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C.J. Michaels*

THREE ALTERNATIVES FOR MANAGING FREE-ROAMING HORSES AND BURROS: A LEGAL REFORM**

ABSTRACT

The Wild Free-Roaming Horses and Burros Act is overdue for repeal or revision. The Wild Horse and Burro Program is expensive for taxpayers, detrimental to rangelands, and harmful to the thousands of free-roaming equines it is intended to benefit. For nearly half a century, the Bureau of Land Management and United States Forest Service have struggled to balance the mandates of the Wild Free-Roaming Horses and Burros Act amidst a political and social climate that makes compliance impossible. Forty-six years after the Act was passed, the agencies are further from arriving at a solution than they have ever been. The time to change is now, and this article proposes solutions.

LIST OF ACRONYMS

AML	Appropriate Management Level
AU	Animal Unit
AUE	Animal Unit Equivalent
AUM	Animal Unit Month
BLM	Bureau of Land Management
EA	Environmental Assessment
EIS	Environmental Impact Statement
FLPMA	Federal Land Policy and Management Act
HA	Herd Area
HMA	Herd Management Area
KMA	Key Management Area
MPWHT	Montgomery Pass Wild Horse Territory
NAS	National Academy of Sciences
NPS	United States National Park Service
PRIA	Public Rangelands Improvement Act
PZP	Porcine Zona Pellucida
USFS	United States Forest Service
WFRHBA	Wild Free-Roaming Horses and Burros Act

I. INTRODUCTION

Few issues are more passionately debated than the management of “wild mustangs.” With emotions running high, neutral solutions can seem unattainable. For the past 44 years, the federal government has approached horse and burro¹

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management with kid gloves, trying not to offend the public or upset the peace. As a result, the number of free-roaming horses and burros on public lands has exploded at the expense of native flora and fauna, soil health, water quality, and the well-being of the horses and burros themselves.² Recently, the issue has spiraled out of control, with a desperate government shoving excess horses and burros into the hands of private parties, who are paid by the head to maintain them. The government has one simple goal—maintain the peace—but that tactic is not sustainable. The federal budget for the horse and burro program is growing exponentially, rangeland health is declining, and the horse and burro market is saturated. The Wild Free-Roaming Horses and Burros Act (WFRHBA)³—the Act that defines how free-roaming horses and burros are managed—has failed. With a crisis at hand, amending or abolishing the WFRHBA is no longer an option: it is a necessity.⁴ We *must* abandon the status quo and adopt a more practical approach to managing our public rangelands.

The greatest threat to free-roaming horses and burros, rangelands, and the federal budget is ignorance. Unaware how severely the western ecosystems are damaged by overgrazing, a well-meaning public rallies behind the romanticized idea of wild horses, balking at the first mention of gathering, sterilizing, managing, or—worst of all—slaughtering the animals. Recognizing that misconceptions cannot be transformed overnight, this paper proposes three practical, feasible, and sustainable alternatives to the existing management scheme, which—individually or collectively—permit a sustainable number of horses and burros to continue roaming freely. Before reaching the alternatives, however, some context is necessary. Section II of this paper describes the history of free-roaming horses and burros in the United States and how they became the target of special legislation. Section III describes the WFRHBA's original text and subsequent amendments. Section IV explains the problems with management under the WFRHBA, which leads to the three alternatives proposed in Section V. Section VI concludes with a

consulting company where she conducted rangeland vegetation sampling throughout the western United States.

** This article is current as of May 2017, when it was submitted for publication.

1. "Burro" is the Spanish word for "donkey." Americans adopted the term to describe the small donkeys historically used by Spaniards as pack animals and their feral descendants in the western United States. See *Donkey*, ENCYCLOPEDIA BRITANNICA, <https://www.britannica.com/animal/donkey> (last visited October 22, 2017); Tom L. McKnight, *The Feral Burro in the United States: Distribution and Problems*, 22 J. WILDLIFE MGMT. 163, 163–64 (1958).

2. To succeed, legislation had to be slipped in quietly. See *The "Burns Amendment" of 2004*, WILD HORSE EDU., <http://wildhorseeducation.org/burns-amendment/> (last visited Feb. 5, 2017) (accusing Congress of passing a bill that allowed the sale of free-roaming horses and burros without first introducing the bill to Congress, discussing it, or voting on it, and asserting that "few, if [any], knew of its existence or insertion into this 3,000 page Omnibus Act"); *Horse Slaughter*, ANIMAL WELFARE INST., <https://awionline.org/content/horse-slaughter> (last visited Feb. 5, 2017) (calling the 2004 amendment to the WFRHBA, which permitted unrestricted sale of excess horses and burros, a "backdoor Congressional rider").

3. The Wild Free-Roaming Horses and Burros Act, 16 U.S.C. §§ 1331–1340 (2012).

4. See NAT'L RESEARCH COUNCIL ET AL., USING SCIENCE TO IMPROVE THE BLM WILD HORSE AND BURRO PROGRAM 265 (2013) (finding that "it may be possible to meet . . . program goals [(balancing removals with adoptions and achieving appropriate management levels)] but not with the system in place at the time of the committee's study").

recommendation for future management that involves components of each alternative.

II. BRIEF HISTORY OF FREE-ROAMING HORSES AND BURROS IN NORTH AMERICA

The horses and burros found on public lands in the western United States have an ancestral history as diverse as many Americans. *Hyracotherium* (better known as “the dawn horse” or “eohippus”) was a small, three-toed animal estimated to have lived in North America 55 million years ago and the earliest known relative of modern equines.⁵ The *Equus* genus—the grouping of single-toed animals we recognize today as horses (*Equus ferus*), donkeys (*Equus asinus*), and zebras (*Equus quagga*)—is believed to have evolved in North America five million years ago.⁶ Members of the genus began leaving North America for Eurasia via the Bering Land Bridge around 2.5 million years ago,⁷ and sometime between 14,200⁸ and 7,600⁹ years ago the genus went extinct in North America. Equines continued to evolve in Eurasia and Africa alongside their closest relatives: rhinoceroses and tapirs.¹⁰ In North America, ruminants—members of the Artiodactyla order—became the prominent grazers.¹¹ Modern horses and burros were not introduced to

5. *Equine*, BRITANNICA CONCISE ENCYCLOPEDIA (2014); *Hyracotherium*, FLA. MUSEUM NAT. HIST., <http://www.flmnh.ufl.edu/vertpaleo/fhc/hyraco1.htm> (last visited Oct. 23, 2016).

6. *Equus*, FLA. MUSEUM NAT. HIST., <http://www.flmnh.ufl.edu/vertpaleo/fhc/equus1.htm> (last visited Oct. 23, 2016); *Equus (genus)*, WIKIPEDIA (last modified Oct. 1, 2016, 8:18 PM), [https://en.wikipedia.org/wiki/Equus_\(genus\)](https://en.wikipedia.org/wiki/Equus_(genus)).

7. Everett H. Lindsay et al., *Blancan-Hemphillian Land Mammal Ages and Late Cenozoic Mammal Dispersal Events*, 12 ANN. REV. EARTH & PLANETARY SCI. 445, 478–80 (1984).

8. Caitlin E. Buck & Edouard Bard, *A Calendar Chronology for Pleistocene Mammoth and Horse Extinction in North America Based on Bayesian Radiocarbon Calibration*, 26 QUATERNARY SCI. REVIEWS 2031, 2031, 2033 (2007) (citing R. Dale Guthrie, *New Carbon Dates Link Climatic Change with Human Colonization and Pleistocene Extinctions*, 441 NATURE 207, 207 (2006); Andrew R. Solow et al., *On the Pleistocene Extinctions of Alaskan Mammoths and Horses*, 103 PROC. NAT'L ACAD. SCI. 7351 (2006)).

9. Jay F. Kirkpatrick & Patricia M. Fazio, *Wild Horses as Native North American Wildlife*, ANIMAL WELFARE INST., <https://awionline.org/content/wild-horses-native-north-american-wildlife> (rev. Jan. 2010); Craig C. Downer, *The Horse and Burro as Positively Contributing Returned Natives in North America*, 2 AM. J. LIFE SCI. 5, 8 (2014). Claims that horses went extinct in North America as recently as 7,600 years ago are grounded in a study from 2009, in which the scientists attempted to “detect ‘ghost ranges’ of dwindling populations” of horses in Alaska. James Haile et al., *Ancient DNA Reveals Late Survival of Mammoth and Horse in Interior Alaska*, 106 PROC. NAT'L ACAD. SCI. 22352, 22352 (2009). The scientists found traces of horse DNA in a soil layer dated between roughly 10,500 and 7,600 years ago. *Id.* at 22354; see also Kenneth P. Pitt, *The Wild Free-Roaming Horses and Burros Act: A Western Melodrama*, 15 ENVTL. L. 503, 505 (1985).

10. Brent Huffman, *Order Perissodactyla*, ULTIMATEUNGULATE.COM, <http://www.ultimateungulate.com/perissodactyla.html> (last modified Dec. 22, 2016). Most species in the *Perissodactyla* order went extinct over a million years ago. The equine, rhinoceros, and tapir families are the only remnants of the once-flourishing order. R.C. Bigalke, *Perissodactyla*, ENCYCLOPAEDIA BRITANNICA, <https://www.britannica.com/animal/perissodactyl> (last visited Oct. 14, 2017).

11. See Alan William Gentry, *Artiodactyl*, ENCYCLOPAEDIA BRITANNICA, <https://www.britannica.com/animal/artiodactyl> (last visited Oct. 16, 2017). Most grazing animals in North America are ruminants, including wildlife (such as deer, elk, moose, pronghorns, and bison) and livestock (such as sheep, goats, and cattle). Brent Huffman, *Ungulates of the World: Species Fact Sheet*,

North America until the Europeans imported them in the late 1400s and early 1500s.¹²

A. History of Horses in North America

Man domesticated horses around 5,500 years ago.¹³ The Przewalski's horse,¹⁴ in Mongolia, was the only subspecies of *Equus ferus* to avoid domestication.¹⁵ The free-roaming horses in North America descended from domestic horses,¹⁶ which classifies them as feral animals¹⁷—a term distasteful to some because of its negative connotation.¹⁸ The first free-roaming horses descended from animals with Spanish bloodlines, which were unique for their small stature and smooth muscling.¹⁹ Referencing the Spanish ancestry, Americans nicknamed the free-roaming horses “mustangs,” an Anglicized version of the Castilian “*mesteño*,” which means an animal that belongs to “everyone in general and nobody in particular.”²⁰ By the 1950s, the Spanish characteristics had been

ULTIMATEUNGULATE.COM, <http://www.ultimateungulate.com/ungulates.html#Ruminantia> (last modified June 14, 2017).

12. Tom L. McKnight, *The Feral Horse in Anglo-America*, 49 GEOGRAPHICAL REV. 506, 508–09 (1959).

13. Mikkel Schubert et al., *Prehistoric Genomes Reveal the Genetic Foundation and Cost of Horse Domestication*, 111 PROC. NAT'L ACAD. SCI. E5661, E5661 (2014).

14. Przewalski's horses (*Equus ferus przewalskii*) are also known as takhi. Simon Wakefield et al., *Status and Action Plan for the Przewalski's Horse* (*Equus ferus przewalskii*), in EQUIDS: ZEBRAS, ASSES AND HORSES: STATUS SURVEY AND CONSERVATION ACTION PLAN 82, 82 (Patricia D. Moehlman ed., 2002).

15. For references to takhi as wild and all other horses as domestic, see Schubert et al., *supra* note 13; Ludovic Orlando et al., *Recalibrating Equus Evolution Using the Genome Sequence of an Early Middle Pleistocene Horse*, 499 NATURE 74, 74, 76 (2013); E. Ann Oakenfull, Han N. Lim & Oliver A. Ryder, *A Survey of Equid Mitochondrial DNA: Implications for the Evolution, Genetic Diversity and Conservation of Equus*, 1 CONSERVATION GENETICS 341, 350, 352–53 (2000). Domestic horses belong to the subspecies *Equus ferus caballus*. *Horse*, WIKIPEDIA (last modified Oct. 12, 2016, 1:36 PM), <http://en.wikipedia.org/wiki/Horse>.

16. McKnight, *supra* note 12, at 506; U.S. GOV'T ACCOUNTABILITY OFFICE, NO. GAO/RCED-90-110, RANGELAND MANAGEMENT: IMPROVEMENTS NEEDED IN FEDERAL WILD HORSE PROGRAM 8 (1990) [hereinafter GAO, RANGELAND MANAGEMENT].

17. *Article: When Is “Wild” Actually “Feral”?*, AM. MUSEUM NAT. HIST., <http://www.amnh.org/explore/science-bulletins/bio/documentaries/the-last-wild-horse-the-return-of-takhi-to-mongolia/article-when-is-wild-actually-feral> (last visited Oct. 23, 2016); *Animal*, BLACK'S LAW DICTIONARY (10th ed. 2014) (defining “feral animal” as “[a] domestic animal that has returned to a wild state” and defining “wild animal” as “[a]n animal that is not customarily devoted to the service of humankind in the place where it normally lives, such as a bear or fox”); Marsha A. Levine, *Botai and the Origins of Horse Domestication*, 18 J. ANTHROPOLOGICAL ARCHAEOLOGY 29, 36–37, 34 n.3 (1999) (quoting JULIET CLUTTON-BROCK, *HORSE POWER: A HISTORY OF THE HORSE AND THE DONKEY IN HUMAN SOCIETIES* 19 (1992) (defining feral animals “as those that live in a self-sustained population after a history of domestication”)).

18. See generally Jonaki Bhattacharyya, D. Scott Slocombe & Stephen D. Murphy, *The “Wild” or “Feral” Distraction: Effects of Cultural Understandings on Management Controversy Over Free-Ranging Horses* (*Equus ferus caballus*), 39 HUM. ECOLOGY 613 (2011).

19. McKnight, *supra* note 12, at 508–511; see also *Spanish Mustang Registry (SMR) Breed Description and Characteristics*, SPANISH MUSTANG REGISTRY, INC., <http://www.spanishmustang.org/characteristics.htm> (last visited Oct. 14, 2017).

20. McKnight, *supra* note 12, at 509.

diminished by the influx of horses of different origin, but the term “mustang” persisted.²¹ The number of feral horses in the United States is believed to have peaked in the 1800s, with the greatest concentration in Texas, Oklahoma, Colorado, and New Mexico.²²

In 1934, Congress passed the Taylor Grazing Act, which was designed to protect public rangelands from overgrazing.²³ The Taylor Grazing Act established grazing districts for livestock on federal lands and required the United States Department of the Interior’s Bureau of Land Management (BLM) to regulate “occupancy and use” within each district and “preserve the land and its resources from destruction or unnecessary injury.”²⁴ For the Taylor Grazing Act to serve its purpose, feral horse numbers had to be controlled. Livestock owners and grazing officials recognized the issue and joined forces with commercial hunters to control horse numbers.²⁵ They gathered horses using airplanes, pickups, and mounted men, and sold them for saddle horses, pack animals, fertilizer, meat,²⁶ and pet food.²⁷ By the 1950s, the free-roaming horse population had been reduced to about 25,000 animals, most of which lived in and around Nevada.²⁸

B. History of Burros in North America²⁹

Burros (*Equus asinus*) were domesticated before horses, approximately 5,400 years ago.³⁰ The Spanish introduced burros to the Americas in the 1500s and primarily used them as pack animals in northern Mexico and the southwestern United States.³¹ Escaped and unclaimed burros established free-roaming populations and, like horses, began to compete with other species for forage.³² Livestock owners and state and federal grazing officials worked to control burro

21. *Id.* at 511; Pitt, *supra* note 9, at 505.

22. No one knows how many horses roamed the western rangelands in the 1800s. Some sources put the number as low as 17,000, others range as high as seven million. *See, e.g.,* McKnight, *supra* note 12, at 512–13 (noting that “[c]onjecture has placed the number [of free-roaming horses] between several hundred thousand and seven million”); GAO, RANGELAND MANAGEMENT, *supra* note 16, at 8 (“[A]t the beginning of the 20th century, an estimated 2 million wild horses roamed America’s ranges.”); *Myths and Facts*, BUREAU OF LAND MGMT., <https://www.blm.gov/programs/wild-horse-and-burro/about-the-program/myths-and-facts> (updated May 19, 2016) [hereinafter *Myths and Facts*, BUREAU OF LAND MGMT.] (select Fact #13) (indicating that estimates placing free-roaming horse numbers at two million were probably largely overestimated since a BLM population survey in 1971 found only 17,300 horses roaming on the western rangelands).

23. 48 Stat. 1269, Pub. L. No. 73-482 (1934) (codified as amended at 43 U.S.C. §§ 315–315r (2012)).

24. 43 U.S.C. § 315a (2012).

25. *See* McKnight, *supra* note 12, at 515.

26. *Id.* at 514; Pitt, *supra* note 9, at 506.

