

The ENLC Supports FREES

By Eric Horstman

After consultation with its board members, the Eastern Nevada Landscape Coalition has decided to support the Free Roaming Equids and Ecosystem Sustainability Network (FREES) through support for its various working groups. According to the FREES website (https:// extension.usu.edu/freesnetwork/), "as of March 1, 2020, the BLM estimated that there were 95,114 free-roaming equids in BLM administered Herd Management Areas HMA. This is more than three times the ecological balance."

These statistics do not cover the excess

free roaming equids on State or tribal lands which have become a problem in several western states and due to their proximity to federally managed lands could exacerbate the problems on federal lands with minor migrations from state or tribal lands onto federal. The website notes that not every HWA is affected adversely, but where there is an overabundance of free-roaming equids, they impact the overall health of the U.S. western public rangelands by degrading ecosystem functions and reducing the forage and water available for domestic and native wildlife species." In addition to the ecological impacts of excess free roaming equids, there are also significant economic impacts to rural communities dependent upon healthy rangelands and the multiple use doctrine on federally managed lands. Nationally, the economic costs are rising with the burgeoning operating cost of the wild horse and burro program plus the cost of reclamation, weed control



Free roaming horses in the Great Basin. Photo by BLM.

and other operational impacts resulting from ecological decline of rangelands. FREES seeks a common ground to achieve "healthy herds on healthy rangelands" and the working groups include population management, rangeland conditions and habitat and outreach and communication groups.

I have, I think, a unique perspective on wild horses. As part of Miami Universities ' Master 's degree in zoology, I traveled to Mongolia to assist researchers with field work on the Pallas Cat and Takhi or Mongolian Wild Horse. It is considered the only remaining extant, non-domesticated wild horse, although a recent DNA study suggests it may descend from domesticated horses.

The environmental conditions of the Mongolian Steppe are much different from the much drier conditions in the sagebrush sea and the steppes with their extensive grasslands supports healthy populations



Our Mission

The mission of the Eastern Nevada Landscape Coalition is to restore the dynamic, diverse, resilient landscapes of the arid and semi-arid West for present and future generations through education, research, advocacy, partnerships, and the implementation of on-the-ground projects.

Our Vision

We envision a future where the ecosystems of the arid and semi-arid West thrive. Functioning, diverse ecosystems will be the result of restoration achieved and maintained with naturally occurring disturbances such as fire, in combination with other management prescriptions, including traditional uses. The Eastern Nevada Landscape Coalition, a 501(c) (3) non-profit, will be a recognized contributor and leader in this effort for future generations of Americans.

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View from the Forest Eric Horstman, Executive Director

After around 27 years of working abroad, mostly in the country of Ecuador, I now find myself back in the US working for the Eastern Nevada Landscape Coalition as its new executive director. Before I go any further, I want to extend my thanks to Betsy Macfarlan for all of her help and support in this transition.

I am originally from a small town in Northern California, Weaverville. It was founded by John Weaver during the gold rush days and still has historic buildings, some with spiral staircases along its main street. I lived for years in a house overlooking the Chinese Joss House, a still active Taoist temple that was established by Chinese gold miners during the gold rush.

I began my conservation career back in high school with the Youth Conservation Corps, graduating to seasonal positions with the U.S. Forest Service and Bureau of Land Management in wilderness management and cadastral surveying respectively. I attended Humboldt State University in Arcata and majored in Journalism. I completed my bachelor 's degree at the School for International Training in Brattleboro, Vermont. As part of my studies, I completed almost a year of internships with the Charles Darwin Research Station in The Galapagos Islands and Saba Marine Park in the Caribbean.

After graduating from college, I returned to the Shasta-Trinity National Forest, where I worked as Foreman of the Trinity Alps Wilderness Patrol. I applied and was accepted into the Peace Corps and served three years in Ecuador preparing interim management guidelines for the recently designated Cerro Blanco Protected Forest, a 15,000-acre dry tropical forest reserve that harbors more than 100 native tree species, 224 bird species and 43 mammal species, including green trunked ceibo or kapok trees, great green macaws, howler monkeys, and even a few jaguars!

