

FOR CONSIDERATION FOR PUBLICATION TO COMMEMORATE THE 50TH ANNIVERSARY OF THE WILD, FREE-ROAMING HORSES AND BURROS ACT OF 1971, UPON ITS SIGNING ON 12-15-1971

By Craig C Downer, Wildlife Ecologist, Wild Horse and Burro Fund / Andean Tapir Fund, P.O. Box 456, Minden, NV 89423 USA. Email: ccdowner@yahoo.com & ccdowner@aol.com. Cell & WhatsApp: 775-901-2094. Website: <https://www.thewildhorseconspiracy.org> and <https://andeantapirfund.com>

Biography of Craig C Downer for use in James Anaquad Kleinert's Vimeo film series "Mustangs & Renegades" (revised 12/28/2021)

Nevadan Craig C. Downer is a wildlife ecologist who has specialized in the Mammalian Order Perissodactyla.

This includes the Horse Family, Equidae, as well as the Families Tapiridae and Rhinocerotidae.

He earned his Bachelor's of Arts Degree in Biology with specialization in Ecology at the University of California-Berkeley, where he took a broad diversity of courses that helped give him a universal outlook and appreciation of life.

He also earned his Master's of Science at the University of Nevada-Reno, during which he did a field study and paper on the Pine Nut Mountain wild horses and a paper on the movement patterns of hoofed herbivores from all over the world. Later in his career he did a professional herd and habitat analysis of this same unique Pine Nut herd, that have considerable Spanish Colonial roots, as well as several other herds in the West, including the Pryors from Montana, Kigers and Steen Mountains from Oregon, Sulphurs from Utah, Triple B's and Pancakes from eastern Nevada, Twin Peaks and Calico Complex from NW Nevada, and the Hebers from Arizona. He has also studied the Marietta burros of Nevada and the Cibolla-Trigo burros from Arizona among a number of other herds.

Craig worked with Wild Horse Annie (Velma Bronn Johnston) in the 1970s when the Wild Free-roaming Horses and Burros Act (WFHBA) was first being implemented.

He has given speeches, slide and PowerPoint presentations and guided films defending the wild horses and burros as well as written books and articles, including scientific, about them. As a legal plaintiff in numerous court cases, he has defended the rights of the wild horses and burros throughout America after having investigated their too-often grossly unfair treatment on the public lands throughout the West. He has also helped wild burros and wild horses in other countries, including Australia and the Caribbean island of Bonaire.

His Reserve Design project for restoring the herds and their habitats to viable levels has registered with many people and government agencies and, he believes, is and will increasingly produce a much-needed turnaround for these magnificent and benign animals. His organization the Andean Tapir Fund / Wild Horse and Burro Fund has awakened many people concerning the many positive contributions the Perissodactyla species make to ecosystems as well as concerning their North American origins and long-standing evolution.

Craig is one of the world's authorities on the IUCN SSC "Endangered" Mountain, or Andean, Tapir, and was the first to have radio-collared and tracked this beleaguered species in Ecuador's "UNESCO world heritage" Sangay National Park and part of his doctoral study.

He is a member of the IUCN Species Survival Commission and wrote the species description and action plan for the Mountain Tapir. He continues projects in the Andes to save this seriously endangered species through his non-profit organization. He has reached Ph.D. Candidate status at Durham University-UK which sponsored him on his Mountain Tapir Study and was supported as a Wildlife Conservation Society Research Fellow during this period.

He has taught ecology and biology courses at universities in Colombia, Ecuador and the United States and has given presentations in English and Spanish together with slide programs/PPTs throughout the world. His speech: "The World's Endangered Species Today Present a Crisis of Conscience for Humanity" has been widely recognized as a clarion call that expresses humanity's crucial challenge today.

