

NATURE JOURNAL



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FOREST STEWARDSHIP IN PUEBLO MOUNTAIN PARK

By Steve Douglas, Park Volunteer – Healthy Forest Project

Hi! I'm the old bearded guy with the chain saw and brush cutter that you may have seen working as a volunteer in Pueblo Mountain Park the past 10 years. Currently, it has been my pleasure to work with Tony Pemberton and Ken Krause, the Nature and Wildlife Discovery Center's new maintenance employees. The work we do together involves the Healthy Forest Project, with goals of selecting and preserving the species and age diversity of plants in the Park, while maintaining or restoring an environment that supports wildlife and reduces the risk of catastrophic wildland fire. It is a balancing act involving plants, animals, weather, access, staff (paid and volunteer), equipment, funding and last, but not least, park use ... recreational and educational alike.



The goal: a healthy Ponderosa Pine ecosystem, pictured here along the park's middle road. Fewer trees that are more widely spaced allows more sunshine to reach the forest floor, resulting in a grass- and forb-rich understory.



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NATURE & WILDLIFE
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PO Box 99 Beulah, CO
81023
Mountain Park Campus
719-485-4444
River Campus
719-549-2414
Raptor Center
719-549-2327
hikeandlearn.org
natureandraptor.org

NWDC mission is to promote
environmental stewardship
and population health through
Nature education, wildlife
rehabilitation and outdoor
recreation.



Selected thinning is focused on removing beetle and dwarf mistletoe-infested trees, as well as reducing overcrowding in general. The Beulah Hill and Junkins Fires in 2016 underscored the value of restoring forest health. (Overgrown and unhealthy forests set the stage for catastrophic wildland fires.) Last year brought challenges of funding and personnel that interrupted that progress, but we are working to get back on track.

Overgrown forests lead to trees that are weaker from excessive competition for

right. Oak brush also requires management. Doing nothing results in a forest full of dead, fire-prone trees and thick brush, until infestations and fire run their course.

We have lots of experience dealing with MPB, but ips beetles give us a new set of challenges. The differences have to do with the minimum size of wood the beetles infest and the length of their life cycles. MPB tends to not inhabit wood less than 6" in diameter and its life cycle is 12 months. We generally save wood with 4" or greater

diameter for firewood, with all the smaller material separated as slash to be chipped or burned later; so we aren't likely to have MPB in our slash piles. The 12-month life cycle gives us most of a year to identify and remove trees with MPB.

In contrast, ips beetles are found in wood as small as 2" diameter and they have three to four life cycles per year! They tend to attack the crowns

first and progress down the tree over the course of a couple of life cycles. This gives us much less time to find and treat affected trees, and the beetles could survive in our standard slash piles. We don't have time to burn that slash and have to chip it instead. That is why you have seen all the activity by the Water Road recently. We are trying to curb the spread of ips beetle there.

In the past five years, tree cutting activities in the Park have worked to keep pace with the use of firewood in the two biomass boilers that heat Horseshoe Lodge. It is a WIN:WIN situation, where firewood generated in the Park's Healthy Forest Project stays in the Park, heats the Lodge, significantly reduces the use of propane,



The blue stain comes from a fungus carried into the tree by the ips or mountain pine beetles.

water and nutrients. Insects and diseases tend to flourish in overgrown forests, especially when they are drought-stressed. Ponderosa Pine is the most common tree in the parts of the park that we have the best access to, due to gentler slopes and existing roads. Insects and diseases that most affect Ponderosa Pine are mountain pine beetle (MPB), ips beetle and dwarf mistletoe (a parasitic plant). The Colorado State University's Cooperative Extension provides excellent descriptions of each of these at their website (www.ext.colostate.edu), in publications numbered 5.528, 5.558 and 2.925. The key thing to know about MPB, ips beetle and dwarf mistletoe is that they kill or weaken trees and are prone to spread rapidly when conditions are

and encourages consistent and ongoing healthy forest efforts. Tony and Ken worked hard this winter gathering what firewood remained in accessible areas of the Park, but they all but ran out of wood. It takes a few months to dry freshly cut wood enough to burn and it is wise to have extra in reserve in the event of a long/cold winter, so we are in “catch up” mode. That is why you have seen increased tree cutting activity this year, specifically along the road south of the maintenance shop, by the Water Road entrance and by the Ball Park. We are finished cutting trees until after the bird nesting season ends in August. Trees we’ve cut have all been limbed and bucked into firewood lengths. It is now time to gather and split firewood, and chip slash.