A big part of my work was staving off threats from the rapidly expanding city of Guayaquil, including illegal poaching, wildfires, and squatters. The later was especially pernicious—land traffickers with political ties that took over titled land by force and sold micro lots to poor and rich people alike. With the initial support of the Ecuadorian Armed Forces and later the National Police, we were able to stave off the threats, but at a personal price. I received periodic threats on my life and for some months was accompanied by a bodyguard.

After completing Peace Corps, including the development of interpretative infrastructure in Podocarpus and Sangay National Parks, I was offered and took the position as Director of a recently created Ecuadorian NGO. I was tasked with implementing my own

View from the Forest

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management recommendations beginning in 1993 and ending in 2019. Some highlights of my work included planning and successfully carrying out a pioneering dry tropical forest restoration program with funding from a Scottish energy company, with a total of 647,000 trees and one million seeds planted with an overall survival rate after 15 years of over 50%. I also selected the aforementioned great green macaw as the conservation symbol for Cerro Blanco and spearheaded the effort to prepare and implement the national conservation strategy for this critically endangered species. I also worked in a voluntary capacity as President of the Ecuadorian Agroforestry Network, a coalition of more than 70 organizations including international aid agencies, governmental ministries, state and local governments, nonprofit organizations and community groups. A highlight of my work was organizing and carrying out three regional workshops and one national agroforestry congress to share experiences among the many agroforestry projects nationwide.

I have a special relationship with fire, having suffered third degree burns over more than 60% of my body at the age of six from a house fire. Despite this experience, I went on to get my red card forest fire certification while in the BLM and fought on many forest fires in Northern California as a firefighter. This experience came in handy in Ecuador, where I trained park guards in firefighting techniques and then went on to later work with the Ecuadorian Government to train firefighters from the armed forces, national parks and other protected areas as well as community groups. With an Ecuadorian colleague, we prepared a regional forest fire strategy for Ecuador, Peru and Bolivia. I was working in Bolivia in 2020 when the massive forest fires burned millions of acres of land in Bolivia and Brazil and got funding for a grassroots forest fire prevention, detection, and control program that was unfortunately suspended because of COVID.

Coming back to the US after all those years I must admit that with COVID, things have been a little strange to say the least. The ENLC 's winter weeds conference was cancelled in January, which would have been a golden opportunity to meet more of you, especially the CWMA and/or ENLC members. Now that there is a light at the end of the tunnel with the vaccinations, hopefully we can return to some normalcy, especially the face-to-face coordinating meetings as we make plans for the upcoming weed control efforts. I am anxiously awaiting the beginning of the field season to get out on the land and visit current and new projects such as in Southern Idaho through the BLM to document the presence of the threatened Slickspot Peppergrass, as well as weed control in the Newark and Long Valley CWMA´s through the Nevada Department of Agriculture.

I look forward to meeting you the members of the ENLC and hopefully coordinating future projects and programs. *Muchas gracias*!

Basin and Range National Monument to Host Bioblitz June 4-6

BLM, Ely District Office

ELY, Nev. – The Bureau of Land Management's Basin and Range National Monument seeks volunteers to participate in a plant and animal "Bioblitz" scheduled Friday, June 4 through Sunday, June 6, 2021.

A Bioblitz is a citizen-science effort to record and identify plant and/or animal species within a designated area in a short time period. Botanical and/or wildlife experience are not needed to participate. Scientist and Naturalist group leaders will be provided.

The iNaturalist application will be used to collect data. Volunteers are encouraged to download the iNaturalist application before leaving home due to limited cellphone service in the monument. Demonstrations on how to use the iNaturalist application will be provided onsite.