12/11/2021

Earlier Short Biography of Craig C Downer, focusing on his work with wild horses and burros

Craig C. Downer is a wildlife ecologist who has specialized in the Mammalian Order Perissodactyla. This Order includes the Horse Family, Equidae, as well as the Families Tapiridae and Rhinocerotidae. While earning his M.S. at the University of Nevada-Reno, he did a field study and paper on the Pine Nut Mountain wild horses. And later in his career he did a professional herd and habitat analysis of these unique wild horses, that have a strong Spanish Colonial component. Craig worked with Wild Horse Annie (Velma Bronn Johnston) in the 1970s when the Wild Free-roaming Horses and Burros Act (WFHBA) was first being implemented. He has given speeches, slide and PowerPoint presentations and guided films defending the wild horses and burros as well as written books and articles, including scientific, about them. As a legal plaintiff in numerous court cases, he has defended the rights of the wild horses and burros throughout America after having investigated their unfair treatment on the public lands throughout the West. His Reserve Design project for restoring the herds and their habitats to viable levels has registered with many people and government agencies and is producing a much-needed turnaround for these magnificent and benign animals. His organization the Andean Tapir Fund / Wild Horse and Burro Fund has awakened many people concerning the many positive contributions these species make to ecosystems as well as concerning their North American origins and long-standing evolution. His dynamic, greater truth- and justice-serving organization upholds the pure intent of the WFHBA. Its website contains his reports, articles, videos and interviews and those of others and provides an important overview on this subject as well as a well-informed and timely call to action.

Bullet Points concerning the Wild Horses and Burros, from Craig's book The Wild Horse Conspiracy and other sources. Book (also eBook) available at www.amazon.com/dp/1461068983. Craig's peer-reviewed scientific article is available at <https://www.researchgate.net/publication/274006946> The Horse and Burro as Positively Contributing Returned Natives in North America Many of his and others reports are available at www.thewildhorseconspiracy.org. His other website is <https://andeantapirfund.com>. His email is ccdowner@aol.com, Cell is (775) 901-2094, Mailing address is Andean Tapir Fund / Wild Horse and Burro Fund, P.O. Box 456, Minden, NV 89423-0456 USA.

- The WFHBA passed unanimously in the U.S. Congress in December of 1971 and on December 15, 1971, was signed into law with a glowing sendoff by President Richard M. Nixon. Now, in the year 2021, we should be celebrating its 50th anniversary. Unfortunately, it has been woefully subverted by BLM-USDI and US Forest Service-USDA.
(<https://www.horsetalk.co.nz/2021/08/22/outrageous-treatment-americas-wild-horses-habitat/>; <https://reno-newsreview.com/2021/10/03/wild-horse-roundup-brutal-unnecessary/>; <https://www.recordcourier.com/news/2021/may/13/opponents-seeking-undo-horses->

wildness/; <https://www.horsetalk.co.nz/2020/08/15/america-wild-horse-elimination-govt-path-forward-plan> & <https://www.horsetalk.co.nz/2021/01/02/where-wild-horses-little-to-celebrate> and <https://www.horsetalk.co.nz/2017/10/17/avoid-selfish-interests-wild-horses-ecologist/> & <https://www.counterpunch.org/2020/11/27/the-focus-on-wild-horses-distracts-from-the-massive-damage-caused-by-the-livestock-industry/> .)