27. McKnight, *supra* note 12, at 515; Pitt, *supra* note 9, at 506.

28. McKnight, *supra* note 12, at 519 tbl.1; Pitt, *supra* note 9, at 506.

29. Naturally, mules are also prevalent where herds of free-roaming horses and burros overlap. In this paper, as in the BLM’s studies, mules are reported as burros. *See* BUREAU OF LAND MGMT., U.S. DEP’T OF THE INTERIOR, PUBLIC LAND STATISTICS 2015, at 233 (2016), https://www.blm.gov/public_land_statistics/pls15/pls2015.pdf.

30. McKnight, *supra* note 1, at 163.

31. *Id.* at 164.

32. *Id.* at 164, 169 (describing the burros’ “voracious and nondiscriminating appetite[s]”).

numbers to conserve the rangeland.³³ Some burros were captured and domesticated, some were killed for their meat, others were shot or poisoned on the range, and a few were struck accidentally by automobiles.³⁴

C. Public Reaction to Horse and Burro Removals

The tactics used to reduce horse and burro populations in the early to mid-1900s caught much attention. Velma B. Johnston (better known as “Wild Horse Annie”)³⁵ spearheaded a movement to prohibit the use of aircraft and motor vehicles for gathering horses and burros on public lands, which culminated in the passage of the Wild Horse Annie Act in 1959.³⁶ Although the Act slowed the decline in horse numbers on public lands (burro numbers reportedly increased during this period³⁷), it was not stringently enforced and non-motorized roundups (and roundups on private lands) continued to chip away at the remaining herds.³⁸ By 1971, the number of unbranded, free-roaming horses was estimated at 9,500, and the number of unclaimed burros was estimated at 10,000.³⁹ Johnston continued her campaign to protect horses and burros, meeting with representatives from all sides of the issue and urging the federal government to pass legislation.⁴⁰ The waters were right for Congress to act: Senate Bill 1116⁴¹ passed unanimously and House Bill 5375—after a rough start in committee—also passed without a dissenting vote.⁴² On December 15, 1971, President Richard Nixon⁴³ signed into law the Wild Free-Roaming Horses and Burros Act (WFRHBA).⁴⁴

III. WILD FREE-ROAMING HORSES AND BURROS ACT

The WFRHBA directs the Secretary of the Interior and the Secretary of Agriculture⁴⁵ to manage and protect⁴⁶ free-roaming horses and burros within the

33. *Id.* at 172–73.

34. *Id.*

35. *Program History*, BUREAU OF LAND MGMT., <https://www.blm.gov/programs/wild-horse-and-burro/about-the-program/program-history> (last visited July 22, 2017). *See generally* Pitt, *supra* note 9, at 506.

36. Pub. L. No. 86-234, 73 Stat. 470 (1959); Pitt, *supra* note 9, at 506–07.

37. *Protection of Wild Horses and Burros on Public Lands: Hearing on S. 862, S. 1116, S. 1090, and S. 1119 Before the Subcomm. on Pub. Lands of the Comm. on Interior and Insular Affairs*, 92d Cong. 62 (1971) [hereinafter *Protection of Wild Horses & Burros*] (statement of Boyd Rasmussen, Director, Bureau of Land Mgmt., U.S Dep’t of Interior).

38. Pitt, *supra* note 9, at 507.

39. *Protection of Wild Horses & Burros*, *supra* note 37, at 62 (statement of Boyd Rasmussen).

40. Velma B. Johnston, *The Fight to Save a Memory*, 50 TEX. L. REV. 1055, 1060–61 (1972). Livestock representatives lobbied for state—as opposed to federal—legislation, but state bills were unsuccessful. *Id.* at 1061–62.

41. S. 1116, 92d Cong. (1971).

42. Johnston, *supra* note 40, at 1062.

43. *Id.*

44. Pub. L. No. 92-195, 85 Stat. 649 (1971).

45. The term “Secretary” in the WFRHBA refers to “the Secretary of the Interior when used in connection with public lands administered by him through the Bureau of Land Management and the Secretary of Agriculture in connection with public lands administered by him through the Forest

areas that were occupied by the animals in 1971.⁴⁷ Within these areas, known as “Herd Areas” or “HAs,”⁴⁸ the BLM determines which pastures have adequate forage, water, cover, and space to sustain healthy and diverse horse and burro populations.⁴⁹ The pastures that meet those criteria (“Herd Management Areas” or “HMAs”) are the main geographic units used in managing free-roaming horses and burros.⁵⁰

The WFRHBA does not elevate free-roaming horses and burros above all other species; it prioritizes ecological balance.⁵¹ Congress responded to the concerns of agency personnel⁵² regarding over-abundances of horses and burros on public rangelands by authorizing the Secretary to kill the excess animals when

Service.” 16 U.S.C. § 1332(a) (2012). Throughout this paper, “Secretary” will hold the meaning given to it in the WFRHBA.

46. See 16 U.S.C. § 1331 (2012) (“Congress finds and declares that wild free-roaming horses and burros are living symbols of the historic and pioneer spirit of the West; that they contribute to the diversity of life forms within the Nation and enrich the lives of the American people; and that these horses and burros are fast disappearing from the American scene. It is the policy of Congress that wild free-roaming horses and burros shall be protected from capture, branding, harassment, or death . . .”).

47. *Id.* (“[Free-roaming horses and burros] are to be considered in the area where presently found, as an integral part of the natural system of the public lands.”).

48. BUREAU OF LAND MGMT., U.S. DEP’T OF THE INTERIOR, H-4700-1, WILD HORSES AND BURROS MANAGEMENT HANDBOOK § 2.1.2 (2010), https://www.blm.gov/sites/blm.gov/files/uploads/Media_Library_BLM_Policy_H-4700-1.pdf [hereinafter MANAGEMENT HANDBOOK].

49. *Id.* at ch. 3.

50. See *id.* at § 2.1.3; see also *Herd Management Areas*, BUREAU OF LAND MGMT., <https://www.blm.gov/programs/wild-horse-and-burro/herd-management/herd-management-areas> (last visited July 22, 2017).

51. 16 U.S.C. § 1333(a) (2012) (“The Secretary shall manage wild free-roaming horses and burros in a manner that is designed to achieve and maintain a thriving natural ecological balance on the public lands. He shall consider the recommendations of qualified scientists in the field of biology and ecology . . .”).

52. See, e.g., *Protection of Wild Horses and Burros*, *supra* note 37, at 62 (statement of Boyd Rasmussen) (“After a certain point in population density, confined forage animals can often survive long enough . . . to destroy a large portion of their vegetative base. . . . Management of wild horses is necessary to their survival. Management is also necessary to achieve and maintain a thriving natural, and ecological balance on their range. This requires periodical resting of portions of the range from grazing and rotating use of different parts of the range used by the wild horses.”); *id.* at 67 (statement of Jack W. Deinema, Associate Deputy Chief, Forest Service, U.S. Dep’t of Agriculture) (“If horses [sic] and burro propagation increases, other animals will have to be reduced. This should not be allowed to occur, where relatively scarce animals such as desert bighorn sheep are involved. . . . When horses and burros become too numerous they are particularly destructive of their range; even in areas where there is no competition for range among different kinds of animals serious watershed and related environmental damage occurs when populations of any species exceeds range production capabilities. Therefore it is highly important that any legislation include realistic provisions for control of free-roaming horses and burro population. . . . Disposal of surplus animals on the range in the most humane manner possible would be a particularly important part of any population control provision.”); *id.* at 45 (statement of Hon. Mike Mansfield, U.S. Sen. from Montana) (“Protection . . . must be tempered by an effective and adequately funded program of management. . . . It is critical that an ecological balance be achieved and maintained so that horse populations be in balance with the food supply available for them.”).

“such action [was] the only practical way to remove [them],”⁵³ but encouraged the Secretary to keep the management activities to “the minimal feasible level.”⁵⁴

For activists, the WFRHBA was an instant success: the free-roaming horse and burro population jumped from an estimated 25,300 animals to more than 40,000 in two years.⁵⁵ For the BLM, United States Forest Service (USFS), land conservationists, and ranchers, the result was more troubling. The BLM and USFS were not equipped to manage the rapidly growing population of free-roaming horses and burros under the new restrictions. Rangeland health again became a prominent concern. In 1973, the BLM initiated an “Adopt-A-Horse” program to relieve itself of the animals removed from overpopulated HMAs.⁵⁶ Gathering horses without vehicles or helicopters was expensive and the adoption program was only mildly successful, so in 1976 Congress added provisions to the Federal Land Policy and Management Act (FLPMA)⁵⁷ to permit use of helicopters and vehicles to capture and transport horses and burros on public lands.⁵⁸ The changes had no noticeable impact on the number of animals, and by 1977 the population was above 60,000.⁵⁹

In 1978, Congress again amended the WFRHBA, this time through the Public Rangelands Improvement Act (PRIA).⁶⁰ PRIA ordered the Secretary to determine how many horses and burros the Herd Areas could sustainably support (the “appropriate management level” or “AML”)⁶¹ and required the Secretary to “maintain a current inventory” of all free-roaming horses and burros, both on and off public lands.⁶² When the Secretary determined an area was overpopulated, PRIA required him to “immediately remove excess animals from the range so as to achieve appropriate management levels.”⁶³ PRIA ordered the Secretary to dispose of the animals that were removed from the range by destroying those that were old, sick, or lame, adopting out any that could be adopted, and destroying those that were not adopted “in the most humane and cost efficient manner possible.”⁶⁴ After PRIA’s enactment, the BLM finally curbed population growth and reduced the number of horses and burros.⁶⁵ Unfortunately, the accomplishment was short-lived:

53. Wild Free-Roaming Horses and Burros Act, Pub. L. No. 92-195, § 3(c), 85 Stat. 649, 650 (1971).

54. *Id.* at § 3(a).

55. See U.S. GOV’T ACCOUNTABILITY OFF., GAO-09-77, BUREAU OF LAND MANAGEMENT: EFFECTIVE LONG-TERM OPTIONS NEEDED TO MANAGE UNADOPTABLE WILD HORSES 2 n.3, 32 fig.5 (2008) [hereinafter GAO, OPTIONS].

56. Pitt, *supra* note 9, at 521.

57. Act of Oct. 21, 1976, Pub. L. No. 94-579, 90 Stat. 2743.

58. Pitt, *supra* note 9, at 521.

59. GAO, OPTIONS, *supra* note 55, at 32 fig.5; COMMITTEE ON WILD & FREE-ROAMING HORSES & BURROS ET AL., WILD AND FREE-ROAMING HORSES AND BURROS: FINAL REPORT 42 (1982) (showing that by 1980 the population of horses and burros had risen to more than 64,600 animals).

60. Public Rangelands Improvement Act of 1978, Pub. L. No. 95-514, 92 Stat. 1803.

61. *Id.* § 14(b)(1), 92 Stat. at 1808.

62. *Id.*

63. *Id.* § 14(b)(2), 92 Stat. at 1809 (emphasis added).

64. *Id.* § 14(b)(2)(C), 92 Stat. at 1809.

65. See GAO, OPTIONS, *supra* note 55, at 32 fig.5.

in 1988, Congress prohibited the BLM from using federal funds to destroy healthy horses and burros, and the population again exploded.⁶⁶

Senator Harry Reid (Nevada) approached Senator Conrad Burns (Montana) about the overgrazing problem, which was most prevalent in Nevada.⁶⁷ Senator Burns inserted a rider to the 2005 Consolidated Appropriations Act,⁶⁸ which amended the WFRHBA to allow the BLM to sell—without limitation—any horse or burro over 10 years of age or which had been offered for adoption at least three times without success.⁶⁹ The BLM acted quickly and, in two years, reduced the horse and burro population to less than 29,000 animals (nearly achieving the appropriate management level).⁷⁰ Like before, however, the accomplishment was short-lived: by 2007, changes in the horse and burro market and BLM internal policies had effectively gutted the Burns rider.⁷¹ As of March 1, 2017, the rangelands held 72,674 free-roaming horses and burros,⁷² exceeding the carrying capacity by 45,959.⁷³ Of the 177 HMAs, only 32 (18%) complied with their assigned AMLs.⁷⁴

IV. DEFINING THE PROBLEM

Mismanagement in the Wild Horse Program has permitted the population of free-roaming horses and burros to vastly exceed the amount of animals public

66. *Id.* at 9.

67. Steven Long, *An Interview with Former Sen. Conrad Burns*, HORSEBACK MAG., reprinted at ANIMAL L. COALITION, *An Interview with Former Sen. Conrad Burns* (Sept. 17, 2009), <https://animallawcoalition.com/an-interview-with-former-sen-conrad-burns/>.

68. Pub. L. No. 108-447, div. E, tit. I, § 142(a)(2), 118 Stat. 2809, 3071 (2004) (codified at 16 U.S.C. § 1333(e) (2012)).

69. *Id.*; GAO, OPTIONS, *supra* note 55, at 9.

70. The estimated horse and burro population as of February 28, 2007 was 28,563 animals. *Quick Facts*, BUREAU OF LAND MGMT., 6 tbl. 5-12, https://www.blm.gov/sites/blm.gov/files/wildhorse_quickfacts_doc5.pdf (last visited Sept. 16, 2017); GAO, OPTIONS, *supra* note 55, at 32. Between 2005 and 2010, the BLM sold an average of 650 animals per year. NAT'L RESEARCH COUNCIL ET AL., *supra* note 4, at 25 n.6.

71. GAO, OPTIONS, *supra* note 55, at 9; Telephone Interview with Beatrice A. Wade, Wild Horse & Burro Specialist, Bureau of Land Mgmt. (Apr. 2, 2015) (explaining that the BLM has implemented internal policies preventing free-roaming horses and burros from being sold for slaughter).

72. *Wild Horse & Burro Program: Program Data*, BUREAU OF LAND MGMT., <https://www.blm.gov/programs/wild-horse-and-burro/about-the-program/program-data> [<https://web.archive.org/web/20170517205708/https://www.blm.gov/programs/wild-horse-and-burro/about-the-program/program-data>] (last updated Apr. 14, 2017) [hereinafter *Program Data*, BUREAU OF LAND MGMT.] (select “On-Range Population Estimate as of March 1, 2017”). The number of horses and burros on the rangeland is likely much higher than reported because the BLM’s methods of counting horses and burros underestimate the actual numbers. NAT'L RESEARCH COUNCIL ET AL., *supra* note 4, at 55; GAO, OPTIONS, *supra* note 55, at 7 (citing one instance in which Nevada BLM staff undercounted in an HMA by approximately 640 horses, meaning the actual population was five times greater than the AML).

73. The Secretary’s most recent analysis found that the HMAs could support 26,715 free-roaming horses and burros. *Program Data*, BUREAU OF LAND MGMT., *supra* note 72. In other words, the BLM has determined that—of the total forage available in the HMAs (some of which is allocated to wildlife and some to livestock)—enough exists to feed 26,715 horses and burros.

74. BUREAU OF LAND MGMT., HERD AREA AND HERD MANAGEMENT AREA STATISTICS 19 (2017), https://www.blm.gov/sites/blm.gov/files/wildhorse_programdata_2017hmastats.pdf [hereinafter 2017 STATISTICS].

rangelands can sustainably support. This mismanagement impacts everyone: hunters, fishermen, bird-watchers, recreationalists, horse and burro enthusiasts, western landowners, ranchers, scientists, environmentalists, and every person who pays taxes to the federal government. When the nutritional requirements of the horses and burros exceed the forage production within the HMAs, the vegetation, soil, water, and every creature that relies on those necessities suffers. As the situation persists, native vegetation dies out and noxious weeds invade. The rangeland degrades, and the native wildlife leave.⁷⁵ Eventually, the site trends toward desertification, leaving endemic species without suitable habitat.⁷⁶ In the arid West, rangelands do not recover from degradation the way grasslands recover in mesic climates, and the effects can be long lasting, if not permanent.⁷⁷ Rangelands that once provided habitat for thousands of species in each of the six biological kingdoms become barren.⁷⁸ Previously productive lands that once fed local economies by supporting agriculture, ecotourism, hunting, and many other activities become dusty fields that yield no profit and attract no visitors.⁷⁹ Horses and burros themselves cannot survive long in the pastures they habitually overgraze,⁸⁰ meaning the animals must either starve or have feed purchased for them. Regardless of which option the agencies choose, taxpayers shoulder the burden, either by purchasing feed for the overpopulated herds or suffering a loss in the productivity, health, and profitability of public rangelands.

To prevent the destruction of thousands of acres of western rangelands, the BLM and USFS must balance the amount of forage required by grazing animals with the amount of forage that can be sustainably harvested without damaging the vegetation.⁸¹ The agencies seek to do this in three ways: (1) reducing livestock grazing within an allotment,⁸² (2) removing excess horses and burros within an

75. See Erik A. Beever & Cameron L. Aldridge, *Influences of Free-Roaming Equids on Sagebrush Ecosystems, with a Focus on Greater Sage-Grouse*, in GREATER SAGE-GROUSE: ECOLOGY AND CONSERVATION OF A LANDSCAPE SPECIES AND ITS HABITATS 273, 289–90 (Steven T. Knick & John W. Connelly eds., 2011).