Manpower is an issue. It is great to have Ken full-time in the Park and Tony half-time there. (Tony is in Pueblo at the River Campus the other half.) The Healthy Forest Project is only a fraction of their workload, with building, road and other facility maintenance requiring most of their time. We get occasional help from Youth Offender Services. The Colorado State Division of Fire Prevention and Control’s Canon Helitack Crew felled trees by the Ball Park in April; providing refresher training for them and valuable work for us. (One of those firefighters was on the Beulah Hill and Junkins Fires, helping



Ponderosa Pine trees are the common host of dwarf mistletoe, a parasitic plant that slowly weakens the host tree.

our community.) Boy Scouts are scheduled to help us in late June, as part of an Eagle Scout project. Volunteers are valued, but scarce. We need more. So, if you are interested in donating some of your time, and some sweat, to the Nature & Wildlife Discovery Center, we could sure use it. Please contact Jasmine Shepherd at jshepherd@natureandraptor.org or 719-549-2414. Thanks!

MEMBERSHIPS AND CONTRIBUTIONS

We know that many of you have experienced frustration with the delayed return of membership cards, parking decals and contribution acknowledgements since the merger. Please accept our sincere apology. We are grateful for your participation and contributions. Reductions in staff, staff turnover, system changes with our database have all contributed to the problems.

The good news is that we now have a staff member dedicated to correcting the problems and we are improving. Welcome to Amanda Alexander, our new marketing and membership strategist. Amanda will be working part-time from the River Campus office. Thank you for your patience!

~ Patty Kester

EARTHKEEPER NATURE SCHOOL CELEBRATION



There was good reason for a whole lot of families to come up to the Mountain Park on a sunny late May Saturday to celebrate! Earthkeeper Nature School was finishing its first year, a year when over two dozen families decided to take a chance and send their young children to a new, Nature-based preschool program. A year filled with exploring, singing, discovering, playing, learning, stories – and nearly all of it taking place outside! A year when Lead Teacher and School Director Tami Montoya was able to take her many years of public school preschool teaching experience and combine it with her passion for connecting children with Nature and make her dream of a Nature-based School a reality! A year that tells us that Earthkeeper Nature School is here to stay as enrollments for year number two steadily come in! Here are a few photos from that day of celebration!



School Director/Lead Teacher Tami Montoya and Assistant Teacher Gia Montoya are all smiles on this happy day!

THE MOUNTAIN PARK'S NEWEST TRAIL

By Adam Davidson, Southern Colorado Trail Builders

The Carhart Trail on Pueblo Mountain Park's northern border is coming together. This new trail is a collaborative project of the Southern Colorado Trail Builders and Nature and Wildlife Discovery Center. Entirely volunteer managed, constructed, and funded, the project represents nearly 2,500 hours of labor and adds just under a mile and a half of new trail to Pueblo Mountain Park's system of trails. The trail begins at the park's historic archery range and connects to the Squirrel Creek trail – the first developed recreation area in the US Forest Service! The trail will be open to foot, horse and bicycle travel; like the park's other trails, it will not be open to motorized travel.

Flowing through some of the most dramatic terrain in the park, the Carhart Trail has been a significant undertaking. The remaining technical work prior to its official opening is focused on stabilizing some short and steep sections of trail and cleaning up two switchbacks near its end. New parking is being developed on the road into the archery range, and a new trailhead with interpretation signage will tell the story of the area and what the new trail accesses. The trail and its amenities will be accessible by summer and completed by fall.



OUR MISSION IN ACTION: NATURE EDUCATION



One of the most compelling reasons for the Nature & Raptor Center and the Mountain Park Environmental Center to merge into the Nature & Wildlife Discovery Center was the diversity of outdoor classrooms the merge would provide for our school programs. Ponderosa pine forests, the Arkansas River, mountain riparian areas, cottonwood forests, mountain trails, up-close birds of prey... The list can go on and on as to the wonders of Nature that our classrooms provide. Here are some photos that show a few of our classrooms in action with many groups of students, including Pueblo City Schools 5th grade Earth Studies students, 1st graders from Rye Elementary, and 3rd graders from Beulah School.



"Sun is shining. Weather is sweet. Make you wanna move your dancing feet."

~ Bob Marley







PROGRAMS & GUIDED HIKES

at the Nature & Wildlife Discovery Center

For all the details, pricing, and to register for these programs, go to www.hikeandlearn.org and click on PROGRAMS. If you need assistance with registering on-line, or if you do not have access to a computer, please call 719-485-4444. Also, note the different locations for each of the programs listed. Some are at the River Campus, some at the Raptor Center, some at the Mountain Park and some are Out & About in the community. Note that there is \$5 day pass fee required for all River Campus and Raptor Center programs. Donations are always appreciated.