- This law mandates the just integration of the wild horses and burros into the public lands ecosystem as the principal resource recipients and with management and interference at the “minimum feasible level” with their natural lifestyles and habitat (Section 3 (a) of WFHBA).
- Several other laws, including NEPA, Endangered Species Act, National Historical Preservation Act, FLPMA, PRIA, Administrative Policy Act and Multiple Use Act, should also uphold the rights of wild horses and burros throughout the West to viable populations in viable habitats.
- The Horse Family, Equidae, is of North American origin as are the Horse Genus, *Equus*, and species, *Equus caballus*. The Burro’s (*Equus asinus*) lineage is also deeply rooted in North America. The origin of the Horse Family traces back some 58 million years. (See MacFadden, B.J. 1992. Fossil Horses: Systematics, Paleobiology, and Evolution of the Family Equidae. Cambridge Univ. Press and <https://www.thecloudfoundation.org/reading-room-faq-s-article/wh-ret>; <https://www.newswise.com/soil-samples-reveal-mammoths-yukon-wild-horses-survived-thousands-of-years-longer-than-believed/>)
- Wild, naturally living horses and burros complement North America’s life community in many direct and obvious as well as more subtle ways. (See Chapter II of my book and <https://www.horsetalk.co.nz/2019/05/06/ecosystems-horse-ecologist-wild-horse-message>)
- Their cecal, post-gastric, digestive system enables them to eat coarser, drier vegetation and, through symbiotic microbial activity, to break down cellulose cell walls to derive sufficient nutrients from the inner cell without over-taxing their metabolism.
- Equids’ frequent consumption of more coarse, drier vegetation can greatly benefit sympatric, pre-gastric, ruminant herbivores as well as energize and enrich the ecosystem as a whole. (https://www.researchgate.net/publication/239848265_Facilitation_between_Bovids_and_Equids_in_an_African_Savanna & Bell, R.H.V. 1970. The use of the herb layer by grazing ungulates in the Serengeti. IN: *Animal Populations in Relation to Their Food Source*. Brit. Ecol. Soc. Symp.)
- The lesser decomposed vegetable matter in the droppings of horses, as compared with ruminants, more greatly builds the vital humus component of soils, which enriches these, making them more fertile and water-retentive and, thus, bolstering biodiversity and consequent resilience and stability in the ecosystem. (https://esc.rutgers.edu/fact_sheet/horses-and-manure/)
- Wild horses and burros play a major role in mitigating and often even preventing major wildfires (<https://www.WHFB.us> & <https://www.horsetalk.co.nz/2017/07/31/wild-horse-fire-brigade-work/>).
- These equids act as *Keystone species* benefiting hundreds, even thousands of species of plants, animals, microorganisms, etc., with which they have co-evolved for centuries, thousands -- even millions of years. They are prey and scavenged species that contribute to many important food chains, which include canids, felids, raptors and many other important ecosystem components.
- Also, during colder seasons, they can open up iced over water holes or ice-crusted vegetation so that many weaker animals can continue to eat and drink. During hot weather, they can sniff-out water sources and dig down to them, even through hard and rocky soils, thus allowing critical

access to water for myriad plants and animals. (See <https://www.horsetalk.co.nz/2016/06/05/secret-lives-well-digging-burros/> .) They are great mutualists who, with their powerful and energetic bodies, can open up thickets to allow other animals to move around in bushlands and access important food sources. They also wallow in places such as those with clay where their wallows create natural water catchments benefiting many plants and animals.