76. Severe overgrazing can lead to loss of species diversity, increased prevalence of invasive weeds, and ultimate desertification in arid ecosystems. See NAT. RES. CONSERVATION SERV., NATIONAL RANGE AND PASTURE HANDBOOK 3.1–2 to 3.1–5 (Sept. 1997, rev. 2003).

77. See Suzanne J. Milton et al., *A Conceptual Model of Arid Rangeland Degradation: The Escalating Cost of Declining Productivity*, 44 BIOSCIENCE 70 (1994).

78. See, e.g., J.G. Han et al., *Rangeland Degradation and Restoration Management in China*, 30 RANGELAND J. 233, 233–35 (2008) (describing degradation caused by years of livestock overgrazing in Inner Mongolia).

79. See, e.g., Nat'l Ass'n of Cnty., *Overpopulation of Wild Horses and Burros in Nevada Has Severe Impacts on Both Health of Horses as Well as the Ecological Health and Sustainability of Nevada's Rangelands*, NACO, <http://www.naco.org/sites/default/files/documents/Nev-Assoc-Co-WHB-Facts-Photos.pdf> (last visited Sept. 17, 2017) (describing degradation of rangelands caused by overpopulated horses and burros in pastures where livestock are not permitted).

80. See *id.*

81. See *infra* Subsection IV(A), titled "Environmental Considerations."

82. Telephone Interview with Chris Mayer, Rangeland Program Lead, Bureau of Land Mgmt., Ely Dist. (Apr. 13, 2015) (explaining that livestock owners are voluntarily reducing livestock numbers on BLM allotments and changing grazing seasons in an attempt to preserve the vegetation in overpopulated HMAs, particularly in drought areas, and explaining that some BLM offices have drastically reduced grazing permits for livestock owners in response to horse and burro populations and drought); see also

HMA, and (3) limiting horse and burro population growth through fertility control.⁸³ The first method does not address the problem (population growth) and is insufficient (the amount of forage required for horses and burros exceeds the amount consumed by livestock), as explained below in subsection A.⁸⁴ The latter two methods are time-consuming, expensive, and controversial.⁸⁵ The agencies need an option that balances environmental considerations, economic costs, and public opinion: all within the agencies' statutory mandates.

A. Environmental Considerations

Current management of free-roaming horses and burros is having, and will continue to have, devastating impacts on the rangeland and its native inhabitants. The WFRHBA was not intended to protect horses and burros to the detriment of all other species,⁸⁶ yet current management practices ignore the greater impact of the horse and burro program. Horses and burros have no significant predators,⁸⁷ meaning that food, water, disease, and weather are the only factors controlling population growth. As a dominant species, horses and burros can outcompete native wildlife and force out the previous inhabitants of an ecosystem by consuming all available forage, depleting and guarding scarce water sources,⁸⁸ and destroying habitat.⁸⁹ Without human intervention, rangeland health will not improve within the herd management areas.⁹⁰ The population of free-roaming

Myths and Facts, BUREAU OF LAND MGMT., *supra* note 22 (select "Fact #6") ("Livestock grazing on BLM-managed land has declined by 35 percent since 1971 . . .").

83. See NAT'L RESEARCH COUNCIL ET AL., *supra* note 4, at 189, 269–70.

84. This option is also prohibited by FLPMA, which requires the agencies to manage for multiple use. See 43 U.S.C. § 1701(a)(7) (2012).

85. See Ray G. Huffaker et al., *A Bioeconomic Livestock/Wild Horse Trade-off Mechanism for Conserving Public Rangeland Vegetation*, 15 WESTERN J. AGRIC. ECON. 73, 73 (1990); Chris T. Bastian et al., *Opportunity Costs Related to Feral Horses: A Wyoming Case Study*, 52 J. RANGE MGMT. 104, 105 (1999).

86. NAT'L RESEARCH COUNCIL ET AL., *supra* note 4, at 197 ("The principal goal of this legislation is to provide for the protection of the animals from man and not the single use management of areas for the benefit of wild free-roaming horses and burros. It is the intent of the committee that the wild free-roaming horses and burros be specifically incorporated as a component of the multiple-use plans governing the use of the public lands." (quoting U.S. Senate, Committee on Interior Insular Affairs, Subcommittee on Public Lands, Protection Management and Control of Wild Free-Roaming Horses and Burros on Public Lands: Report to Accompany S. 1116, at 3 (Sen. Rpt. No. 92-242, 1971))).

87. See NAT'L RESEARCH COUNCIL ET AL., *supra* note 4, at 85 (explaining that, although mountain lions sometimes prey on horses, the degree to which depredation limits population size is unknown).

88. See Brock R. McMillan, Professor of Plant & Wildlife Sciences, Brigham Young Univ., Lecture, Rangeland Health Impacts of Wild Horse and Burros, at 3:50 to 12:38 (Aug. 23, 2017), https://mpvideo.usu.edu/media/0_3s16tjye (showing that the presence of feral horses at a water source deters native wildlife from using the water source); Matt Weiser, *Wild Horses: Adored by the Public, but Destroying Water Resources*, WATER DEEPLY (Sept. 7, 2017), <https://www.newsdeeply.com/water/community/2017/09/07/wild-horses-adored-by-the-public-but-destroying-water-resources>.

89. See *Effects on Native Wildlife*, NAT'L HORSE & BURRO RANGELAND MGMT. COALITION, http://www.wildhorserange.org/uploads/2/6/0/7/26070410/2017-whb_factsheet4.pdf (updated May 2017).

90. Rangeland ecosystems exist in different states. Once degradation pushes an ecosystem from a healthy state into a more degraded state, recovery can be difficult, if not impossible. NAT'L RESEARCH COUNCIL ET AL., *supra* note 4, at 75, 214–17. See Tamzen K. Stringham et al., *State and Transition*

horses and burros is already overburdening the rangelands and continues to increase at a rate of 15 to 20% per year.⁹¹ History has shown—and the present is proving—that the rate of increase will continue until feed and water become so limited that the animals die of starvation and dehydration,⁹² after the native flora and fauna have suffered irreparable damage.⁹³

Free-roaming horses and burros do not exist in a vacuum. As with all grazing animals, their behavior directly impacts water quality, soil health, vegetative vigor, and biodiversity.⁹⁴ Consequently, the strategies used to manage free-roaming horses and burros must be holistic and account for the entire ecosystem, not just the equine component. Land managers use standardized units (“animal units”) to compare the grazing requirements of different species across an ecosystem and balance their impacts. An animal unit (AU) is equivalent to five sheep or one 1,000-pound cow with calf.⁹⁵ Horses and burros, like other equids, have a more primitive digestive system than that of ruminants.⁹⁶ Consequently, horses and burros must consume more forage per pound of body weight than cows or sheep, which have more efficient digestive systems.⁹⁷ Thus, despite weighing less than a cow and calf pair, horses have the higher AU equivalent (AUE)

Modeling: An Ecological Process Approach, 56 J. RANGE MGMT. 106 (2003), for further explanation of the states of rangeland health and forces that cause rangeland to transition.

91. NAT'L RESEARCH COUNCIL ET AL., *supra* note 4, at 5.

92. Robert A. Garrott & Madan K. Oli, *A Critical Crossroad for BLM's Wild Horse Program*, 341 SCIENCE 847, 847 (2013); *see also* NAT'L RESEARCH COUNCIL ET AL., *supra* note 4, at 6, 74–86.

93. NAT'L RESEARCH COUNCIL ET AL., *supra* note 4, at 75–76, 198–99, 228, 267.

94. *See* Beever & Aldridge, *supra* note 75, at 273, 289–90.

95. NAT. RES. CONSERVATION SERV., *supra* note 76, at 6-8, 6-9 tbl. 6-5.

96. Deb Bennett, *The Evolution of the Horse: History and Techniques of Study*, EQUINE STUD. (2008), http://www.equinestudies.org/evolution_horse_2008/elsevier_horse_evolution_2008_pdf1.pdf.

97. NAT'L RESEARCH COUNCIL ET AL., *supra* note 4, at 207 (citing T.A. Hanley & K.A. Hanley, *Food Resource Partitioning by Sympatric Ungulates on Great Basin Rangeland*, 35 J. RANGE MGMT. 152, 152–58 (1982)). *Compare* JoLynn Worley, *From the BLM*, RANGE MAG., Winter 2011, at M14, http://www.wildhorserange.org/uploads/2/6/0/7/26070410/range_mag_mustang_article.pdf (“The average Nevada mustang needs about 1,000 pounds of forage per month . . .”), with NAT. RES. CONSERVATION SERV., *supra* note 76, at 6-9 tbl.6-5 (showing that one cow with calf consumes 790 pounds of forage per month); *see also* Patricia A. Evans, *From the Head*, RANGE MAG., Winter 2011, at M20, http://www.wildhorserange.org/uploads/2/6/0/7/26070410/range_mag_mustang_article.pdf (“A horse (depending on size) eats 1.2-1.5 more (in AUMs, animal unit months) than a cow/calf pair. Horses eat continuously—about 14 to 20 hours a day as opposed to cattle[, which] generally eat in the morning and evening with time in between for rumination.”).

Inexplicably, the BLM puts the AUE for horses at 1.0 and the AUE for burros at 0.5. MANAGEMENT HANDBOOK, *supra* note 48, at § 4.2.3. The BLM does not explain its valuation, *see* NAT'L RESEARCH COUNCIL ET AL., *supra* note 4, at 207, and I have found no evidence to support it. One study used an AUE of 0.69 for the horses on the Pryor Mountain Range. MATTHEW J. RICKETTS ET AL., PRYOR MOUNTAIN WILD HORSE RANGE SURVEY AND ASSESSMENT 32 (2004), http://www.blm.gov/mt/st/en/fo/billings_field_office/wildhorses/pryorherd/2004_assessment.html. However, the 0.69 AUE was based on a dry matter intake of only 18 pounds per day and did not account for waste. In addition, the Pryor horse herd was culled for its Spanish bloodlines, which resulted in smaller horses. Telephone Interview with Matthew J. Ricketts, Area Rangeland Management Specialist, Nat. Res. Conservation Serv. (Apr. 10, 2015) (explaining why his AUE for horses in the Pryor Mountain study was lower than the AUE recommended by the NRCS).

of 1.25.⁹⁸ Burros are less studied, but are assigned an estimated AUE of 1.0 for purposes of this paper.⁹⁹

An “animal unit month” (AUM)¹⁰⁰ describes the amount of dry weight forage necessary to meet the nutritional requirements of a single animal unit for one month (approximately 790 pounds of dry weight forage).¹⁰¹ Unlike head counts, AUMs allow managers to directly compare the forage requirements of different grazing animals over varied grazing periods.¹⁰² For example, the BLM can compare forage requirements for one hundred free-roaming horses that graze within an HMA year-round with those for one hundred and fifty cattle that graze within the HMA for five months each year. AUMs accurately portray how resources are used among species, something head counts cannot do.

By comparing forage production within the herd management areas with the number of AUMs required for the horses and burros grazing on public lands, one can see that the nutritional requirements of the animals vastly exceed the carrying capacity of the land. As of March 2017, 59,483 horses and 13,191 burros grazed on BLM-managed lands (87,545 animal units),¹⁰³ requiring a total of 1,050,540 AUMs¹⁰⁴ of feed (roughly 830 million pounds of dry weight forage¹⁰⁵). According to BLM calculations, the herd management areas only contain sufficient forage for 391,968 AUMs (not including any AUMs allotted to wildlife or livestock),¹⁰⁶ which means that in March 2017, the herd management areas were overstocked by 658,572 AUMs.¹⁰⁷

98. NAT. RES. CONSERVATION SERV., *supra* note 76, at 6-9 tbl.6-5.

99. Because mules are counted as burros in the BLM’s studies, *see supra* note 29, the AUE for “burros” is likely between 1.0 and 1.25. Telephone Interview with Matthew J. Ricketts, *supra* note 97. For the sake of simplicity, I use a 1.0 AUE for burros.

100. The BLM issues grazing permits, charges fees, and calculates total forage consumption based on AUMs. *See* 43 C.F.R. 4130.2 (2017); *Grazing Fees and Distribution*, BUREAU OF LAND MGMT., <https://www.blm.gov/programs/natural-resources/rangelands-and-grazing/livestock-grazing/fees-and-distribution> [<https://web.archive.org/web/20170210075805/https://www.blm.gov/programs/natural-resources/rangelands-and-grazing/livestock-grazing/fees-and-distribution>] (last visited Apr. 9, 2017).

101. NAT. RES. CONSERVATION SERV., *supra* note 76, at 6-8 to 6-9, 6-9 tbl. 6-5. The values expressed in the *National Range and Pasture Handbook* are averages. These averages can be more closely tailored to the animal species by looking at the specific nutritional requirements of animals within specific areas. *Id.* at 6-8; Telephone Interview with Matthew J. Ricketts, *supra* note 97. For averages adjusted based on location, *see* DAN OGLE & BRENDAN BRAZEE, NAT. RES. CONSERVATION SERV., TECH. NOTE RANGE NO. 3, ESTIMATING INITIAL STOCKING RATES 3 (2009), http://www.nrcs.usda.gov/Internet/FSE_PLANTMATERIALS/publications/idpmstn9390.pdf.

102. *See* JOHN LACEY, MONTGUIDE MT 9111, FORAGE CONSUMPTION ESTIMATED ANIMAL UNIT CONVERSION A-2, <http://animalrange.montana.edu/documents/extension/forageconsump.pdf> (last visited Apr. 9, 2017).

103. These calculations are based on the BLM’s March 2017 counts of 59,483 horses and 13,191 burros ((59,483 horses x 1.25AUE = 74,354 AUs) + (13,191 burros x 1.0AUE = 13,191 AUs) = 87,545 AUs). 2017 STATISTICS, *supra* note 74, at 19.

104. 87,545 AUs x 12 months = 1,050,540. Note that these numbers are still based on the population estimates for March 2017. For further explanation on how to calculate AUMs, *see* OGLE & BRAZEE, *supra* note 101, at 3.

105. Calculated at 790 pounds of dry weight forage per AUM. *See* NAT. RES. CONSERVATION SERV., *supra* note 76, at 6-9.

106. The maximum AML is 23,795 for horses and 2,920 for burros. 2017 STATISTICS, *supra* note 74, at 19. In AUs, the maximum AML is 29,744 for horses (23,795 x 1.25) and 2,920 for burros, bringing

In addition to the horses and burros on the rangeland, 46,015 horses and burros are held in off-range corrals, pastures, and eco-sanctuaries at the BLM's expense. The 2017 forage requirement for *all* horses and burros under BLM management (including those held in off-range corrals, pastures, and eco-sanctuaries) was 1,737,576 AUMs¹⁰⁸ (1,345,608 AUMs more than the AML). Thus, if the BLM were to return all of the horses and burros currently under its management to the HMAs, the BLM would need to either (a) acquire an additional 1 billion pounds of dry weight forage per year to feed them,¹⁰⁹ or (b) remove 1.35 million AUMs of livestock and wildlife from the HMAs. At this time, even the drastic step of removing every last privately owned animal from the HMAs would not provide sufficient forage for the existing population of free-roaming horses and burros. In 2016, 1,176,827 AUMs of livestock use were permitted within grazing allotments that overlap with HMAs; however, due to poor range conditions, actual livestock stocking rates in 2016 were 582,160 AUMs.¹¹⁰ With 1,345,608 AUMs needed to accommodate the existing horse and burro population,¹¹¹ removal of all livestock would still leave a shortage of vegetation within the HMAs.¹¹² In 2016,

the total AML for horses and burros to 32,664 AUs. This brings the total AUMs available to 391,968 (AUs x 12).

107. 1,050,540 AUMs required by horses and burros currently grazing in the HMAs minus 391,968 AUMs allocated to horses and burros equals 658,572 AUMs more than the rangeland can support. In other words, 658,572 fewer AUMs could be devoted to livestock. In 2016, fewer than 658,572 AUMs were consumed by livestock within grazing allotments that overlap with HMAs. E-mail from Jason Lutterman, Public Affairs Specialist (On Range), Nat'l Wild Horse & Burro Program, Bureau of Land Mgmt., to C.J. Michaels (Sept. 13, 2017, 12:50 PM MST) (on file with author). Thus, even if all livestock were removed from the grazing allotments that overlap with HMAs, the remaining forage would still be insufficient to feed the current population of free-roaming horses and burros.