Inventories will be conducted across different habitats within the monument making a high clearance, four-wheel drive vehicle necessary. Water, food, and other supplies are the responsibility of the volunteer. There are no facilities, electrical hookups, or cell

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Weed News You Can Use

Cheatgrass Invasion Reduces Carbon Storage

According to a research study published in the Journal of Applied Ecology (Nagy, et. al; 2020), invasive cheatgrass (Bromus tectorum) is estimated to cover 210,000 square kilometers of semi-arid shrubland in North America. As it advances, cheatgrass reduces native plant diversity, alters the nutrient cycle



and soil water availability, and most notably, changes natural fire regimes. Cheatgrass contributes to a grassfire cycle, adding fine fuels that increase "horizontal fuel continuity. . . leading to fire return intervals that are twice as frequent as in native shrubland." And worse, "following fire, there is often complete loss of shrub cover and conversion to near monocultures of cheatgrass."

Cheatgrass's ability to outcompete native plants, using a grass-fire regime to effectively take over the landscape, also affects carbon storage, with implications for climate change. A literature review of 386 studies of the impact of cheatgrass invasion on carbon (C) storage in above- and below-ground biomass, litter, and soil, determined that cheatgrass invasion consistently results in reduced C storage in above- and below-ground biomass in particular. The authors specifically state that, "Despite using data from varying ecoregions/habitats, our results show consistent loss of biomass C: cheatgrassdominated sites averaged 55% lower above-ground biomass C and 62% lower below-ground biomass C compared to native sagebrush sites. This makes sense because sagebrush ecosystems contain shrubs with substantial

woody biomass both above and below ground, and "the shallow, fine roots of cheatgrass replace deeper sagebrush roots," thereby reducing below-ground biomass C.

The article concludes that: "Cheatgrass invasion decreases biodiversity and rangeland

productivity and alters fire regimes. Our findings indicate cheatgrass invasion also results in persistent biomass carbon (C) losses that occur with sagebrush replacement. We estimate that conversion from native sagebrush to cheatgrass leads to a net reduction of C storage in biomass and litter of 76 g C/m2, or 16 Tg C across the Great Basin without management practices like native sagebrush restoration or cheatgrass removal." They warn that cheatgrass transition across the Great Basin will likely be permanent, particularly at lower elevation levels, without significant restoration efforts.

Invasive Species Early Detection Through EDDMapS

Early detection of new invasive species infestations and rapid, coordinated responses are needed to eradicate or contain invasions. Otherwise, they become too widespread and control becomes technically and financially impossible. Prevention and early detection/ rapid response efforts are most effective when information is shared at a local level.

It is going to take all of use – land owners, land managers, universities, recreationalists, agency personnel and concerned citizens- working to keep ahead of new invaders. We encourage you to use EDDmapS West to report sightings of invasive species. Simply enter information from observations into the standardized on-line data form or with the phone app. Both allow specific information about the infestation and images can be added. Data entered is immediately loaded to the website, allowing real time tracking of species. If data is collected while out of service, the phone app will use GPS to save the location and can be sent as soon as you have cell service. All data is reviewed by state verifiers to ensure accuracy then made freely available. Check out the website and see how easy it is. https://www.eddmaps.org/west/

Attention White Pine County CWMA Members!

By Julie Thompson

We have money to help you treat your weeds. Eastern Nevada Landscape Coalition (ENLC) is offering \$600 for herbicide and/or weed treatments per Cooperative Weed Management Area (CWMA) participant. The funding covers landowners/land managers in White River, Steptoe-Butte, Spring, and Snake Valley CWMAs that fall in White Pine County—shaded area on map.

Last year the Ely District U.S. Forest Service was awarded SNPLMA funding to slow the spread of noxious and invasive plants occurring in White Pine County. As their partner, ENLC is tasked with reaching out to White Pine's CWMA members about this great opportunity and helping the Forest Service to administer the funding. Some of you may have used funding last year. Great news, you are eligible again this year, 2021.