- Horses can help diminish the invasive Cheat Grass (*Bromus tectorum*) that has been brought on by extensive disturbance of soils. This they do by eating these plants before they have set seed and by disseminating many other less invasive and native bunch grasses among other forbs and shrubs. (cf. Berger, J. 1986. *Wild Horses of the Great Basin* ... Univ. of Chicago Press.)
- The rounded blunt hooves of equids cut less deeply and sharply into moist meadow and streamside soils when compared with cloven-hoofed cattle, sheep, elk, deer and pigs (see [ImpactOfWildHorsesOnWildernes.pdf \(pr.com\)](http://img.pr.com/release-file/1908/791815/ImpactOfWildHorsesOnWildernes.pdf) <https://img.pr.com/release-file/1908/791815/ImpactOfWildHorsesOnWildernes.pdf>). Also, wild horses disperse their grazing pressure over larger areas within their home ranges and, unless forced into it, do not tend to camp around water sources as do domestic cattle in particular. They practice a form of natural rest-rotation. They also forage in a patchy manner, leaving islands of palatable grass, forbs, etc., to set seed. This is an instinctive form of wise rest-rotation that has permitted them to survive for millions of years. (cf. MacFadden, B.J. 1992. *Op. cit.*)
- Though BLM claims there were 53.4 million acres of original acres for wild horses and burros on BLM lands, and at least several million more existed on USFS lands in the 11 Western states at the passage of the Act, BLM now plans to allow these wild equids on only 26.9 million acres. Research has revealed that ca. 88 million acres actually may have qualified for being legal habitats, as the wild equids were found there in 1971. Yet, BLM, USFS and other government agencies allow cattle and sheep to forage on ca. 300 million acres, which include nearly 100% of the wild horse and burro legal areas and where these agencies on average allocate ca. 85 to 90% of the forage for livestock. This is a direct violation of Section 2 (c) of the WFHBA, which states that the wild equid legal areas shall be “devoted principally to the welfare and benefit” of the wild horses and burros, not the public land ranchers, oil and gas drillers, big game hunters, miners, ORVers, etc.! By sacrificing the General Public’s great interest in the wild horses and burros on this Quality-of-Life issue, they disobey the “Multiple Use” mandate of the Multiple Use Act, FLPMA, PRIA, Endangered Species Act, among others. (<http://americanherdsxtras.blogspot.com/2008/07/americas-mustangs-burros-whats-left.html>.)
- In spite of government efforts to conceal the gross inequity involved, “one hundred to one” more accurately describes the resource allocation of livestock and big game in relation to wild equids on the public lands. (See Animal Welfare Institute. 2007. *Managing for Extinction: Shortcomings of the Bureau of Land Management’s National Wild Horse and Burro Program*.)
- A major failure of legal duty by federal officials concerns wild equids’ access to water in the West. Yet, when all the wild horse and burro Herd Areas (BLM) and Territories (USFS) were declared and their boundaries determined on the ground, these areas automatically acquired *Implied Federal Water Rights* for the wild horses and burros. The federal authorities have refused to exercise these rights of the wild horses and burros and *ipso facto* and *ipso jure* of the General Public. (See my book *The Wild Horse Conspiracy*, Ch. IV, Pp. 125-126, interview with retired BLM Wild Horse and Burro Specialist John Phillips [link above].)

- Two Codes of Federal Regulations (CFR): 4710.5, “Closure to Livestock Grazing” and 4710.6, “Removal of Unauthorized Livestock in or near areas occupied by wild horses and burros” could be, but almost never are, applied to allow viable populations of these wild equids. Also ignored is the legal mandate under 43 CFR 4700.0-6[b]: “...wild horses and burros shall be considered comparably with other resource values in the formulation of [Land Use Plans]”.
- Public lands domestic livestock produce only 2% to 3% of the meat in beef in the US, and about 4% of the mutton, though more wool, in U.S. (Rogers, P. and J. La Fleur. 1999 (11/7). *Cash Cows: Taxes support a Wild West holdover that enriches ranchers and degrades the land. San Jose Mercury News. CA*)
- According to the IUCN Species Survival Commission, Equid Specialist Group: “For captive populations, we recommend a minimum population size [N] of 500 individuals ... [but] for wild populations we recommend a minimum size of 2,500 individuals.” Yet, BLM and USFS are ignoring this crucial and knowledgeable recommendation from the world’s greatest equid experts and do not even adhere to what seems to be their own standards of from 150 to 200 individuals. (Duncan, P. 1992. *Zebras, Asses, and Horses: An Action Plan for the Conservation of Wild Equids*. IUCN SSC Equid Specialist Group. Gland Switzerland. Page 5.)
- Concerning one egregious example of how both the BLM and USFS treat wild horses and burros: in the 784,325-acre Spring Mountain Complex of several wild horse and burro legal HMAs (BLM) and Territories (USFS), the Las Vegas BLM and Toiyabe-Humboldt National Forest team plan to allow for only one individual wild horse per 7,615 legal Joint Management Area (JMA) acres and for only one individual wild burro per 5,299 legal JMA acres in their “Appropriate Management Level” (AML) assignments. (See my book, Ch. III, pages 75 – 77.) and this is but one of many similar, outrageous provisions for our “national heritage species.”
- In 1859, there were an estimated two to three million wild horses on the plains, prairies, deserts and mountain ranges of the U.S., but by 1976, five years after the passage of the WFHBA, only about 60,000 remained (Pittman, J. 2008 (2/25). Funds for wild horse lands and care strained. *Santa Cruz Sentinel. California.*). Though 17,000 is the official figure given by BLM for wild horses on the public lands at the passage of the WFHBA in 1971, this is widely considered to be low by at least a factor of two (cf. Animal Welfare Institute, 2007, *Op. cit.*).
- Since the passage of the Burns Amendment to the WFHBA in December, 2004, many thousands of wild horses have been shipped over the border from the U.S. to Canada and Mexico, mostly for a cruel and terrorizing end to their lives. (Animal Welfare Institute, 2007. *Op. cit.*) It is believed that the SAFE bill has a good chance of stopping this in the present 117th U.S. Congress of 2021-2022. Please write and call your Senators and Congressmen: 202-224-3121; <https://www.usa.gov/elected-officials>
- America’s wild horse and burro herds have either been reduced to non-viable population levels or totally eliminated in most of their ca. 349 original legal herd areas on BLM lands. (Animal Welfare Institute, 2007. *Op. cit.*). And an even more outrageous situation exists on U.S. Forest Service lands that should have viable wild horse and burro herds on viable habitats.
- The smear campaign against the wild horses and burros in the wild and the ruthless infiltration and evisceration of government programs by their enemies count among the most dishonorable and unsupportable happenings today and in American history. What is termed “agency capture” has occurred in our nation’s wild horse and burro program. (See [White Paper - Wild Horse Freedom Federation www.wildhorsefreedomfederation.org/white-paper/](http://www.wildhorsefreedomfederation.org/white-paper/) and cf.