108. 44,952 horses are held in off-range corrals, pastures, and eco-sanctuaries, and 1,063 burros are held in off-range corrals. *Program Data*, BUREAU OF LAND MGMT., *supra* note 72 (select "Wild Horses and Burros under BLM Care") (numbers provided as of March 2017). With the horses' AUE at 1.25 and the burros' AUE at 1.0, the total number of AUs for animals held off-range is 57,253. After multiplying by 12 to account for twelve months of forage intake, the number of AUMs required for one year equals 687,036. After adding 687,036 to the 1,050,540 AUMs required for horses and burros currently on public rangelands, the total number of AUMs required for all BLM-managed horses and burros rises to 1,737,576 AUMs.

109. One billion pounds of dry weight forage is roughly equivalent to the 1,345,608 AUMs required to feed all of the horses and burros. I arrived at 1,345,608 by subtracting the current maximum AML (391,968 AUMs), *supra* note 106, from the total number of AUMs required for all free-roaming horses and burros (1,737,576 AUMs), *supra* note 108.

110. E-mail from Jason Lutterman, *supra* note 107. Livestock grazing on public lands (both inside and outside HMAs) has decreased by 53% over the past 60 years., *Fact Sheet on BLM's Management of Livestock Grazing*, BUREAU OF LAND MGMT., <http://www.blm.gov/wo/st/en/prog/grazing.html> (updated Oct. 21, 2016); *see also* e-mail from Brian Lombard, Public Affairs Specialist, Nat'l Wild Horse & Burro Program, Bureau of Land Mgmt., to C.J. Michaels (Sept. 14, 2017, 07:32 AM MST) (on file with author).

111. As explained above, this number includes the 1,050,540 AUMs required by horses and burros in HMAs and the 687,036 AUMs required by horses and burros held in off-range corrals, pastures, and ecosanctuaries, minus the 391,968 AUMs accounted for by the maximum AML.

112. With only 1,568,795 AUMs of forage available to horses, burros, and livestock, the BLM already has more horses and burros than it can sustain, even without livestock competing for forage. (Horses and burros total 1,737,576 AUMs, which is 168,781 more AUMs than are available.) Even if

the removal of all livestock grazing in allotments that overlap with HMAs would not even supply sufficient forage to accommodate the horses and burros currently grazing in the HMAs.¹¹³ The situation will only worsen so long as horses and burros are permitted to remain on the rangeland and reproduce at their current rate.¹¹⁴

The BLM needs a long-term solution that will balance the limited forage in the HMAs with the nutritional requirements of the horses and burros. Wild horse advocates propose three options: (1) removing some or all livestock from the HMAs,¹¹⁵ (2) using contraceptive vaccines to control reproduction,¹¹⁶ and (3) promoting predators of the horses and burros within HMAs.¹¹⁷ None of these options are sufficient. Regardless of how public lands grazing is perceived,¹¹⁸

the BLM removes *all* livestock from the HMAs, it still lacks forage for 11,252 horses or 14,065 burros (168,781 AUMs divided by 12 months equals 14,065 AUs).

113. Compare the 658,572 additional AUMs needed to feed the horses and burros currently found within the HMAs, *see supra* note 107, to the 582,160 AUMs consumed by livestock in grazing allotments that overlap with HMAs, *see supra* text accompanying note 110.

114. When I started my research in 2014, the HMAs supported an estimated 49,209 free-roaming horses and burros. BUREAU OF LAND MGMT., HERD AREA AND HERD MANAGEMENT AREA STATISTICS 1 (2014), https://www.blm.gov/sites/blm.gov/files/wildhorse_quickfacts_doc16.pdf. By 2015, the number had grown to 58,150. BUREAU OF LAND MGMT., HERD AREA AND HERD MANAGEMENT AREA STATISTICS 1 (2015), https://www.blm.gov/sites/blm.gov/files/wildhorse_quickfacts_doc15.pdf. With current numbers at 72,674, the on-range horse and burro population has grown at the projected 15–20% growth rate despite the overstocked HMAs. 2017 STATISTICS, *supra* note 74, at 1. Horses and burros taken to off-range locations are sorted by gender and do not reproduce; the 15% rate of population growth only applies to horses and burros on the rangelands. Bureau of Land Mgmt., *Off-Range Pasture FAQs*, NAT'L WILD HORSE & BURRO PROGRAM (Oct. 14, 2016), https://www.blm.gov/sites/blm.gov/files/wildhorse_OffRange%20PasturesFAQ_10.14.16.pdf [hereinafter Bureau of Land Mgmt., *Off-Range Pasture FAQs*].

115. Telephone Interview with Ginger Kathrens, Exec. Dir., Cloud Found. (Jan. 23, 2015); Telephone Interview with Suzanne Roy, Dir., Am. Wild Horse Preservation Campaign (Feb. 6, 2015); *see also Public Lands Grazing*, THE CLOUD FOUND., <http://www.thecloudfoundation.org/education/livestock-grazing> (last visited Nov. 16, 2016); *Fact Sheet: Livestock vs. Wild Horses on BLM*, AM. WILD HORSE PRESERVATION CAMPAIGN (2010), <http://wildhorsepreservation.org/livestock-vs-wild-horses-blm>; CHRISTINE GLASER, CHUCK ROMANIELLO & KARYN MOSKOWITZ, COSTS AND CONSEQUENCES: THE REAL PRICE OF LIVESTOCK GRAZING ON AMERICA'S PUBLIC LANDS (2015), http://www.biologicaldiversity.org/programs/public_land/grazing/pdfs/CostsAndConsequences_01-2015.pdf.

116. *See Fertility Control*, AM. WILD HORSE PRESERVATION CAMPAIGN, <http://www.wildhorsepreservation.org/fertility-control> (last visited Feb. 5, 2017).

117. *See Self-Stabilizing Herds*, AM. WILD HORSE PRESERVATION CAMPAIGN, <http://www.wildhorsepreservation.org/self-stabilizing-herds> [<https://web.archive.org/web/20160412162357/http://www.wildhorsepreservation.org/self-stabilizing-herds>] (last visited Feb. 5, 2017).

118. Most studies analyzing the costs of livestock grazing on federal lands weigh the federal government's low income from annual grazing fees against the high cost of administering the land management program. *See generally* GLASER, ROMANIELLO & MOSKOWITZ, *supra* note 115; U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-05-869, LIVESTOCK GRAZING: FEDERAL EXPENDITURES AND RECEIPTS VARY, DEPENDING ON THE AGENCY AND THE PURPOSE OF THE FEE CHARGED 7 (2005). Unfortunately, the BLM and USFS do not break out their expenditures sufficiently to do a thorough analysis of how costs are allocated. Telephone Interview with Susan Iott, Assistant Dir., Natural Res. & Env't, Gov't Accountability Office (Feb. 11, 2015) (explaining that a Government Accountability Office study on livestock grazing costs was necessarily generalized because the BLM's and USFS's expense reports are not coded in a way that allowed for more specific analysis). Many organizations

livestock removal is not a sufficient or sustainable solution to the overgrazing problem, as explained in the previous paragraph. Likewise, fertility control is not currently capable of controlling the immense free-roaming horse and burro population in the western United States. The BLM has treated thousands of mares with fertility control vaccines since 2004, but the treatments have been mostly unsuccessful and have not altered population growth.¹¹⁹ Finally, predation by mountain lions has proved only mildly successful in controlling small populations of free-roaming horses, never an effective control measure for vast herds.¹²⁰

In a feeble effort to protect the rangeland, the BLM and USFS continue to gather free-roaming horses and burros from the HMAs and deposit them in off-range corrals, pastures, and eco-sanctuaries, where the BLM pays for their care.¹²¹ Gathers do not reduce the *rate* of population growth, but they do reduce the number of animals *contributing* to population growth (although current gathers scarcely do that: between 2014 and 2016, the horse and burro population increased by more than 10,000 animals per year,¹²² but only 1,857 were removed in 2014, 3,819 in 2015, and 3,320 in 2016¹²³). Relying on gathers to protect the rangeland has two significant disadvantages: (1) the agencies must conduct gathers regularly, and (2) the gathered animals must be fed and housed. These disadvantages are primarily economic.

B. Economic Considerations

Existing management practices are expensive and unsustainable. Each stage of the current system—gathers,¹²⁴ adoptions, feeding and housing gathered

argue the government should take a harder look at federal lands grazing. *See, e.g.*, L. Allen Torell et al., *An Evaluation of the Federal Grazing Fee Formula*, 56 J. RANGE MGMT. 577 (2003); CAROL HARDY VINCENT, CONG. RESEARCH SERV., RS21232, *GRAZING FEES: OVERVIEW AND ISSUES* 6 (2012). Future studies should break out the BLM's and USFS's base-level expenditures without livestock grazing to determine the actual costs of federal lands grazing. Future studies should also weigh the local, state, and federal benefits derived from the grazing permit itself (e.g., increased tax revenues) against the benefits of increasing grazing fees and reducing the permit's comparative value.

119. *Fertility Control*, BUREAU OF LAND MGMT., https://www.blm.gov/wo/st/en/prog/whbprogram/science_and_research/fertility_control.html [https://web.archive.org/web/20160301191423/https://www.blm.gov/wo/st/en/prog/whbprogram/science_and_research/fertility_control.html] (updated Nov. 18, 2015); *Program Data*, BUREAU OF LAND MGMT., *supra* note 72 (select "Population Growth Suppression Treatments"); *but see* Jim Mimiaga, *Conditions Improve for Spring Creek Basin Mustangs*, DURANGO HERALD (Mar. 1, 2017), <https://durangoherald.com/articles/139869-conditions-improve-for-spring-creek-basin-mustangs>.

120. *See infra* Section V(A)(4) for a more in-depth discussion of mountain lion predation.

121. *See Rangeland and Herd Management*, BUREAU OF LAND MGMT., https://www.blm.gov/wo/st/en/prog/whbprogram/herd_management.html (updated July 30, 2015).

122. Removal numbers for 2017 were not available at the time this paper was completed. The 10,000-animal-per-year increase includes the population growth seen on public rangelands, *see supra* note 114, as well as the animals removed from the rangelands during that time period, *see infra* text accompanying note 123.

123. *Program Data*, BUREAU OF LAND MGMT., *supra* note 72 (select "Wild Horse and Burro Removals").

124. *See* Bastian et al., *supra* note 85, at 105 (estimating that the cost of capturing a horse from the rangelands was about \$165 in 1999).

animals¹²⁵—costs money, takes time, and has limited efficacy. As of March 2017, 46,015 horses and burros were held in privately-owned corrals, pastures, or eco-sanctuaries, at a cost of more than \$49 million per year.¹²⁶ If current practices continue, the Wild Horse and Burro budget is expected to cost United States tax payers approximately \$1.1 billion between 2013 and 2030, with annual expenses of \$67 million per year afterward.¹²⁷ Despite general condemnation,¹²⁸ the BLM continues to “stockpile[e]”¹²⁹ the animals out of sheer desperation—statutory restrictions, public pressure, and lack of demand for adoption have withdrawn all other options.¹³⁰

1. Statutory Restrictions

Statutory restrictions severely limit how the BLM can manage and dispose of free-roaming horses and burros.¹³¹ Although “[a]doption has been regarded as the most economical way to provide humane long-term care to [gathered horses and burros],”¹³² the adoption process is complex and extremely limited. Individuals cannot adopt more than four animals per year without special permission from the BLM,¹³³ and each individual must satisfy statutory criteria.¹³⁴ Each horse and burro offered for adoption must pass a health inspection and receive a unique brand to identify it individually as federal property.¹³⁵ The BLM retains title to adopted animals for one year¹³⁶ and may periodically inspect the animals for humane treatment.¹³⁷ After one year in compliance, the adopting party may apply for

125. GAO, *OPTIONS*, *supra* note 55, at 8, 43–45 (estimating the average cost of maintenance per horse per day at \$5.08 for short-term facilities and \$1.27 for off-range pastures).

126. *Program Data*, BUREAU OF LAND MGMT., *supra* note 72 (select “Wild Horses and Burros under BLM Care” for number of animals; select “Wild Horse and Burro Program Budget” for cost).

127. Garrott & Oli, *supra* note 92, at 848.

128. See *Self-Stabilizing Herds*, *supra* note 117; THE WILDLIFE SOCIETY, *FERAL HORSES AND BURROS: IMPACTS OF INVASIVE SPECIES 2*, <http://wildlife.org/wp-content/uploads/2014/05/Feral-Horse-and-Burro.pdf> (last visited Nov. 21, 2016); GAO, *OPTIONS*, *supra* note 55, at 9; NAT’L RESEARCH COUNCIL ET AL., *supra* note 4, at 265.

129. NAT’L RESEARCH COUNCIL ET AL., *supra* note 4, at 14.

130. See generally GAO, *OPTIONS*, *supra* note 55, at 40–62.

131. Under the WFRHBA, the BLM must remove excess animals from HMAs in a specific order. First, the BLM must destroy old, sick, and lame animals “in the most humane manner possible.” 16 U.S.C. § 1333(b)(2)(A) (2012); 43 C.F.R. § 4720.1(a) (2017). Second, the BLM must remove animals fit for adoption. Last, the BLM must remove enough of the remaining animals to meet the AML. 16 U.S.C. § 1333(b)(2)(B)–(C) (2012); 43 C.F.R. § 4720.1(b)–(c) (2017).

132. GAO, *OPTIONS*, *supra* note 55, at 41.

133. 16 U.S.C. § 1333(b)(2)(B) (2012) (“[N]ot more than four animals may be adopted per year by any individual unless the Secretary determines in writing that such individual is capable of humanely caring for more than four animals, including the transportation of such animals by the adopting party[.]”).

134. 43 C.F.R. § 4750.3-2 (2017) (requiring an individual who wishes to qualify for adoption to be a certain age, pass a background search, and hold pasture of a certain size with specific types of fence, shelter, feed, and water).

135. 43 C.F.R. § 4750.2-1 (2017).

136. 16 U.S.C. § 1333(c) (2012); 43 C.F.R. § 4750.5 (2017).

137. 43 C.F.R. § 4760.1 (2017).

title,¹³⁸ otherwise the animals retain their “wild free-roaming” status until they die.¹³⁹ Throughout the 1990s, adoption demand and the number of animals removed from HMAs were roughly equivalent.¹⁴⁰ Since 2000, however, the number of animals removed from HMAs has increased and adoption demand has declined.¹⁴¹ The decline can be attributed to several factors, most notably market saturation and the expenses of maintaining horses and burros in a downturned economy.¹⁴²

When the number of animals gathered exceeds adoption demand, the WFRHBA permits excess animals to be “destroyed in the most humane and cost efficient manner possible”;¹⁴³ however, the BLM’s director put a moratorium on that option in 1982.¹⁴⁴ In 1988, Congress barred the option altogether by prohibiting the BLM from using federal appropriations to destroy healthy horses and burros.¹⁴⁵ The 2004 Burns Amendment¹⁴⁶ allowed the BLM to sell any animal that was over 10 years of age or that had been offered for adoption at least three times without success.¹⁴⁷ After the Burns Amendment was passed, Congress appropriated funds to the BLM without the pre-2004 prohibition,¹⁴⁸ but the BLM did not lift the moratorium on destroying healthy animals.¹⁴⁹ In 2005, the BLM sold 1,468 horses and burros. Of those sold, 41 ultimately went to slaughterhouses.¹⁵⁰ Fearing public outcry, the BLM began requiring buyers to sign a “statement of intent” declaring the purchased animals were not intended for

138. 16 U.S.C. § 1333(c) (2012); 43 C.F.R. § 4750.5 (2017).

139. 16 U.S.C. § 1333(d) (2012).

140. GAO, OPTIONS, *supra* note 55, at 41. Ironically, the adoption program’s success in the 1990s may have been due, in part, to the BLM’s unstated “don’t ask, don’t tell” policy with regard to proposed adopters. See Martha Mendoza, *32,000 Adopted Horses, Burros Are Missing in Action at BLM*, L.A. TIMES (Feb. 2, 1997), http://articles.latimes.com/1997-02-02/local/me-24659_1_wild-horses (indicating that BLM employees purposely ignored how horses and burros were treated after adoption).

141. GAO, OPTIONS, *supra* note 55, at 41. Between 2001 and 2007, the agencies removed roughly 10,600 horses and burros from public rangelands annually. *Id.* Of those, only 6,300 were adopted per year. *Id.* By 2012, the average number of adoptions each year had dropped to around 2,500 horses and burros, which is where it remains. *Program Data*, BUREAU OF LAND MGMT., *supra* note 72 (select “Wild Horse and Burro Adoptions into Private Care”).

142. See GAO, OPTIONS, *supra* note 55, at 41, 41 n.39 (explaining that after the last United States horse processing facility closed in the fall of 2007, domestic horses, which previously would have been sold for slaughter, began to compete with feral horses and burros for adoptions and sales).

143. 16 U.S.C. § 1333(b)(2)(C) (2012); 43 C.F.R. § 4730.1 (2017).

144. NAT’L RESEARCH COUNCIL ET AL., *supra* note 4, at 195 n.1.

145. GAO, OPTIONS, *supra* note 55, at 9.

146. Long, *supra* note 67.

147. 16 U.S.C. § 1333(e) (2012); GAO, OPTIONS, *supra* note 55, at 11–12, 42.

