the issue.