Stillman, D. 2008. *Mustang: The Saga of the Wild Horse in the American West*. Houghton Mifflin Co., Boston)

- By awakening a higher conception of and identification with the Great Rest of Life, *not man apart*, a solution to our present predicament will surely emerge, one fair to horses, people and all interrelated kinds. (See Ch. VII of my book, link given above.)
- Of the ca. 180 greatly reduced HMAs throughout the BLM West, a glaring 130, or 73%, have AMLs of less than 150 – many much less than 100 and even in the teens. According to BLM’s own substandard standard of 150 for genetic viability, as of 2020, in California 19 out of 22 HMAs have non-viable AMLs; in Utah: 17 out of 21; in Idaho, 5 out of 6; in Montana: 1 out of 1 (6 of the original 7 Herd Areas have been zeroed out); and in Nevada 67 out of 90 of the scant remaining herds are similarly non-viable. (See Animal Welfare Institute, 2008. Response to Government Accountability Office’s Report, “Bureau of Land Management: Effective Long-term Options Needed to Manage Unadoptable Wild Horses”).
- The Congressional Research Service reported for FY 2005 that forage eaten on BLM lands by livestock summed to 6,835,458 Animal Unit Months (AUM) contrasting with wild horse and burro consumption of only 381,120 AUMs, or 5.6% that of livestock, ca. one-twentieth – an outrage! On U.S. Forest Service lands, livestock devoured 6.6 million AUMs of forage, much of this in vital headwaters, while wild horses and burros got by on a meager 32,292 AUMs, or 0.5% that allocated to livestock, or one two-hundredth of the forage pie – truly an outrage (Animal Welfare Institute, 2007. *Op. cit.*). And the situation today, 2021, is even much worse due to the gross increase in livestock and livestock trespass on public lands during the Trump Administration and earlier ones. (See Eckhoff, V. 2020. *Cattle vs. Wild Horses 2002-2018, All data BLM*. <http://dailypitchfork.org/?p=1417&fbclid...> & <https://www.counterpunch.org/2020/11/27/the-focus-on-wild-horses-distracts-from-the-massive-damage-caused-by-the-livestock-industry/> .)
- In the Great Basin by moderately harvesting nutritious nuts from the Pinyon Pines, much more healthy food would result with much less damage to the natural world when compared with raising cattle and sheep in the Great Basin (Wheat, M. M. 1967. *Survival Arts of the Primitive Paiutes*. Univ. Nevada-Reno). And the same applies to the moderate harvesting of the nutritional *Jojoba* bush nuts in the more arid deserts of the Southwestern U.S. And many other natural, harmonious and restorative examples exist. Yet, BLM is waging a destructive campaign to greatly reduce the life-sustaining Pinyon and Juniper forests of the West to make the West even more of a livestock pasture than it already is! (See [BLM plan for fuel breaks in Great Basin to cost millions of dollars but will scar public lands and make wildfires worse - Wild Horse Freedom Federation](#).)
- Less than 21% of the terrestrial globe still contains all of the large mammals (greater than 20 kg. in weight) it supported several centuries ago. And the lack of these large animals who play keystone roles in the ecosystems, including as vital seed dispersers and soil builders, has diminished their resilience, stability and vitality and made them much more vulnerable to catastrophic wildfires – now greatly increasing due to Global Warming (Morrison et al. 2007. Persistence of Large Mammal Fauna as Indicators of Global Human Impacts. *Journal of Mammalogy* 88(6): 1363 - 1380).
- The range of the wild horse (*Equus caballus*) ca. A.D. 1500 was 13.5 million square kilometers compared with the current range of only 3,073 sq. km. for the Prezwalski wild horse along,