	Weekend Raptor Talks Ongoing	EVERY SATURDAY & SUNDAY, 11:30AM
	SCAS Public Night at the Observatory	FRIDAY, JUNE 28, 8:30PM
	Outdoor Family Fun at the Rez!	SATURDAY, JUNE 29, 10AM-2PM
	Nature Toddlers with Ranger Dave	MONDAYS AT 10AM, DATES TBA
	Full Buck Moon Hike	TUESDAY, JULY 16 7PM
	Discovery Trail Community Bike Rides	WEDNESDAY, 5:30PM, JULY 17, AUG 14, SEPT 18
	13th Annual Mountain Park Butterfly Count	SATURDAY, JULY 20 9AM-12PM
	Raptors on the Road Lathrop State Park	SATURDAY, JULY 20, 7PM
	AVAS 4th Saturday Bird Walks	SATURDAYS, 9AM, JULY 27, AUG 24 9AM
	Hike and Sketch with Brenda Porter	SATURDAY, JULY 27 9AM-2PM
	NWDC and Pueblo ROCKS at the Beulah Valley Arts Festival	SATURDAY & SUNDAY, 10AM, AUGUST 3-4
	Full Green Corn Moon Hike	WEDNESDAY, AUGUST 14, 6:30PM
	Raptors on the Road at Cave of the Winds	SATURDAY, AUGUST 17, 11AM-2PM
	Full Harvest Moon Hike, Campfire, & Lodge Stay	FRIDAY, SEPTEMBER 13, 6:30PM
	Autumn Equinox Hike	SUNDAY, SEPTEMBER 22, 9AM

A BIT OF A FACELIFT IN PROCESS

By Patty Kester

Nature and Wildlife Discovery Center is experiencing some change. This time, it's a good thing. If you haven't been to any of our facilities recently, please stop by to see our improvements:

- The wall outside the River Front Building damaged by a falling tree in 2016 has been repaired at the River Campus.
- A new roof and gutters have been installed on the porch of the Horseshoe Lodge.
- The decking is being replaced on the deck at the River Campus.
- A new arbor is in place and we're wired for electricity at the amphitheater at the Mountain Park Campus.
- The old dilapidated shed has been removed at the River Campus.

Thank you to the City of Pueblo for your investment in these two beautiful Pueblo gems!

Thank you to our new maintenance team members, Tony Pemberton and Ken Krause!



The amphitheater in the Mountain Park, used for wedding ceremonies, classes, and other events, now has an attractive arbor, complete with electricity!



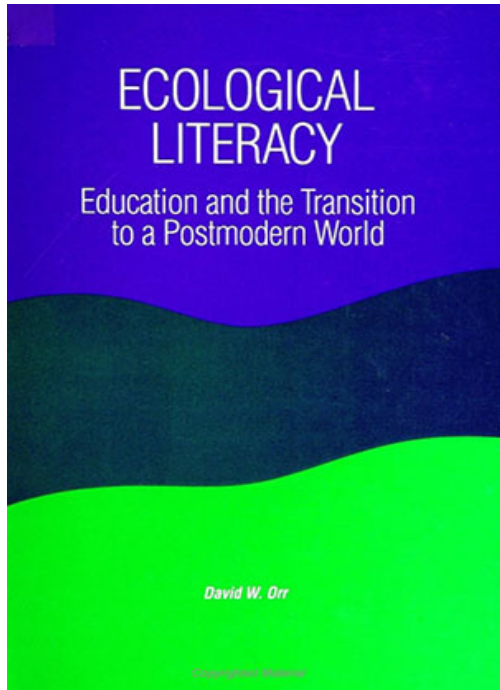
The popular deck overlooking the Arkansas River now has brand new decking!

“Rest is not idleness, and to lie sometimes on the grass under trees on a summer's day, listening to the murmur of the water, or watching the clouds float across the sky, is by no means a waste of time.”

~ John Lubbock

DAVID ORR AND ECOLOGICAL LITERACY

By Dave Van Manen



I was recently cleaning out some old files and came across copies I made many years ago of a few pages of the book *Ecological Literacy*, written by David Orr. Can you think of a book that you read that had a profound impact on your life, maybe even changed your life? *Ecological Literacy* is a book that did that for me. Published in 1991 by SUNY Press, the book is part of SUNY's Series of Constructive Postmodern Thought. From the Series Introduction:

"The rapid spread of the term postmodern in recent years witnesses to a growing dissatisfaction with modernity and to an increasing sense that the modern age not only had a beginning but can have an end as well. Whereas the word modern was almost always used until quite recently as a word of praise and as a synonym for contemporary, a growing sense is now evidenced that we can and should leave modernity behind—in fact, that we must if we are to avoid destroying ourselves and most of the life on our planet"

David Orr is the Paul Sears Distinguished Professor of Environmental Studies and Politics at Oberlin College and a James Marsh Professor at the University of Vermont. He is a well-known environmentalist and is active in many areas of environmental studies, including environmental education and environmental design. I discovered his book *Ecological Literacy* a few years after it was published, and it is no exaggeration to say that it changed my life. How? After reading the book, I made the decision to leave my career as

a performing musician and music therapist and create the Mountain Park Environmental Center (one of the predecessor organizations that became the Nature & Wildlife Discovery Center).