148. GAO, OPTIONS, *supra* note 55, at 9.

149. *Id.*; Telephone Interview with Beatrice A. Wade, *supra* note 71.

150. GAO, OPTIONS, *supra* note 55, at 42–43, 54.

slaughter.¹⁵¹ The limitation and decreases in demand led to steadily fewer sales from 2006 to 2008.¹⁵²

2. *Horse Slaughter*

Recently, two federal cases¹⁵³ and an appropriation rider¹⁵⁴ effectively halted horse slaughter in the United States. The cases upheld state laws that prohibited horse slaughter for human consumption,¹⁵⁵ and the rider defunded United States Department of Agriculture (“USDA”) inspections for horse processing plants.¹⁵⁶ Only meat that has passed USDA inspections can be sold in interstate commerce or exported, so horse meat, though legal, has become unmarketable in the United States.¹⁵⁷ After the three existing horse slaughter plants in the United States closed, the market shifted to Canada and Mexico.¹⁵⁸ In the United States, sale prices for horses plummeted,¹⁵⁹ and the amount of reported abuse, neglect, and abandonment of horses spiked.¹⁶⁰ In particular, state and local governments, tribes, state veterinarians, and law enforcement reported more cases of abandoned and neglected horses.¹⁶¹ Although a number of factors contributed to these trends, the lack of a readily available horse slaughter market was the leading cause.¹⁶²

151. *Id.* at 43, 54–55. The BLM had already implemented protections against horse and burro slaughter in 1998 by negotiating agreements with the three United States facilities that processed equines. The BLM asked the facilities to notify them anytime a horse or burro came into the facility with a federal brand. *Id.* at 55.

152. *Id.* at 43.

153. *Empacadora de Carnes de Fresnillo v. Curry*, 476 F.3d 326 (5th Cir. 2007); *Cavel Int’l, Inc. v. Madigan*, 500 F.3d 551 (7th Cir. 2007).

154. Act of Nov. 10, 2005, Pub. L. No. 109-97, § 794, 119 Stat. 2120, 2164 (prohibiting federal funds from being “used to pay the salaries or expenses of personnel to inspect horses” under the Federal Meat Inspection Act, 21 U.S.C. § 603 (2012), or Federal Agriculture Improvement and Reform Act, 7 U.S.C. § 1901 (2012)). The ban expired in 2011, but was reinstated in 2014. Consolidated Appropriations Act, 2014, Pub. L. No. 113-76, § 745, 128 Stat. 5, 41.

155. *Empacadora de Carnes de Fresnillo*, 476 F.3d 326; *Cavel Int’l, Inc.*, 500 F.3d 551; Laura Jane Durfee, *Anti-Horse Slaughter Legislation: Bad for Horses, Bad for Society*, 84 IND. L.J. 353, 354 (2009).

156. For more information about the events that ended horse processing in the United States, see *Front Range Equine Rescue v. Vilsack*, No. 1:13-CV-00639-MCA-RHS, 2013 WL 11326083, at **1–4 (D.N.M. 2013), *vacated as moot*, 782 F.3d 565 (10th Cir. 2015).

157. USDA, *Equine Slaughter*, 15 FSIS CONSTITUENT UPDATE, June 28, 2013, at 1, 1, http://www.fsis.usda.gov/horses/Const_Update_062813.pdf; USDA, *Inspection for Food Safety: The Basics*, USDA FOOD SAFETY & INSPECTION SERV., <https://www.fsis.usda.gov/wps/portal/fsis/topics/food-safety-education/get-answers/food-safety-fact-sheets/production-and-inspection/inspection-for-food-safety-the-basics/inspection-for-food-safety-basics> (last modified Aug. 9, 2013).

158. U.S. GOV’T ACCOUNTABILITY OFFICE, NO. GAO-11-228, HORSE WELFARE: ACTION NEEDED TO ADDRESS UNINTENDED CONSEQUENCES FROM CESSATION OF DOMESTIC SLAUGHTER 13 (2011) [hereinafter GAO, HORSE WELFARE].

159. *Id.* at 13–17. The economy also took a downward turn in 2007, compounding the impact on the already depressed market. *Id.* at 14.

160. *Id.* at 18–27.

161. *Id.* at 19–21.

162. *Id.* at 13–27.

Horse slaughter is a contentious issue. Opponents claim slaughter is inhumane¹⁶³ and that the processing plants create environmental hazards.¹⁶⁴ They contend that horse meat is not fit for human consumption because horses are treated with drugs not approved for use in meat animals.¹⁶⁵ Opponents maintain that domestic horse breeders are at fault for saturating the horse market and that the market will stabilize if horse slaughter facilities are not available to absorb the excess animals.¹⁶⁶ That has not been the case in the United States.¹⁶⁷

Proponents of horse slaughter argue that processing horses in local, USDA-inspected facilities is the most humane way to dispose of unwanted equines.¹⁶⁸ They contend that the USDA Food Safety Inspection Service's regulations would prevent contaminated meat from entering the market for human consumption and ensure that all meat is safe.¹⁶⁹ Proponents of slaughter insist that the recent spike in horse and burro neglect, abuse, and abandonment was caused by the market collapse following the closure of United States horse slaughter facilities.¹⁷⁰ They contend that shipping horses to Canada or Mexico to be processed is less humane than slaughtering them in regulated facilities in the United States.¹⁷¹ While the United States struggles to give away its unwanted equines, Mexico and Canada profit from the horse meat industries in Mexico,

163. Letter from Bruce Wagman, Esq., Schiff Hardin LLP, to USDA Food Safety & Inspection Serv., Petition to Create Rules and Regulations Governing the Sale, Transport and Processing of Horses and Horse Meat Intended for Human Consumption 23–27 (Apr. 9, 2012), http://www.fsis.usda.gov/horses/Petition_SchiffHardin_040612.pdf.

164. *Id.* at 27–29.

165. *Id.* at 61–78; *The Facts about Horse Slaughter*, HUMANE SOC'Y OF THE U.S., http://www.humanesociety.org/issues/horse_slaughter/facts/facts_horse_slaughter.html (last visited Feb. 5, 2017) (follow “Is horsemeat safe for human consumption?” hyperlink); Lydia Zuraw, *Chinese Chicken, Horse Slaughter Amendments Added to House Ag Appropriations Bill*, FOOD SAFETY NEWS (May 30, 2014), http://www.foodsafetynews.com/2014/05/chinese-chicken-horse-slaughter-amendments-added-to-house-ag-appropriations-bill/#.VSG7ZPnF_X0 (quoting U.S. Rep. Jim Moran (D. Virginia)) (“Horses aren’t raised for human consumption. As a result, they pose unique health risks . . . They’re often given chemicals—steroids and the like—that can be toxic to humans.” (alteration in original)).

166. *Responsible Horse Breeding*, HUMANE SOC'Y OF THE U.S., http://www.humanesociety.org/animals/horses/tips/responsible_horse_breeding.html (last visited Feb. 5, 2017).

167. See GAO, HORSE WELFARE, *supra* note 158, at 10.

168. Jane Smiley, *Why Horse Slaughter is Necessary*, N.Y. TIMES, May 1, 2009, http://therail.blogs.nytimes.com/2009/05/01/why-horse-slaughter-is-necessary/?_r=0.

169. See generally Letter from Charles E. Williams (for Rachel A. Edelstein), Assistant Adm’r, Office of Policy & Program Dev., USDA Food Safety & Inspection Serv., to Bruce A. Wagman, Esq., Schiff Hardin LLP, *Response to Petition* (June 28, 2013), <https://www.fsis.usda.gov/horses/PetitionFSISResponseShiffHardin06282013.pdf>.

170. GAO, HORSE WELFARE, *supra* note 158, at 18–25; Smiley, *supra* note 168; *Unwanted Horses and Horse Slaughter FAQ: Consequences of a Federal Ban on Horse Slaughter*, AM. VETERINARY MED. ASS’N., <https://www.avma.org/KB/Resources/FAQs/Pages/Frequently-asked-questions-about-unwanted-horses-and-horse-slaughter.aspx> (updated Feb. 1, 2012) [hereinafter “*Unwanted Horses*”] (follow “Consequences of a federal ban on horse slaughter” hyperlink); NAT’L ASS’N OF COUNTIES, THE AMERICAN COUNTY PLATFORM AND RESOLUTIONS 2014–2015: AGRICULTURE AND RURAL AFFAIRS 16 (2014), <http://www.naco.org/sites/default/files/AG2014-2015Platform.pdf>.

171. Smiley, *supra* note 168; *Unwanted Horses*, *supra* note 170.

Europe, and Asia.¹⁷² Ironically, Canada also exports horse meat to the United States, where zookeepers feed it to their carnivores.¹⁷³

Horse slaughter is controversial, but the effects of the slaughter ban in a depressed economy are apparent.¹⁷⁴ Domestic animals have saturated the limited horse market, leaving no room for BLM-managed animals and increasing the number of feral animals that are abandoned on public lands.¹⁷⁵

3. *Off-Range Corrals and Pastures*

Unwilling to destroy healthy animals or sell them to slaughter in Canada or Mexico, the BLM can either return the unadopted horses and burros to the HMAs or place them in corrals or off-range pastures. Both options violate the WFRHBA, although Congress condoned the latter in the same bill that removed funding for inspections of horse slaughter operations.¹⁷⁶ Horses and burros that are removed from public lands are first placed in corrals (referred to as “Off-Range Corrals”) where they receive medical attention, vaccinations, and identification, and are sorted for adoption, sale, or transfer to a pasture or eco-sanctuary (“Off-Range Pastures”).¹⁷⁷ Off-Range Pastures are privately owned properties, primarily in the Midwest, with abundant space and forage.¹⁷⁸ Before transfer to Off-Range Pastures, the BLM sorts the horses and burros by gender and gelds the males; each pasture contains only mares or geldings, never both.¹⁷⁹ The property owners—government contractors—follow strict guidelines set out by the BLM.¹⁸⁰ These owners maintain the animals for the duration of their lives¹⁸¹ and are compensated by the BLM on a per head basis.¹⁸²

Between 2001 and 2008, the number of Off-Range Corrals nearly doubled and the average cost of housing one animal for a day rose from \$3.00 to \$5.08.¹⁸³ Similarly, the number of Off-Range Pastures has grown from a single facility in 1988¹⁸⁴ to more than 25 today,¹⁸⁵ with the BLM frequently soliciting bids for

172. Margaret Evans, *The Edible Horse: Would a Market for Horsemeat Reduce a Welfare Crisis?*, CANADIAN HORSE J. (2015), reprinted at HORSE JOURNALS, <https://www.horsejournals.com/popular/horse-industry/edible-horse>.

173. *Id.*

174. For more legal arguments related to horse slaughter, see *Front Range Equine Rescue*, No. 1:13-CV-00639-MCA-RHS, 2013 WL 11326083 (D.N.M. 2013), *vacated as moot*, 782 F.3d 565 (10th Cir. 2015).

175. GAO, HORSE WELFARE, *supra* note 158, at 24.

176. Consolidated Appropriations Act, 2014, Pub. L. No. 113-76, § 111, 128 Stat. 5, 312.

177. GAO, OPTIONS, *supra* note 55, at 19; Bureau of Land Mgmt., *Off-Range Pasture FAQs*, *supra* note 114, at 4.

178. GAO, OPTIONS, *supra* note 55, at 21; Bureau of Land Mgmt., *Off-Range Pasture FAQs*, *supra* note 114, at 2–3.

179. Bureau of Land Mgmt., *Off-Range Pasture FAQs*, *supra* note 114, at 4.

180. *Id.* at 2–3.

181. *Id.* at 5.

182. *Id.* at 3.

183. GAO, OPTIONS, *supra* note 55, at 8.

184. *Id.*

185. Bureau of Land Mgmt., *Off-Range Pasture FAQs*, *supra* note 114, at 5.

more facilities.¹⁸⁶ Today, the number of animals held off-range is nearly as high as the number of animals on the range, and the total number (118,689) vastly exceeds the BLM's maximum AML of 26,715.¹⁸⁷ Between 2000 and 2015, the Wild Horse and Burro Program budget rose from \$19.8 million to \$77.2 million.¹⁸⁸ In 2016, the BLM spent 63.1% of its budget on maintaining captive horses, 3.9% on gathers and removals from public lands, 9.4% on adoption, and 23.5% on monitoring and other activities.¹⁸⁹ The division of funds represents the fundamental problem with existing management: it is a backwards approach that reacts rather than prevents. The system is unsustainable.¹⁹⁰

C. Public Opinion

One of Aesop's most well-known fables tells the story of a man and his son who lead their donkey to town to market. Along the way, the man and his son encounter different people, each with their own ideas of how the two should proceed. One insists that the donkey should be ridden, but when the man sets his son on the donkey another comes along and criticizes the boy for making his father walk. When the father and son exchange places, a third person chastises the father for making his son trudge along while he rides. Befuddled, the father brings his son on the donkey with him, but that leads to criticism for overburdening the donkey. At last, thinking of no other solution, the father and son cut down a pole, tie up the donkey's feet, and carry the donkey to town on their shoulders. As they cross a bridge amidst the universal jeers of the crowd, the donkey struggles and the boy drops the pole, causing the rope-bound donkey to fall in the river and drown.

Like the man and his son in Aesop's fable, the BLM and USFS have responded to criticism of the wild horse and burro program with knee jerk reactions that solve nothing and exacerbate the problem. Current management practices are unpopular with every faction of the horse and burro debate, but the agencies cling to them, reasoning that at least public opinion is consistent. The agencies have allowed public opinion to drive their erratic management decisions until no course of action is perceived as the right one.¹⁹¹ As a result of their inability to act on their own logic, the agencies have undermined their own budget and agenda, caused

186. *See id.*

187. *Program Data*, BUREAU OF LAND MGMT., *supra* note 72 (numbers are derived from 2017 data). As of March 2017, 46,015 horses and burros were held in off-range corrals, pastures, and eco-sanctuaries, while 72,674 horses and burros were in HMAs. *Id.*

188. Garrott & Oli, *supra* note 92, at 847; *Program Data*, BUREAU OF LAND MGMT., *supra* note 72 (select "Wild Horse and Burro Program Budget") (noting that, in 2015, the BLM spent \$75.174 of its \$77.245 million budget).

189. Bureau of Land Mgmt., *Program Data*, *supra* note 72 (select "Wild Horse and Burro Program Budget").

190. The Wild Horse and Burro program currently costs more than \$75 million per year. *Program Data*, BUREAU OF LAND MGMT., *supra* note 72 (select "Wild Horse and Burro Program Budget") (estimating expenditures for fiscal year 2016 at \$78.298 million).

191. *See generally* NAT'L RESEARCH COUNCIL ET AL., *supra* note 4, at 239–60 ("In 1982, the National Research Council noted that public opinion was the 'major motivation behind the wild horse and burro protection program and a primary criterion of management success,' suggesting that control strategies must be responsive to public attitudes and preferences and could not be based only on biological or cost considerations.").

significant damage to the rangelands, and sacrificed the health and welfare of the horses and burros.

Science cannot be founded on public opinion. On both sides of the issue, horse and burro management is passionately debated. Horses hold a place in the hearts of many Americans that is almost sacred, a position so consecrated that the opinions springing forth from that place often deny reason. The emotional desire to see feral horses and burros as native species that live in perfect harmony with the environment lures believers into a steady state of denial about the reality of their condition and the condition of their habitat.¹⁹² In 2016, county sheriffs impounded 810 horses owned and managed by the International Society for the Protection of Mustangs and Burros after an employee reported that horses were dying of neglect and starvation.¹⁹³ The organization's president believed horses and burros would "keep numbers in check naturally" if left alone and sought "to prove that wild horses do not multiply as quickly as government land managers claim."¹⁹⁴ Her efforts earned the Society more than four million dollars in donations and grants, but did not keep the sanctuary from incurring more than one million dollars in debt for hay and other expenses after the forage ran out.¹⁹⁵

Misconceptions about the conditions created by overpopulated horses and burros are heightened by the compelling villain-versus-victim storylines promoted by wild horse advocates, which paint free-roaming horses and burros as scapegoats for livestock overgrazing and describe a stand-off between ranchers and the horses and burros.¹⁹⁶ The stories are untrue. Ranchers rely on the same private lands and public land leases for livestock grazing year after year. Overgrazing and mismanagement have long-term economic impacts on ranchers, incentivizing livestock owners to manage their grazing lands carefully to ensure their operations

192. See Ryan Bell, *Is the West's Wild Horse Crisis So Bad Only Euthanasia Can Fix It?*, NAT'L GEOGRAPHIC (Sept. 12, 2016), <https://www.nationalgeographic.com/adventure/features/environment/wild-horses-euthanasia/> (interview with filmmaker and Wild Horse and Burro National Advisory Board member Bill Masters) ("[W]ild horses are being loved to death because people focus on their beauty, but not the health of the rangeland they depend on.").