Under this program, Tri-County Weed Control (TCWC) offers both weed treatment services and herbicides. If you plan to do your own spraying, you can purchase chemicals at TCWC or your choice of vendor and be reimbursed up to \$600 by ENLC. We also ask that you log your time and mileage to help us with the grant in-kind match requirements. You can get in-kind log forms from ENLC or TCWC.

If you are not a current member and want to participate program, you may join your valley's CWMA by contacting ENLC and signing a Memorandum of Understanding (MOU). ENLC is also stocked up with new **Nevada Weed Identification Field Books** that are available to you for



free. Need more information? Please call **ENLC at 775-289-7974 ext 0#** or **TCWC at 775-289-6341.** Let's do our part to control noxious and invasive plants in White Pine County.





Meanwhile, be on the look-out for one of the first noxious weeds to emerge in the spring—Whitetop or Hoary Cress (*Cardaria draba*). Very small infestations can be manually pulled every year, but larger areas need chemical treatment to kill the prolific roots and insidious root segments. It's best to treat it before it flowers because also reproduces by seed. It is commonly found on disturbed sites along roadways, field edges, excavations, cultivated fields, and meadows. It grows particularly well on somewhat alkaline soils.

(above) Whitetop (Hoary cress) seedling and (left) flowering.

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of not only Takhi but also the livestock of the Mongolian families still living a nomadic existence in their characteristic sheep wool yurts, moving freely through pasture lands without a fence in sight and communally managed.

The Takhi went through a genetic bottleneck, with living wild horses descended from a tiny group of 28 captured foals were brought to Europe in 1902 with a small number of additional animals held in zoos and game parks. The last wild population of Takhi was seen in Mongolia in the 1960's, then disappeared. Specialized reserves were set up in Europe for the species including Chernobyl in the Ukraine, site of the nuclear powerplant meltdown.

Takhi have been reintroduced on the steppes of Mongolia, China and Russia. Unlike the feral horses on the Western US range, which breed rapidly, as of 2011 there are 400 Takhi back in the wild in three freeranging populations. Assisted reproduction and cloning has been used to help boost the Takhi population, much different than the birth control measures used in the US to try and keep wild horse populations down. Experience has shown that introduced species can quickly dominate a particular ecosystem and impact the native species. In the case of the Takhi, I witnessed park rangers in the Hustai National Park on motorcycles running interference between the Takhi and stallions of domestic herds who try to breed with the Takhi and either diminish or boost their gene pool depending on how you look at it. Hopefully, in the case of the wild horses of the Western U.S. a way forward will be found as the FREES website indicates to achieve healthy herds on healthy rangelands.

Studies Show Negative Ecosystem/Habitat Impacts of Feral Horses

According to a study published in *Biological Conservation* (Eldridge, Ding, and Travers; 2020), which analyzed the impact of feral horses on "ecosystem structure, function and composition using data from 78 studies across five continents," feral horses were found to have a negative impact on ecosystem functions. Specifically, "Feral horse activity reduced environmental quality by 13% overall, and the magnitude of this decline increased with increases in the intensity of horse activity. Feral horse activity strongly reduced measures of ecosystem function by 19% on average, and had variable effects on composition, with measures of composition most strongly increased (by 21%) at arid sites."

The authors further found that feral horse activity increased soil erosion by average of 31%, reduced plant biomass by an average of 25%, and reduced litter cover by an average of 31%. These impacts increased in intensity for more arid sites, such as is found across Eastern Nevada. The study calls for "resource managers and governments . . . to balance the needs of maintaining healthy functional ecosystems and their biota with socialand cultural-driven commitments to maintaining freeranging herds of feral horses."