The subtitle to the book is *Education and the Transition to a Postmodern World*. Having always had a strong interest in education, as well as the natural world, plus my growing concern with what I saw as the unsustainability of humanity's impact on the natural world, Orr's book arrived just as I was giving serious thought into making a change

We send warm thank you's to Dave Overlin for all sorts of help with all sorts of things; Steve Douglas for continuing to help out with our healthy forests project; Adam Davidson, the Southern Colorado Trail Association and all the volunteers who have helped with the Carhart Trail; Shawna Shoaf for the newsletter design and layout; Larry Arns for his generous support of the Carhart Trail parking area; YOS for helping with the various "healthy forest" jobs in the Mountain Park; Toni Manuel and Joe Bumgardner for their hard work in our Raptor Center and River Campus gardens; the Arkansas Valley Audubon Society for their annual contribution to our camp scholarship fund and also the AVAS volunteers that continue to lead NWDC 4th Saturday Bird Walks at the River Campus; the Southern Colorado Astronomical Society (SCAS) volunteers for providing numerous public astronomy programs including their efforts to reopen the Observatory up at the Raptor Center; Charlotte Hargis and Ryan Bradford from Pueblo ROCKS for coordinating and volunteering their time and paint supplies to spread kindness to local families through their FREE monthly themed rock painting parties at the NWDC River Campus.

in my livelihood that would somehow connect these interests and concerns. The serendipity solidified further as I learned about the City of Pueblo's possible interest in liquidating Pueblo Mountain Park. Save a culturally and ecologically significant park while bringing people, especially young people, to that park to learn about and experience first-hand the wonders of Nature? The rough path was beginning to reveal itself. And the rest, as they say, is history.

My copy of the book, which is full of notes and ideas penciled throughout the book, has countless sentences, paragraphs, and phrases underlined and highlighted. Here are a couple of excerpts from the book that had such an impact on me, and are just as pertinent today as they were 30 years ago:

"The most important discoveries of the 20th century exist not in the realm of science, medicine, or technology, but rather in the dawning awareness of the earth's limits and how those limits will affect human evolution. Humanity has reached a crossroad where various ecological catastrophes meet what some call sustainable development. While a great deal of attention has been given to what governments, corporations, utilities, international agencies, and private citizens can do to help in the transition to sustainability, little thought has been given to what schools, colleges, and universities can do. *Ecological Literacy* asks how the discovery of finiteness affects the content and substance of education. Given the limits of

the earth, what should people know and how should they learn it?"

"What does it mean to educate people to live sustainably, going, in Aldo Leopold's words, from "conqueror of the land community to plain member and citizen of it"? ...[A]ll education is environmental education. By what is included or excluded, emphasized or ignored, students learn that they are a part of or apart from the natural world. Through all education we inculcate the ideas of careful stewardship or carelessness."

"If literacy is driven by a search for knowledge, ecological literacy is driven by the sense of wonder, the sheer delight in being alive in a beautiful, mysterious, bountiful world."

~ David Orr

YES! I want to be a member of Nature & Wildlife Discovery Center and be a part of an organization that brings people to Nature for education and recreation, and cares for injured wildlife. Note that we are still in the process of developing our new membership package, but here's what a membership comes with for now: the perks listed at <https://natureandwildlife.org/become-a-member/>, and you will receive free access to guided hikes at the Mountain Park, discounts on other educational programs, and discounts in the Mountain Park gift shop and on overnight stays in the Horseshoe Lodge. Plus the knowledge that you are supporting the great work that the NWDC does!

Name(s) _____ E-mail address _____

Address _____ City _____ ST _____ Zip _____ Phone _____

_____ Senior (over age 70) x \$10 = _____ # _____ Senior (over age 55) x \$30 = _____
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Total Enclosed: \$ _____ Check # _____ Date: _____
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Visa/MC/Discover Card # _____ Expiration _____ V-Code _____



Membership

SIX CUTIES FROM A HAYSTACK

By Diana Miller

These cuties are members of a family of six barn owl nestlings found in a haystack near Rocky Ford. No one meant the family harm, but removing the bales left the young nestlings without a home. The landowners did a great job recovering the chicks and working with Colorado Parks and Wildlife and our Raptor Care Team to get the chicks into care at NWDC's Raptor Center. The six nestlings are growing like little weeds and eating us out of house and mice! The growing chicks eat anywhere from 4 to 10 mice per day per kid. Yikes! They will continue to grow and mature at our Raptor Center. When old enough, they will be returned to the area they came from.



“A perfect summer day is when the sun is shining, the breeze is blowing, the birds are singing, and the lawn mower is broken.”

~ James Dent

NEW!! FACEBOOK ADDRESS
New Facebook address: www.facebook.com/nwdco/



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