193. Seth Tupper, *Employee: 30 Wild Horses Died of Starvation on South Dakota Ranch*, RAPID CITY J. (Oct. 1, 2016), http://rapidcityjournal.com/news/local/employee-wild-horses-died-of-starvation-on-south-dakota-ranch/article_ae1b4114-5554-51c2-bfdf-a2887b78dc87.html; Seth Tupper, *From Salvation to Starvation: How a Wild Horse Crusader's Dream Went Bad*, RAPID CITY J. (Nov. 6, 2016), http://rapidcityjournal.com/news/local/from-salvation-to-starvation-how-a-wild-horse-crusader-s/article_414fafe5-3d5b-537a-9de2-fa9333e47fda.html; *State Judge Orders Horses at Troubled Sanctuary Impounded*, CAP. J. (Oct. 13, 2016), http://www.capjournal.com/news/state-judge-orders-horses-at-troubled-sanctuary-impounded/article_b1b52cf0-9102-11e6-a473-e35686d38472.html.

194. Seth Tupper, *Horse Breeding and Spending Gallop Out of Control at West River Sanctuary*, RAPID CITY J. (Nov. 7, 2016), http://rapidcityjournal.com/news/local/horse-breeding-and-spending-gallop-out-of-control-at-west/article_f9bd0044-79a0-56fe-bb58-3d0d0c98c841.html.

195. *Id.*

196. See, e.g., Amber Barnes, *Cattle Ranchers vs Wild Horses – 'We Have to Get Those Horses Off the Range'*, HABITAT FOR HORSES, (April 8, 2014), <https://www.habitatforhorses.org/cattle-ranchers-vs-wild-horses-we-have-to-get-those-horses-off-the-range/> (referring to ranchers as "cattle baron thugs"); *Welfare Ranching*, WILD HORSE EDUCATION, <https://wildhorseeducation.org/welfare-ranching/> (last visited July 9, 2017); *Myths & Facts about the BLM Wild Horse and Burro Program*, AM. WILD HORSE CAMPAIGN, <https://americanwildhorsecampaign.org/myth-vs-fact> (last visited July 9, 2017).

will remain profitable and sustainable.¹⁹⁷ Increasingly, livestock owners are actively engaging in rangeland monitoring: tracking trends in range health, monitoring utilization, and surveying soil and vegetation characteristics to ensure that they are applying the best available business practices.¹⁹⁸ Livestock grazing is also monitored by employees of the BLM and USFS, who work with ranchers to set AUM limits for each grazing allotment and define the period of use for each year. When drought and other conditions limit forage, ranchers must cooperate with agency employees to adjust grazing permits accordingly.¹⁹⁹ Noncompliance with grazing permits has legal consequences.²⁰⁰ Thus, unlike horse and burro populations, which grow exponentially, livestock numbers are carefully monitored and controlled. Nonetheless, the stories persist and continue to fuel the fight for unmanaged horse and burro populations. The misinformation perseveres at the cost of the rangelands and their inhabitants, including the horses and burros themselves.

V. POTENTIAL SOLUTIONS

The three alternatives proposed below respond to a need for innovative thinking by looking beyond the confines of the WFRHBA.²⁰¹ They are designed to achieve three primary objectives: ecosystem health, genetic viability, and economic sustainability. To meet those goals, the alternatives recommend shifting from species-level to ecosystem-level management, reducing the total number of horses and burros in favor of larger individual populations, and analyzing the types of programs the agencies can support indefinitely with limited natural and economic resources. Each alternative has a comprehensive description, followed by the legal reforms necessary to implement it, then the alternative's pros and cons. The recommended statutory amendments for each alternative appear in the appendices at the end of this paper. Although analyzed separately, the alternatives should be considered together, as components of a comprehensive solution. In choosing how to implement that solution, the agencies should remember Æsop's advice and pursue the option that is scientifically, economically, and environmentally defensible, rather than swaying with the social and political atmosphere.

197. This is not to say that livestock overgrazing on public lands has never been an issue. In the early years of western settlement, livestock owners routinely overgrazed western lands to discourage competing livestock owners from entering their domain. See N.F. Sayre & M. Fernandez-Gimenez, *The Genesis of Range Science, with Implications for Current Development Policies*, 1977, PROCEEDINGS OF THE VIIITH INTERNATIONAL RANGELANDS CONGRESS (2003). With no title or lease to secure them of their property, their surest way to drive off competition was to use all the available resources before anyone else could reach them. *Id.*

198. See LISA SCHMIDT, SUSTAINABLE AGRIC. NETWORK, RANGELAND MANAGEMENT STRATEGIES 11–13 (2007), <https://www.sare.org/Learning-Center/Bulletins/Rangeland-Management-Strategies>; MICHAEL A. SMITH, UNIV. OF WYO., MP-111.02, MONITORING: A TOOL FOR EFFECTIVE RANGELAND MANAGEMENT (2005), http://www.wyomingextension.org/agpubs/pubs/MP111_02.pdf.

199. See 43 C.F.R. § 4110.3-3 (2017).

200. See 43 C.F.R. § 4170.1-1 (2017).

201. See, e.g., NAT'L RESEARCH COUNCIL ET AL., *supra* note 4, at 269–270 (advising the BLM to comply with the WFRHBA by using existing management practices more aggressively).

A. Alternative 1: Wild Horse and Burro Sanctuary

1. Description

Alternative 1 is inspired by the wild horse advocates' ideal outcome—federal lands managed primarily, if not exclusively, for horses and burros²⁰²—but with necessary restrictions. This alternative allows for a moderately-sized, self-stabilizing horse and burro population²⁰³ with important safeguards for the rangeland and native species.²⁰⁴ Under Alternative 1, the Secretary would designate federal lands to serve as sanctuaries for a free-roaming horse and burro population.²⁰⁵ Mountain lions, the only known predators of free-roaming horses and burros in the United States,²⁰⁶ would be crucial components of the sanctuaries. The governing agency would closely monitor horse and burro numbers, encourage mountain lion predation, and administer fertility control as necessary to keep the horse and burro numbers stable.

Alternative 1's primary requirement is suitable land: land that is contiguous and federally-owned (intermixing private, state, and tribal ownership with federal lands overcomplicates the management scheme).²⁰⁷ The land should be entirely

202. Wild horse advocates envision a vast territory populated by free-roaming horses and burros and native wildlife, devoid of livestock and other commercial uses. See *Our Vision: A Two-Part Solution, THE WILD HORSE CONSPIRACY*, <http://thewildhorseconspiracy.org/about-us/21-2/> (last visited Nov. 26, 2016); *Self-Stabilizing Herds*, *supra* note 117.

203. Some advocates believe horse and burro populations will self-stabilize as feed becomes limited. Telephone Interview with Ginger Kathrens, *supra* note 115; Interview by KUED7 with Ginger Kathrens 9–10 (n.d.), http://www.kued.org/sites/default/files/interview_transcript_ginger_kathrens.pdf. After the National Research Council released its report *Using Science to Improve the BLM Wild Horse and Burro Management Program*, wild horse advocates claimed the report showed animals should be left where “nature [could] cull any excess herds.” John M. Glionna, *Wild Horse Advocates Say 1,300 in BLM Roundup Is Still Too Many*, L.A. TIMES, July 23, 2013, <http://articles.latimes.com/2013/jul/23/nation/lan-na-nn-blm-wild-horses-20130723>; *Nat'l Coalition Calls on Interior Sec to Halt Wild Horse Roundups in Wake of Independent Report*, AM. WILD HORSE PRESERVATION CAMPAIGN (June 5, 2013), <http://wildhorsepreservation.org/media/natl-coalition-calls-interior-sec-halt-wild-horse-roundups-wake-independent-report> (“The report delivers a strong case for an immediate halt to the roundup and removal of wild horses from the range . . .”). The National Research Council quickly clarified that the report did not state the BLM should stop gathers and allow horses and burros to self-regulate; rather the BLM should implement “more intensive management of the horses and burros.” *BANR Newsletter Special Edition*, BD. ON AGRIC. & NATURAL RES. (2013), <http://dels.nas.edu/resources/static-assets/banr/miscellaneous/Special%20Edition2013.pdf> (emphasis added).

204. Most wild horse advocates acknowledge that, under present conditions, some management is necessary to keep horse and burro populations from degrading the rangeland. See, e.g., *American Wild Horse Preservation Campaign Position on Fertility Control*, AM. WILD HORSE PRESERVATION CAMPAIGN, <http://wildhorsepreservation.org/media/awhpc-position-statement-fertility-control> (last visited Nov. 26, 2016); Telephone Interview with Suzanne Roy, *supra* note 115.

205. The Pryor Mountain Wild Horse Range in Montana and Wyoming was created in a similar manner before the WFRHBA was passed. Secretary of the Interior Stewart L. Udall created the range by order in 1968. BUREAU OF LAND MGMT., PRYOR MOUNTAIN WILD HORSE RANGE/TERRITORY, ENVTL. ASSESSMENT MT-010-08-24 & HERD MGMT. AREA PLAN 3 (2009).

206. See NAT'L RESEARCH COUNCIL ET AL., *supra* note 4, at 72–74.

207. See, e.g., *Am. Wild Horse Preservation Campaign v. Jewell*, 847 F.3d 1174, 1179–82 (10th Cir. 2016).

within mountain lion habitat²⁰⁸ and removed from populations of domesticated animals.²⁰⁹ In addition, the land must be vast: large enough to support a genetically viable population of horses or burros.²¹⁰ This paper proposes three sanctuaries: one for 500 burros, one for 500 horses of Spanish descent,²¹¹ and one for 1,000 horses that represent the remaining free-roaming horse population.²¹²

Under Alternative 1, every horse and burro not placed within a sanctuary would be gathered from the HMAs. The proposed sanctuaries would provide habitat for 2,000 animals, leaving roughly 116,000 horses and burros in HMAs and off-range corrals and pastures.²¹³ If slaughter is not an option and adopters and

208. To be effective, mountain lions must have constant access to foals. See NAT'L RESEARCH COUNCIL ET AL., *supra* note 4, at 73–74.

209. Unless lions have learned to prey on horse and burro foals, lions will likely select easier prey when given the option. In his studies of the Montgomery Pass herd on the Nevada–California border, John W. Turner, Jr. observed that mountain lions killed a disproportionate number of foals with a sorrel coat color, which led Turner to hypothesize that sorrel “more closely approaches the color of mule deer occupying [the area] than any other foal coat color.” John W. Turner, Jr. & Michael L. Morrison, *Influence of Predation by Mountain Lions on Numbers and Survivorship of a Feral Horse Population*, 46 SOUTHWESTERN NATURALIST 183, 187, 189 (2001). Turner explained that mule deer were the native prey in the region and that hunting horse foals was likely a learned skill passed down through generations of lions. Telephone Interview with John W. Turner, Jr., Professor, U. of Toledo (Apr. 14, 2015). Turner also noted that mountain lions rarely prey on foals older than four months of age. John W. Turner, Jr., Michael L. Wolfe & Jay F. Kirkpatrick, *Seasonal Mountain Lion Predation on a Feral Horse Population*, 70 CANADIAN J. ZOOLOGY 929, 933 (1992), and that given a choice of easier prey, lions would likely choose the easier prey even over young foals. Telephone Interview with John W. Turner, Jr., *supra*.

210. A genetically viable population requires a minimum of 120 breeding animals. Brett French, *Noted Geneticist Gives His Two Bits on Significance of Pryor Mountain Mustangs*, BILLINGS GAZETTE (Sept. 9, 2009), http://billingsgazette.com/news/state-and-regional/noted-geneticist-gives-his-two-bits-on-significance-of-pryor/article_e5644e8a-9da0-11de-9b07-001cc4c03286.html.

211. The Pryor Mountain Wild Horse Range contains horses with strong Spanish characteristics, due in part to the BLM's efforts to remove horses with other phenotypic characteristics. See E. Gus COTHAN, GENETIC ANALYSIS OF THE PRYOR MOUNTAINS WILD HORSE RANGE, MT 4 (2013), http://www.blm.gov/style/medialib/blm/mt/field_offices/billings/wild_horses.Par.90380.File.dat/Pryor_MNTS%202012%20Genetic%20Report.pdf; KIM REID, FINAL PRYOR MOUNTAIN WILD HORSE TERRITORY REPORT 3–5 (2017), https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd532990.pdf. Spanish bloodlines have eroded in most parts of the world, so breeders are focusing on domestic and free-roaming horses in the Americas to preserve the genetics. D. Philip Sponenberg, *North American Colonial Spanish Horse Update*, SPANISH MUSTANGS (July 2011), <http://www.centerforamericasfirshorse.org/north-american-colonial-spanish-horse.html>.

212. Further research is needed to determine how many horses and burros the agencies can successfully manage with fertility control if mountain lion predation proves ineffective at controlling population numbers. In the West, the BLM has difficulty controlling even small populations, such as the Pryor Mountain Wild Horse Range, which has an AML of 90 to 120 horses. Throughout the fifteen years in which the BLM has treated Pryor Mountain horses with Porcine Zona Pellucida (PZP), the population has fluctuated between 20 and 105 animals above AML. Decreases in population size were due to gathers, not fertility control (in 2009, 70 horses were gathered; in 2012, another 40 were gathered). BUREAU OF LAND MGMT., DOI-BLM-MT-0010-2015-0006-EA, PRYOR MOUNTAIN WILD HORSE RANGE FERTILITY CONTROL ENVIRONMENTAL ASSESSMENT at 2, 33 App. II (2015), http://www.blm.gov/style/medialib/blm/mt/field_offices/billings/horseeas/2015.Par.28280.File.dat/PMWHR%20fertility%20EA%202015.pdf [hereinafter BUREAU OF LAND MGMT., PRYOR MOUNTAIN EA].

213. 116,000 includes the 46,015 animals currently held off-range and the more than 72,674 still roaming the HMAs, *Program Data*, Bureau of Land Mgmt., *supra* note 72, minus the 2,000 animals

buyers are not available, the governing agency must prevent the remaining herds from reproducing and allow them to die out naturally. To accomplish this, the agencies must gather every horse and burro from every HMA.²¹⁴ After the animals are gathered, the agencies must sort them by gender and geld the males. The geldings must be placed in HMAs—at AML—to live out their lives.²¹⁵ The mares and jennies should be placed in off-range pastures.²¹⁶ The wild horse and burro budget will inflate initially but dwindle over the next thirty years as the mares and jennies are sold and adopted out or die of natural causes.

2. Necessary Legal Reform

Although Alternative 1 is permitted under 16 U.S.C. § 1333(a),²¹⁷ Congress must amend the Act to make the changes mandatory. First, Congress should amend §§ 1331 through 1333 to require the Secretary to designate specific federal lands as sanctuaries for horses and burros.²¹⁸ Second, Congress should revise § 1333 to shift the focus from species-level management to a balanced ecosystem approach that prioritizes rangeland and riparian health, water quality and quantity, mountain lion predation, and conservation of native species. Finally, Congress should strive for a program with a balanced budget.

Under the amended § 1333, the agency governing horse and burro management must designate sites within each sanctuary for annual rangeland monitoring,²¹⁹ regularly conduct monitoring at those sites, and immediately reduce

transferred to the preserves (118,689-2,000=116,689). The number is likely much higher now since values used in this paper are from a population estimate made in March of 2017.

214. The animals currently held off-range are divided by gender and the males are gelded, so reproduction should not be an issue off the public lands. Bureau of Land Mgmt., *Off-Range Pasture FAQs*, *supra* note 114, at 4.

215. Assuming half of the 116,000 animals that were not placed in a preserve were male, *see supra* note 213, returning those 58,000 animals to the rangeland would still cause the HMAs to be overstocked by 31,285 animals (58,000 minus a high AML of 26,715). *See Program Data*, BUREAU OF LAND MGMT., *supra* note 72. The agencies would have two options to accommodate the excess animals, either: (1) return only as many animals as the HMAs currently allow under their maximum AML and gradually restock the HMAs from holding facilities as the older animals die off, or (2) return all male animals to the rangelands and temporarily reduce livestock grazing in the HMAs to prevent overstocking. Under either option, the horse and burro population would gradually diminish over the next thirty years.

216. In private care, landowners can closely monitor the mares and jennies to ensure none are exposed to stallions or jacks. Alternately, the agencies can temporarily remove all livestock from the HMAs and place mares and jennies in HMAs apart from the males. However, the BLM or USFS must monitor the females closely to ensure no privately-owned or free-roaming stallions or jacks can access the females and no colts born within the HMAs are allowed to reach breeding age before removal.

217. “The Secretary is authorized and directed to protect and manage wild free-roaming horses and burros as components of the public lands, and he may designate and maintain specific ranges on public lands as sanctuaries for their protection and preservation, where the Secretary after consultation with the wildlife agency of the State wherein any such range is proposed and with the Advisory Board established in § 1337 of this title deems such action desirable.” 16 U.S.C. § 1333 (2012) (emphasis added).