representing a loss of almost the entire distribution according to some who ignore the great majority of wild horses throughout the world (Morrison, *Op. cit.*). However, ca. 40,000 square miles should be added on due to wild horses still remaining in the Western United States and other impressive acreages could be added for other areas around the world, including Australia. Nevertheless, there exist an enormous vacant niche for the naturally living horse and other equids as well as other Perissodactyls, including tapirs and rhinos that would be very important to fill and help the living Earth heal now in its time of most dire crisis and “existential threat”, as is customary today to describe the situation.

- Since the horse has a long co-evolutionary history with many diverse plant and animal companion species in a variety of ecosystems and over an extensive range, its disappearance constitutes a major ecological setback. As a major *climax*, as well as *keystone*, species, the horse has helped characterize and assist many of the Earth’s ecosystems and is considered to be an ideal species for restoring degraded ecosystems, not only in North America, its evolutionary cradle, but throughout the world (see Naundrup, P.J. and J.C. Svenning, 2015. A Geographical Assessment of the Global Scope for Rewilding with Wild-Living Horses *Equus ferus*. Link: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4503665/>).
- The reestablishment of the horse and burro in the North American Great Basin, Great Plains and Prairies, as well as in many suitable western mountains and valleys can help to combat the noxious effects of global climate change by greatly balancing and enhancing the native ecosystems. (See <https://img.pr.com/release-file/1908/791815/ImpactOfWildHorsesOnWildernes.pdf> .)
- Wild horses and burros should be restored to their original Herd Areas (HAs) throughout the West, including those ca. 70,000 now in government corrals and long-term holding pastures. The legality of their refuges is based upon where they were found in 1971; this should be interpreted as meaning year-round habitats. But these areas are today largely empty of wild equids: a fact that, on the face of it, evinces the gross injustice with which these marvelous animals have been treated.
- **RESERVE DESIGN – MAJOR POINTS CONCISELY PRESENTED:**
- We must restore the wild horse and burro herds and their habitats through Reserve Design and Rewilding in order to allow for long-term genetically viable populations. This can be done in a way that permits these remarkable animals to harmoniously integrate into their natural habitats and to be naturally self-stabilizing as far as their numbers, i.e. attain a truly “Thriving Natural Ecological Balance” as Section 3 (a) of the WFHBA requires in direct reference to thriving wild horses and burros, not every other exploitive interest before them, as is currently the case! (See <https://www.gofundme.com/mstngreservedesign> & <https://www.researchgate.net/publication/274006946> The Horse and Burro as Positively Contributing Returned Natives in North America)
- The above can be achieved by:
- Letting the equids reoccupy their full legal Herd Areas (BLM) or Territories (USFS) wherever possible and in no case less than 75% of the original 1971 home range.
- Where a reduction in equid occupation is necessary, there shall be a compensatory acquisition of wild equid habitat of equal or greater value.
- We shall allow the horses and burros themselves and the world of nature to show us what works best for each given area and allow a natural equilibrium of species to establish itself,