In addition, an article in the *Journal of Arid Environments* (Muñoz, Coates, and Ricca; 2021) found that free-roaming horses disrupted greater sage-grouse lekking activity in the Great Basin. The article acknowledges that free-range horses and greater sage-grouse co-occur throughout large swaths of the Great Basin, but that in recent decades the sage-grouse population has plummeted while free-range horses have increased. The study compiled sage-grouse lek count data along with observations of ungulates in 2010 and from 2013-2018, finding that:

". . .Sage-grouse were approximately five times more likely to be present on active leks concurrent with native ungulates compared to non-native ungulates. Of the four different ungulate species, sage-grouse were least likely to be at active leks when free-roaming horses were present."

The study therefore concludes that free-roaming horses negative impact sage-grouse lek sites and lekking activity, which could limit breeding success for the species.

BLM Seeds 85,900+ Acres of Eastern Nevada's Burnt Public Lands

BLM, Ely District Office

ELY, Nev. – On March 7, the Bureau of Land Management Ely District finished aerially seeding 85,944 acres of eastern Nevada's fire-scarred public lands.

The seedings are part of the Emergency Stabilization and Rehabilitation (ESR) program's treatment plans for eight of last summer's wildfires. The seedings combine with other treatments now or soon-to-be underway to stabilize soils and promote habitat recovery.

The Bishop, Miller, Stewart Canyon, Twin, and Meadow Valley fires in Lincoln County; and Baldy, Brown, and Flat fires in White Pine County burned 127,743 acres of district-administered land. Overall, between June and September, 94 fires burned 137,050plus acres.

Bioblitz: June 4-6

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service within the monument. For more information, go to https://go.usa. gov/xspxk.

The Bioblitz is a partnership between the Bu-



Western whiptail lizard (Photo by Todd Esque, USGS).

reau of Land Management, U.S. Geological Survey, Nevada Department of Wildlife, Friends of Basin and Range, Nevada Division of Natural Heritage, and Eastern Nevada Landscape Coalition.

Additional project information is available online at https://www.inaturalist.org/. Click on Community, open Projects and enter Basin and Range National Monument Bioblitz 2021. Interested individuals may also contact Monument Manager Alicia Styles at (775) 726-8100 or astyles@ blm.gov or Wildlife Biologist Camille Brooks at the same number or c1brooks@blm.gov.



The BLM Ely District between January 11 and March 7 aerially seeded 85,944 acres of the public lands burned in eight of last summer's wildfires. The fires burned 127,743 acres of district-administered land.

"In regard to acres burnt, the 2020 fire season was the most active that the district has experienced in 10 years," said Ely District Fire Management Officer Tye Petersen.

More than 630,813 pounds of seed was required to complete the job. Seed mixes varied depending on multiple factors, including burn severity, soil type, elevation, slope, annual precipitation, and pre-existing vegetation.

"Coordination between the BLM and Nevada Department of Wildlife was essential," said Chris McVicars, the Ely District ESR program manager. "Department of Wildlife staff assists with planning and implementation, and the department provides funding, materials, and labor for projects."

All eight of the ESR plans call for fence repair and/ or temporary fence construction, temporary livestock grazing closures, weed inventory and treatment, and monitoring. A few include drill seeding, contour felling, and channel or slope stabilization. Two plans for the Meadow Valley and Miller fires, required emergency wild horse gathers.

Petersen credits program and state agency staff for successfully planning and implementing the large-scale project. "It required a lot of manpower, time, and resources. Our success is due to their willingness to go above and beyond to meet the objective," he said.



Eastern Nevada Landscape Coalition

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Calendar of Events

May 5 ENLC Board Conference Call

June 4 White Pine County Coordinated Resource Management (CRM) Meeting

June 18	ENLC Board Meeting (in person)
	State U. Wood Products Extension: online, tickets avail. on www.eventbrite.com)
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Student (enrolled in school) \$15
Senior (60+) \$35
Restoration Partner and/or Nonprofit Org. \$100-\$999
Corporate \$250
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