218. Appendix 1 contains the proposed amendments for §§ 1331 through 1333.

219. Historically, the BLM set up “key management areas” (KMAs) to monitor rangeland condition within a pasture. *See* BUREAU OF LAND MGMT., TECH. REF. NO. 4400-7, RANGELAND MONITORING: ANALYSIS, INTERPRETATION, AND EVALUATION (1985), <http://digitalcommons.usu.edu/cgi/viewcontent>.

horse and burro numbers when monitoring reveals the population is approaching the carrying capacity. Horse and burro numbers should also be adjusted annually to account for local conditions, such as drought. The amendments must allow rangeland improvements, such as exclosures and water developments, to protect sensitive species and areas. The amendments must also define minimum, target, and maximum AMLs. The managing agency should maintain the horse and burro population within each sanctuary above the minimum AML and below the maximum AML, with an eye toward the target AML, which must be adjusted annually based on local conditions. Finally, the managing agency must use the best available science, including temporary and permanent contraceptives, to proactively control populations when mountain lions are unable to kill enough foals each year to limit population growth. The amendments must also require the governing agency to gather excess animals down to the minimum AML when the target AML is exceeded.

The sanctuaries proposed in this alternative are designed primarily for horses and burros, so Congress should remove the references to “multiple use” in the WFRHBA and prohibit livestock grazing and other commercial activities that will compete with horses and burros within the sanctuaries. Congress should amend § 1338a to restrict the use of helicopters, airplanes, and motor vehicles, but retain the option for emergency gathers when other methods of restricting population growth are unsuccessful. Congress should also revise § 1339 to allow the Secretary to locate sanctuaries outside the traditional bounds of horse and burro habitat. Finally, Congress should require the agencies to dispose of all horses and burros not located within a sanctuary as outlined above.

3. *Benefits*

Alternative 1 provides for a healthy ecosystem with a genetically viable, stable population of horses and burros with little long-term expense for taxpayers. By restricting the free-roaming horse and burro population to three sanctuaries, the governing agency can more effectively control population growth and manage natural resources. In addition, the agency can capitalize on the ecotourism market to earn program funding. Although the total number of free-roaming horses and burros in the Western United States would substantially decrease, each sanctuary would hold a larger group of horses or burros than any one HMA, thereby improving genetic viability and herd dynamics.²²⁰

With all free-roaming horses and burros grouped in three sanctuaries, the governing agency could centralize its horse and burro resources and more effectively manage resources, control population growth, and maintain a low budget. Rather than dividing duties among numerous offices, employees, and positions, the agency could hire personnel who were entirely devoted to their respective duties at each sanctuary. These personnel would carefully monitor

cgi?article=1279&context=govdocs. Some BLM offices continue to monitor range condition at their established KMAs; other offices have neglected the practice due to lack of funding.

220. Currently, Clan Alpine HA in Nevada has the highest AML for horses at 979 animals. 2017 STATISTICS, *supra* note 74, at 9. Black Mountain HA in Arizona has the highest AML for burros at 478 animals. *Id.* at 2. Only seven HMAs have an AML at or above 500 for horses. *Id.* at 2–18.

rangeland health and horse and burro numbers. At the first sign that mountain lions were not killing enough foals to prevent population growth, the personnel would administer contraceptive vaccines. When it became apparent that predation and fertility control were not sufficient to control the population, the personnel would conduct gathers. Each of the duties would be easier and less expensive when conducted on specific sanctuaries, each with fewer than 1,000 animals, than when conducted across all HMAs. Off the sanctuaries, the Wild Horse and Burro Program budget would initially increase, as the agencies gathered every HMA, gelded the males, sorted by gender, and transported animals to their respective future homes. After all animals had been dispersed, the budget would steadily decline until each animal in the non-reproducing populations had died of natural cause or been adopted or sold. The program budget would then consist solely of the costs of monitoring and managing at the sanctuaries.

Alternative 1 also provides an opportunity for economic return. By moving all horses and burros to sanctuaries, the governing agency could control visitor numbers and fees. The sanctuaries could provide tours, offer photography opportunities, and otherwise cater to paying visitors. In addition, as free-roaming horse and burro numbers declined in the United States, the animals' value would proportionately increase, making adoption and sale again profitable, or at least feasible, for the federal government.²²¹

4. Problems

Alternative 1's balanced ecosystem approach faces multiple practical challenges, not the least of which is finding suitable habitat for the sanctuaries. To meet the requirements set forth above, the land would almost certainly need to be USFS property.²²² Currently, the USFS administers only 34 horse and burro territories²²³ compared with the BLM's 177,²²⁴ so this proposal would require a substantial shift in land use and management schemes. In addition, sanctuaries on USFS land in the arid regions of the western United States must be massive to encompass the forage needed to feed 2,000 horses and burros. One acre in Nevada

221. Since 1925, the Chincoteague Volunteer Fire Department has gathered and sold "wild ponies" from the Assateague Island population as an annual fundraiser. Each year, the Fire Department sells approximately 70 foals to interested buyers. *Chincoteague Pony Auction*, ASSATEAGUE ISLAND NAT'L SEASHORE, <http://www.assateagueisland.com/ponyswim/ponyauction.htm> (last visited Feb. 5, 2017). The ponies are marketed for their unique characteristics. See *Chincoteague Ponies*, CHINOTEAGUE.COM, <http://www.chincoteague.com/ponies.html> (last visited Feb. 5, 2017).

222. Mountain lions primarily inhabit forested areas (USFS managed lands). See generally U.S. FOREST SERV., GUIDE TO YOUR NATIONAL FORESTS AND GRASSLANDS AND OTHER LANDS ADMINISTERED BY THE FOREST SERVICE (2006), http://data.fs.usda.gov/geodata/other_fs/docs/guide_to_national_forests_20060117.pdf [hereinafter GUIDE TO NATIONAL FORESTS] (showing national forests managed by the USFS). The BLM primarily manages rangelands. See *Forests Defined*, BUREAU OF LAND MGMT., <https://www.blm.gov/programs/natural-resources/forests-and-woodlands/forests-defined> (last visited September 17, 2017) (showing forests that fall on BLM land).

223. *Wild Horse and Burro Territories*, U.S. FOREST SERV., <https://www.fs.fed.us/wild-horse-burro/territories/index.shtml> [<https://web.archive.org/web/20170809212623/https://www.fs.fed.us/wild-horse-burro/territories/index.shtml>] (last visited Aug. 9, 2017). The management units for horses and burros on USFS land are called "horse territories," but I will refer to all management units (USFS and BLM) collectively as HMAs.

224. 2017 STATISTICS, *supra* note 74, at 1, 19.

may produce as little as 50 to 100 pounds of usable forage.²²⁵ Much of that forage will be unavailable for grazing due to steepness of slope, distance from water, and otherwise inaccessible areas.²²⁶ With an average of 50 pounds of available forage per acre per year, one horse would require nearly 0.4 square miles per year for grazing.²²⁷ To support 2,000 horses, the federal government would need roughly 800 square miles of contiguous mountain lion habitat.²²⁸ In reality, after considering forage palatability and competition with wildlife, more than twice that amount would likely be needed. On the Pryor Mountain Wild Horse Range in Montana, a horse requires at least 0.5 square miles to sustain it for a year.²²⁹ On the Montgomery Pass Wild Horse Territory on the Nevada–California border, about 1.5 square miles are required to sustain a single horse for one year.²³⁰ Assuming the selected sanctuaries fell between these two examples, the Secretary would need about one square mile per horse: 2,000 square miles (1.28 million acres) of mountain lion habitat for 2,000 horses.²³¹ In other words, the federal government would need a plot of land roughly twice the size of Rhode Island to accommodate the proposed sanctuaries.²³²

Locating 2,000 square miles of forested federal land is no easy feat. Nevada is about 80% federally owned,²³³ but only 45% of the state is forested (potential mountain lion habitat²³⁴) and all of the forests are dissected by desert rangeland.²³⁵ Dissected forests permit horses and burros to retreat to the rangelands to escape predation, which leads to overgrazed rangelands and decreased foal mortality rates. In contrast, roughly 97% of Idaho is potential mountain lion

225. “Usable forage” means forage that a horse or burro can consume. Poisonous plants, most trees and shrubs, and cactus are not considered “usable forage” because horses and burros do not rely on them for forage. In the arid regions of the West, usable forage is approximately 50 to 100 pounds per acre. Worley, *supra* note 97, at M14. In my experience conducting vegetation surveys in the pinyon-juniper woodlands, usable forage values were often lower than 50 pounds per acre.

226. *Id.*

227. One horse eats about 988 pounds of forage per month. NAT. RES. CONSERVATION SERV., *supra* note 76, at 6-8 to 6-9, 6-9 tbl. 6-5 (showing that one cow/calf pair requires 790 pounds of forage per month and one horse requires 25% more). Therefore, one horse requires approximately 11,856 pounds of forage per year. At 50 pounds per acre, one horse requires 237 acres of forage per year. At 640 acres per square mile, one horse needs forage from approximately 0.4 square miles per year.

228. 1,000 horses divided by 2.5 horses per square mile equals 400 square miles.

229. The Pryor Horse Range covers 60 square miles and has a maximum AML of 120 horses. See BUREAU OF LAND MGMT., PRYOR MOUNTAIN WILD HORSE RANGE (2011), https://www.blm.gov/sites/blm.gov/files/mt_PMWHR%20Brochure.pdf. The BLM estimates that, on average, 25 to 30 acres per month “are required to produce enough forage for each wild horse.” *Id.* At 30 acres per month, one horse would require 360 acres (0.56 square miles) per year.

230. The range is approximately 230 square miles in size with an AML of around 150 to 160 horses. See Turner, Wolfe & Kirkpatrick, *supra* note 209, at 929–30.

231. For burros, the acreage required would be roughly 20% lower to account for their lower AUE.

232. See *Historical Information*, RI.GOV, <https://www.ri.gov/facts/history.php> (last visited Feb. 5, 2017).

233. CAROL HARDY VINCENT ET AL., CONG. RESEARCH SERV., REP. NO. 7-5700, FEDERAL LAND OWNERSHIP: OVERVIEW AND DATA 8 tbl. 1 (March 3, 2017), <https://fas.org/sgp/crs/misc/R42346.pdf>.

234. *Mountain Lions in the State of Nevada*, MOUNTAIN LION FOUND., <http://www.mountainlion.org/us/nv/-nv-portal.asp> [<https://web.archive.org/web/20160519192407/http://www.mountainlion.org:80/us/nv/-nv-portal.asp>] (last updated Apr. 21, 2016).

235. See GUIDE TO NATIONAL FORESTS, *supra* note 222 (showing the dissected forests in Nevada).

habitat,²³⁶ but Idaho's land ownership is far less uniform than Nevada's.²³⁷ Private rights must also be considered. Many ranchers graze federal lands based on permits that have economic value beyond livestock forage.²³⁸ Before evicting permittees from a sanctuary, the government would need to buy out ranchers' grazing permits or swap them for alternate parcels to compensate the ranchers for their loss.²³⁹ Because grazing permits add value to base properties, thereby increasing the property taxes at the local and state level,²⁴⁰ ranchers, citizens, and local and state governments may resist buyouts. Finally, the federal government must consider management: a sanctuary located in rugged, forested terrain poses difficulties for an agency trying to monitor population size, administer fertility control,²⁴¹ manage sensitive resources, and cater to tourists.

The challenges do not cease after sanctuaries are designated. Striving for a balanced ecosystem in which predation matches reproduction is enticing, but perhaps not realistic. No evidence exists that mountain lions can control large populations of horses and burros, particularly across a variety of ecosystems. No evidence exists that mountain lions have ever controlled the horse and burro population in North America. In fact, the opposite is true. Since their introduction in the late 1400s and early 1500s, horses and burros have reproduced exponentially, except when kept in check by humans.

The horse herd on the Montgomery Pass Wild Horse Territory (MPWHT) is the only herd known to have been controlled by mountain lions over an appreciable period of time.²⁴² Three factors made predation at Montgomery Pass successful: forested terrain with rock outcroppings, a small horse population, and a migratory deer population.²⁴³ The MPWHT, located on the north end of the White Mountains on the California–Nevada border, is about 232 square miles of pinyon–juniper rangeland, with elevations from 5,250 to 8,530 feet.²⁴⁴ The habitat is perfect for mountain lions, which are protected in California²⁴⁵ and seldom hunted

236. *Mountain Lions in Idaho*, MOUNTAIN LION FOUND., <http://www.mountainlion.org/us/id/-id-portal.asp> [<https://web.archive.org/web/20170324223020/http://www.mountainlion.org/us/id/-id-portal.asp>] (last updated Feb. 14, 2012).

237. VINCENT ET AL., *supra* note 233, at 7 tbl. 1 (listing Idaho with approximately 62% federal land ownership).

238. See John A. Tanaka, Neil R. Rimbeby & L. Allen Torell, *Why Grazing Permits Have Economic Value*, 32 J. AGRIC. & RESOURCE ECON. 20 (2007).

239. See VINCENT, *supra* note 118, at 7.

240. See generally Tanaka, Rimbeby & Torell, *supra* note 238.

241. BUREAU OF LAND MGMT., PRYOR MOUNTAIN EA, *supra* note 212, at 1 (reporting that fertility control in the Pryor Mountain horse herd has not been fully successful in part due to the inaccessibility of the mares in the spring when treatments are required).

242. Mountain lion predation has been reported in other herds as well, but the degree of predation is undocumented and has been insufficient to control population growth. Turner & Morrison, *supra* note 209, at 188; Telephone Interview with Jared Bybee, Rangeland Management–State Wild Horse and Burro Specialist, Billings Field Off., Bureau of Land Mgmt. (Jan. 23, 2015).

243. Telephone Interview with John W. Turner, Jr., *supra* note 209.

244. Turner & Morrison, *supra* note 209, at 184.

245. Cal. Dep't of Fish & Wildlife, *Commonly Asked Questions about Mountain Lions*, CA.GOV, <https://www.wildlife.ca.gov/Conservation/Mammals/Mountain-Lion/FAQ> [<https://web.archive.org/web/20161221063330/https://www.wildlife.ca.gov/Conservation/Mammals/Mountain-Lion/FAQ>] (last updated Dec. 2007) (select "Why can't mountain lions be hunted in California?").

in Nevada.²⁴⁶ In addition to 150 adult horses,²⁴⁷ the MPWHT supports a migratory mule deer population. Mountain lions feed on deer in the late fall and winter and shift to newborn foals in the spring and summer after deer leave the area.²⁴⁸ From 1986 to 1997, lions killed an average of 45% of the foal crop each year, preying almost exclusively on foals under six months of age.²⁴⁹

For 25 years, lions successfully controlled the MPWHT horse population.²⁵⁰ Now the horses avoid the forests by grazing at lower elevations and lions kill fewer foals: the MPWHT is again overpopulated.²⁵¹ Whether the horses learned to avoid forested areas²⁵² or discovered new feed and water at lower elevations after recent weather changes,²⁵³ they changed the ecosystem balance. Horses now underutilize the forest foliage and overgraze the forage at lower elevations.²⁵⁴

In short, even where mountain lions are highly effective at killing foals and preventing population growth, changes in behavioral patterns can render predation ineffective. To compensate for behavioral changes, managers would have to reduce stocking rates on the entire sanctuary to avoid regional overgrazing or build barriers to prevent the horses and burros from leaving mountain lion habitat. Both options could prove difficult and expensive.

Treating horses and burros in the West with contraceptive vaccines has been just as unsuccessful as relying on mountain lions to control populations. Fertility control efforts are time intensive.²⁵⁵ Currently, the only horse population successfully managed with the vaccine Porcine Zona Pellucida (PZP) is the National Park Service's (NPS's) Assateague Island population.²⁵⁶ The NPS keeps careful records of each animal on Assateague Island and allows each mare to deliver one foal at the age of four. For the remainder of the mare's life, the NPS darts her annually with PZP.²⁵⁷ The system works on the lush island range that occupies only 21 square miles,²⁵⁸ but in the West, efforts are far less effective. On the Pryor Mountain Wild Horse Range, the BLM reported that "numerous treated mares . . . have foaled; most likely due to timing of treatments as a result of inaccessibility in the spring. The two-year-olds that foal are becoming pregnant as

246. Turner & Morrison, *supra* note 209, at 184.

247. *Id.* at 183.

248. Telephone Interview with John W. Turner, Jr., *supra* note 209.

249. Turner & Morrison, *supra* note 209, at 186–87.

250. Telephone Interview with John W. Turner, Jr., *supra* note 209; Telephone Interview with Beatrice A. Wade, *supra* note 71.

251. Telephone Interview with John W. Turner, Jr., *supra* note 209; Telephone Interview with Beatrice A. Wade, *supra* note 71.