including natural predators such as puma, bobcat/lynx, coyote, wolf and bear. Also, all the other herbivores including ruminant deer, elk, pronghorn, bighorn as well as smaller species such as rodents and rabbits, birds and reptiles, would be allowed to realize their respective roles and niches along with a great diversity of plant species. Let these species show us how marvelous a life home, or ecosystem, can be!

- Codes of Federal Regulations 4710.5 and 4710.6 shall be employed to reduce or curtail livestock grazing within legal BLM Herd Areas and US Forest Service Territories.
- Mandate purchase at fair and just value of base properties and water rights in conflict with the sound establishment of viable wild horse and burro herds. At first, this can be on a voluntary basis. But if necessary for the survival of the herds, it can be mandated. Of crucial importance today, this would be in sync with the urgent necessity of having naturally living horses and burros occupying greater areas of land in their capacity as major Carbon sequesters. Again, this is related to their different digestive system, which also relates to their greater ability to disperse germinative seeds of a greater variety. (See https://www.researchgate.net/publication/318163234_Pleistocene_megafaunal_extinctions_and_the_functional_loss_of_long-distance_seed-dispersal_services; <https://www.horsetalk.co.nz/2021/07/17/horses-carbon-sequesters/> and https://esc.rutgers.edu/fact_sheet/horses-and-manure/)
- Where necessary, employ semi-permeable, artificial barriers in designing each wild horse/burro Herd Area or Territory as the true sanctuary the WFHBA intends. The Log-&-Pole, buckrail-type fences that are employed in Montana BLM's Pryor Mountain Wild Horse Range work quite well.
- Employ Strieter-Lite light reflectors that prevent collisions of animals with automobiles wherever major roads or highways transit or border wild equid HAs or Territories. (Contact Strieter-Lite representative Julie Keller Julie.Keller0404@outlook.com, (775) 830-7739.)
- Also implement the construction of natural wild horse and wildlife overpasses where necessary.
- Do not overly restrict the wild equids, as by fencing or other means, within their large, viably sized and complete habitats. Also, make it a policy to minimize or eliminate vehicle impacts, roads, off-road vehicles and impacts from mining, fracking, etc., within the wild equid areas.
- Design and employ buffer zones around the wild equid HAs, HMAs, and Territories. Here a gradual tapering off of wild equid presence would occur through the implementation of discouragements to their transiting into areas where danger exists for them, such as in farms, towns or cities. This can involve "adverse conditioning" that is not overly harsh as well as "positive reinforcement". Remember: horses and burros are very intelligent animals who can learn where they are safe and can realize their basic needs for survival and a pleasant and fulfilling life. (See: <https://www.ispmb.org> , <https://www.wildhorsesanctuary.org> , www.ReachOuttoHorses.com , <https://protectmustangs.org> , www.thecloudfoundation.org.)
- Employ Sections 4 and 6 of the WFHBA to incorporate lands from other government agencies, including state, county and municipal, as well as private lands, into the HAs, HMAs and Territories. This would be in order for these to contain complete habitats for long-term-viable herds of wild horses and wild burros. In this regard, it is essential that wild horse-and-burro knowledgeable and caring biologists be employed to identify such long-term-viable habitats.
- Mount a positive, public education campaign with people who live and work around and visit the wild equid habitats so that they will positively participate in the realization of truly long-term-viable wild equid herds and their adequate, commensurate sanctuary habitats. These

people could become monitors and protectors of the herds and their habitats and derive benefits, as for example, from ecotourism and/or subsidies from the government in adopting this very worthy goal in life. Here a positive attitude by BLM and USFS officials, or whoever is given authority to protect and manage these animals, is essential if they are to be truly conserved in nature rather than tortured and persecuted while their legal habitats are overrun – as is currently the case. A new agency may well be required that is autonomous and free from the long-ingrained anti-wild-horse-and-burro policies of the BLM and US Forest Service. This would require an Act of Congress. In my opinion, the sooner this is introduced, the better, if America is to have any remaining, unobliterated and truly viable herds and habitats.

- Allow each wild equid herd to fulfill its ecological niche within each Herd Area and Territory. Allow each herd and the complex of species in its habitat to self-stabilize, or auto-regulate, its population. This is entirely consistent with the true nature of wild equids (see Rogovin, K.A. and M.P. Moshkin. 2007. [Autoregulation in mammalian populations and stress: an old theme revisited]. *Zhurnal obschchei biologii*. 68(4): 244-267 [In Russian].)
- Both horses and burros are *climax* species and capable of self-limitation. They do not expand out of control to destroy their habitat and ultimately themselves, as humanity – now nearing 8 billion people (12/2021, U.S. Census Bureau) -- is presently doing! In the mature social units of wild horses known as bands, both the lead stallion, or *patron*, and the lead mare socially inhibit reproduction among younger members of their band, who are usually their offspring. (See Jenkins, S.H. and M.C. Ashley. 2003. Wild Horse, *Equus caballus*, and Allies. Ch. 53 IN: Wild mammals of North America: Biology, Management and Conservation. 2nd Ed. Editors: G.A. Feldhamer, B.C. Thompson and J.A. Chapman. John Hopkins Univ. Press. See pages 1148 to 1163.) [Jenkins was my major professor for my M.S. in Biology at UNR.] Wild naturally living burros also limit their populations through the formation of jack-defended territories.
- The draconian, herd-gutting roundups, often by helicopter or bait- or water-tapping, disrupt these mature social units and destroy this natural form of self-regulation. This is something BLM, USFS and profiteering roundup contractors are loath to admit!
- When resources and habitat components, including forage, water, shelter, mineral sources, special seasonal habitats and even adequate space, become limiting, horses and burros naturally reduce their reproduction, true to their *climax species* nature (Rogovin and Moshkin 2007, *Op. cit.*).
- Follow the IUCN SSC Equid Specialist Group guidelines that specify 2,500 individuals in order to achieve long-term viability for a wild equid population (Duncan 1992, p. 5, *Op. cit.*).
- Do not employ invasive castration or ovariectomies, IUDs, nor fertility control drugs such as PZP, GonaCon, etc. These torture and debilitate, genetically alter, cause out-of-season, deformed and still-born births – and often kill -- the wild horses and burros. These thoughtless and inhumane procedures undermine the horses' and burros' fitness to survive, weaken their immune systems over the generations, cause social disruption and are forms of domestication that are entirely antithetical to the true and core purpose and intent of the WFHBA! Reserve Design is the solution, not this cruel and disrespectful kind of treatment of the wild equids that places them at the very bottom position of priorities within their very own legal areas -- where they are supposed to be On Top! (See: <https://www.gofundme.com/mstngreservedesign>; <https://www.horsetalk.co.nz/2020/03/04/pzp-wild-horses-do-not-belong-together/>; <https://www.horsetalk.co.nz/2017/10/17/avoid-selfish-interests-wild-horses-ecologist/> ;

<https://www.recordcourier.com/news/2021/jan/21/wild-free-roaming-horses-and-burros-act-requires-r/> and <http://protectmustangs.org/?p=8749>)

- Work to have America's wild horses and wild burros declared as UNESCO World Heritage, as well as in the United States, National Heritage species. Wild horses combine Spanish Andalusian, Sorraia, Berber, Arab and various, especially northern European, races -- even Bashir "Curlies" from Russia. The hardy wild horses and burros have much the same diversity and hybrid vigor as we Americans ourselves! And -- Remember! In the wild, in the natural biodiverse world that has established itself over the course of millions of years, the true vigor of the species -- and the life community we all share -- is preserved!