252. Telephone Interview with Beatrice A. Wade, *supra* note 71.

253. Telephone Interview with John W. Turner, Jr., *supra* note 209.

254. Telephone Interview with Beatrice A. Wade, *supra* note 71.

255. NAT'L RESEARCH COUNCIL ET AL., *supra* note 4, at 269.

256. See PNC, Inc., *Application of PZP to Wildlife*, PZPINFO.ORG, <http://www.pzpinfo.org/application.html> (last visited Feb. 5, 2017).

257. U.S. DEP'T OF THE INTERIOR, NAT'L PARK SERV., ASSATEAGUE ISLAND NATIONAL SEASHORE RESOURCE MANAGEMENT BRIEF 2 (2013), <http://www.nps.gov/asis/planyourvisit/upload/Horse-Brief.pdf>.

258. *Id.* at 1.

yearlings and some older mares have shown to be non-responders.”²⁵⁹ In addition, some horse advocates argue that fertility control suppresses genetic diversity²⁶⁰ and changes behavior patterns.²⁶¹

From an economic standpoint, gathering every horse and burro from the HMAs, sorting them by gender, gelding the stallions and jacks, and paying to hold the mares and jennies on off-range pastures will be expensive—perhaps even cost-inhibitive. Agencies can alleviate the immediate burden by gathering one HMA at a time, but doing so would only increase the long-term costs, as animals in un-gathered HMAs would continue to reproduce and add to the burden.

Ultimately, however, Alternative 1’s most challenging hurdle could be public approval. Wild horse advocates already complain that horse and burro numbers are too far diminished and their habitat too much restricted.²⁶² Alternative 1 would reduce the number of horses and burros from more than 100,000 to roughly 2,000 (less than 2% retention) and drastically reduce the total habitat. Although the result would be a more genetically viable and healthier horse and burro population, in addition to a much-relieved rangeland, the public may focus exclusively on the reduction in numbers. Educating and informing the public about the state of the rangelands, the budget, and the health of the animals will help to shift public opinion in favor of a reformed plan, but it may not be enough to avoid the type of campaigns that led to the implementation of the WFRHBA in the first place.

B. Alternative 2: A New Attempt at the Old System

1. Description

Alternative 2 comes as close to a “no change” alternative as this paper will propose. Under Alternative 2, the Wild Horse and Burro Program’s basic functions would continue, but with four adjustments. First, the Secretary would calculate a new maximum AML based on the number of horses and burros the agencies can manage without exceeding the program budget or negatively impacting the rangeland. Second, the Secretary would establish a systematic method for drawing HMAs and setting AMLs for each HMA. Third, the Secretary would redraw each HMA and reapportion AMLs in accord with the new guidelines. Finally, the Secretary would intensively manage the horse and burro population in each HMA.²⁶³

259. BUREAU OF LAND MGMT., PRYOR MOUNTAIN EA, *supra* note 212, at 1.

260. See Anne Novak, *Native Wild Horses are not Pests ~ Stop Managing them to Extinction*, PROTECT MUSTANGS (Aug. 11, 2014), <http://protectmustangs.org/?tag=genetic> [<https://web.archive.org/web/20160701083819/http://protectmustangs.org/?tag=genetic>].

261. See Cassandra M.V. Nuñez et al., *Immunocontraception in Wild Horses (Equus caballus) Extends Reproductive Cycling Beyond the Normal Breeding Season*, 5 PLOS ONE, Oct. 2010, e13635 at 1, <https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0013635&type=printable>.

262. See, e.g., *The Issue*, AM. WILD HORSE PRESERVATION CAMPAIGN, <http://wildhorsepreservation.org/issue> [<https://web.archive.org/web/20160408132245/http://www.wildhorsepreservation.org:80/issue>] (last visited May 17, 2015).

263. According to the National Academy of Sciences report, intensively managed herds like those on Assateague Island and Shackleford Banks provide “scientifically studied examples of how intensive management can work and what effects BLM could expect from reducing population size and

Free-roaming horse and burro numbers must be maintained at a level the BLM and USFS can sustainably manage. In determining the maximum AML, the Secretary should consider budget, forage, and the limited efficacy of existing population control methods. In particular, the Secretary must determine how many mares and jennies agencies can reasonably expect to treat with contraceptives on an annual basis. The agency must also consider how much time and expense the agency can incur annually by gathering excess animals when fertility control fails.

The BLM's current method for drawing HMAs and setting the AML for each HMA—described in the *Wild Horses and Burros Management Handbook*²⁶⁴—lacks specificity and consistency,²⁶⁵ thereby evoking public critique and skepticism.²⁶⁶ The Secretary would gain credibility by evaluating several scientific methods for drawing HMAs and setting AMLs²⁶⁷ using a programmatic environmental impact statement (EIS) that permits public comment. The Secretary should clearly delineate the chosen method in the *Wild Horses and Burros Management Handbook*.

After the Secretary has established a target AML for the entire free-roaming horse and burro population, the Secretary should use the method chosen above to redraw HMAs and reapportion forage within each HMA among wildlife, livestock, horses, and burros. Currently, more than 50% of HMAs with horses and 75% of HMAs with burros have AMLs that do not support genetically viable herds.²⁶⁸ Under Alternative 2, any HMA that cannot support a genetically viable herd would be eliminated or combined with another HMA. By reducing the number of HMAs and the total number of horses and burros, the Secretary can focus its resources on a smaller population that is centralized in a few large, contiguous HMAs.

Each HMA would be governed by a management scheme that prepares for and prevents overgrazing and overpopulation. To establish this management scheme, the local agency must develop an environmental assessment (EA) for each HMA that is tiered to the aforementioned programmatic EIS and uses site-specific information to adjust AMLs and management techniques. For each HMA, the agency should set three AMLs: a minimum, a target, and a maximum (each of

implementing contraception more consistently and widely.” NAT’L RESEARCH COUNCIL ET AL., *supra* note 4, at 305.

264. See MANAGEMENT HANDBOOK, *supra* note 48, at 17–19, 36–42.

265. See NAT’L RESEARCH COUNCIL ET AL., *supra* note 4, at 10–11, 195–230.

266. See *The Facts about the Bureau of Land Management’s Wild Horse and Burro Program*, AM. WILD HORSE PRESERVATION CAMPAIGN, https://thecloudfoundation.files.wordpress.com/2010/05/general-fact-sheet-final-final_doc.pdf (last visited July 23, 2017) (“BLM has set arbitrarily low Appropriate Management Levels (AMLs) for wild horses.”).

267. The Secretary should set AMLs using a consistent formula. The Secretary should first calculate the amount of forage palatable to horses and burros within an HMA. The Secretary should reduce the total available forage by the amount used annually by wildlife and permitted livestock. If the remaining forage is not sufficient to support 120 horses or burros, the Secretary should combine or restructure multiple HMAs to allow for a larger population.

268. Recall that a genetically viable population is one that has more than 120 breeding animals. *Supra* note 210. As of March 1, 2017, 76 of the 152 HMAs allocated to horses had maximum AMLs under 120 animals. Of the 32 HMAs allocated to burros, 25 had maximum AMLs under 120 animals. See 2017 STATISTICS, *supra* note 74.

which would be adjusted annually to account for regional conditions). The maximum AML should represent the greatest number of horses or burros an HMA can support—in conjunction with other uses of the HMA—during a typical year. The maximum AML should be 20% higher than the target, and the target AML should be 20% higher than the minimum.²⁶⁹ Any HMA with a minimum AML below 120 breeding animals must be eliminated or combined with another HMA, as explained above. The agencies should not be required or permitted to conduct EAs for each management action, i.e., the agencies must administer contraceptives and conduct gathers *immediately* when the need arises.²⁷⁰

Local agency officials must carefully monitor the herd within each HMA to maintain the population at the target AML. Agency officials must regularly administer contraceptives for as long as the population remains above the minimum AML.²⁷¹ If annual treatments prove impractical or ineffective,²⁷² agency officials should permanently sterilize a high percentage of the mares that have already foaled at least once. If, at any time, an HMA's population exceeds the target AML, the agency *must* increase population control efforts and *may* gather excess animals down to the HMA's minimum AML. If a population reaches the maximum AML, the governing agency must immediately gather all animals in excess of the *minimum* AML and remove them from the HMA. Gathered animals must be taken to off-range corrals to receive veterinary care and identification markings and to be prepared for adoption. If an animal has not been adopted within three months of its removal from an HMA it must be offered for sale without conditions.²⁷³

To ensure that a market exists for the excess horses and burros,²⁷⁴ Congress must revitalize the market for horses and burros by: (1) permitting Indian Tribes to own and operate horse processing facilities with privately funded

269. The 20% increments between AMLs are markers. Horse and burro populations grow at an estimated rate of 20% per year. Garrott & Oli, *supra* note 92, at 847. At that rate, an unmanaged horse or burro population would grow from the minimum AML to the maximum AML in two years.

270. The BLM's use of environmental assessments to elicit public comment before gathering horses and burros that exceed AML is a waste of time and resources where the WFRHBA already mandates removal. *See, e.g.*, Press Release, *BLM Issues Draft Environmental Assessment on Wild Horse Gather*, BUREAU OF LAND MGMT., July 12, 2017, <https://www.blm.gov/press-release/blm-issues-draft-environmental-assessment-wild-horse-gather>. Such procedures merely delay the necessary action and exacerbate the problem.

271. The Secretary should consider the model used for Assateague Island. On Assateague Island, the National Park Service (NPS) allows each mare to deliver one foal. The NPS darts the mare with PZP each year for the rest of her life to ensure the birth rate of foals on the island does not exceed the death rate of adults. The NPS keeps close records of when each mare is darted. *See* NAT'L PARK SERV., *supra* note 257, at 2.

272. *See* BUREAU OF LAND MGMT., PRYOR MOUNTAIN EA, *supra* note 212, at 1 (describing the difficulties with using PZP to control population growth on the Pryor Mountain Wild Horse Range).

273. The WFRHBA currently requires the BLM and USFS to sell all un-adopted animals "without limitation, including through auction to the highest bidder." 16 U.S.C. § 1333(e)(2) (2012) (emphasis added); *see also* § 1333(e)(1) (requiring the Secretary to sell excess animals that are "more than 10 years of age" or that have "been offered unsuccessfully for adoption at least 3 times"). However, the BLM has implemented restrictive policies to prevent public outcry. Telephone Interview with Beatrice A. Wade, *supra* note 71; *see also*, GAO, OPTIONS, *supra* note 55, at 54–55 (explaining that the BLM requires buyers to sign a statement promising not to resell horses and burros for slaughter).

274. *See supra* Part IV(B)(2) for further discussion of the horse slaughter market.

inspections approved by the USDA,²⁷⁵ (2) funding federal inspections of horse processing facilities in the United States,²⁷⁶ or (3) permitting horse meat to be processed in the United States without federal inspections, so long as the meat is sold for purposes other than human consumption.²⁷⁷ If slaughter remains impossible due to public condemnation, the Secretary must designate certain HMAs—particularly HMAs that were too small to sustain a genetically viable population—as overflow areas. The agencies should then sort excess animals by gender, sterilize them, and place them in gender-specific HMAs to live out their lives in non-reproducing herds, as explained in Alternative 1.

2. Necessary Legal Reform

Alternative 2 is currently permitted under the WFRHBA, but Congress should amend the Act to provide more guidance and to mandate, rather than suggest, the courses of action. The amended WFRHBA should require the Secretary to draft an EIS that analyzes how many horses and burros the agencies can sustainably support and how to divide the animals among HMAs to ensure each HMA contains a genetically viable population. In creating the EIS, the Secretary must analyze the Wild Horse and Burro Program at the ecosystem level and must consider other species in developing new HMAs and AMLs. In addition to the programmatic EIS, the Act must require an EA for each HMA to set the minimum, target, and maximum AMLs and detail a management plan. The Act must also require the agencies to conduct rangeland monitoring and maintain annually updated records that track water quality, riparian habitat health, and upland range health within HMAs. Finally, the Act must require the agencies to prioritize rangeland health in making future determinations regarding horse and burro management.²⁷⁸

275. Tribes in the Northwest are pushing for tribally operated slaughter plants. The plants would give them a humane way to dispose of excess horses and burros, which are harming their culturally sensitive areas and tribally significant plants and degrading their rangelands. Under the proposed plan, the tribes would “package and ship the meat to other countries where the local culture already favors human consumption of horse meat.” The tribes would also sell to zoos. Confederated Tribes & Bands of the Yakama Nation, *Northwest Tribal Horse Coalition: Managing Excess Feral Horses in the Inland Northwest*, YAKAMA NATION WILDLIFE, <http://www.ynwildlife.org/Wildhorsecoalition.php> (last visited May 13, 2015).

276. A rider passed in 2006 halted federal inspections of horse processing facilities, effectively preventing facilities from selling horse meat for human consumption. See Act of Nov. 10, 2005, Pub. L. No. 109-97, § 794, 119 Stat. 2120, 2164.

277. Horse meat is a staple in the diet of carnivores in zoos. When the last horse processing facility closed in the United States, zoos turned to Canada for horse meat. See Charles D. Brunt, *Zoo Critters Prefer Their Horse Meat*, ALBUQUERQUE J. (Sept. 20, 2014), <http://www.abqjournal.com/465460/news/zoo-critters-prefer-horse-meat.html>; Brad Haynes, *Zoos in a Pickle over Horse Meat*, SEATTLE TIMES (Aug. 14, 2007), <http://www.seattletimes.com/seattle-news/zoos-in-a-pickle-over-horse-meat/>. Although horse meat was once a primary ingredient in pet food, it fell out of favor in the 1940s. Brian Montopoli, *Why Don't We Eat Horses?*, CBS NEWS (Feb. 21, 2013), <http://www.cbsnews.com/news/why-dont-we-eat-horses/>.

278. This mandate is consistent with the BLM’s mission “[t]o sustain the health, diversity, and productivity of America’s public lands for the use and enjoyment of present and future generations.” *The Bureau of Land Management: Who We Are, What We Do*, BUREAU OF LAND MGMT., <https://www.blm.gov/about/our-mission> (last visited July 23, 2017) [hereinafter *BLM: Who We Are*].

The Act must also address disposal of gathered animals. To improve adoption efficiency, the Act should require the Secretary to maintain a list of parties requesting adoption. If no qualified individuals request adoption, the Act should require the animals to be sold at auction to the highest bidder. Finally, Congress should pass legislation permitting one of the previously mentioned forms of processing in the United States to revitalize the horse and burro market.

3. *Benefits*

Alternative 2 will reform the Wild Horse and Burro Program into an environmentally and economically sustainable program, increase transparency, improve horse and burro genetic viability, and revive the horse and burro market. The WFRHBA thrust horse and burro management on the BLM and USFS without defining the agencies' limits. Alternative 2 allows the Secretary to evaluate the challenges with horse and burro management, including environmental and economic constraints, and design a more manageable program. Alternative 2 also provides avenues for disposing of excess animals so the agencies can concentrate their resources on public lands management. The legislation recommended by Alternative 2—authorizing Indian Tribes to process horses and burros, refunding federal inspections of horse processing facilities, or permitting processing plants to sell horse meat for uses other than human consumption—will help revive the United States horse and burro market and allow the agencies to dispose of excess animals at a profit rather than a loss. Taxpayers, buyers and sellers of horse meat, and the public rangelands would all benefit.

The transparent EIS process under Alternative 2 will improve relations between the public and the BLM and USFS. Stakeholders currently have little understanding of how the agencies establish and adjust HMAs and AMLs.²⁷⁹ The BLM's vague explanation that it sets AMLs by “rely[ing] on an intensive monitoring program over several years involving studies of grazing utilization, trend in range health, actual use, precipitation (climate) and other factors”²⁸⁰ is insufficient. Even though AMLs are purportedly set “with public involvement through an in-depth environmental analysis and decision process,”²⁸¹ the public remains largely uninformed. Existing methods for adjusting AMLs are reactive rather than proactive: the BLM monitors the rangeland within HMAs and lowers the AML when it determines rangeland condition is declining.²⁸² Under

279. NAT'L RESEARCH COUNCIL ET AL., *supra* note 4, at 11 (“How AMLs are established, monitored, and adjusted is not transparent to stakeholders, supported by scientific information, or amenable to adaptation with new information and environmental and social change.”); Telephone Interview with Tim Harvey, Humane Advocacy, Nat'l Wild Horse & Burro Advisory Bd. (Jan. 7, 2015); Telephone Interview with Callie Hendrickson, General Public, Nat'l Wild Horse & Burro Advisory Bd. (Jan. 22, 2015); Telephone Interview with Ginger Kathrens, *supra* note 117.

280. *Nevada Wild Horses and Burros: Appropriate Management Level (AML)*, BUREAU OF LAND MGMT., http://www.blm.gov/nv/st/en/prog/wh_b/appropriate_management.html [https://web.archive.org/web/20160304090532/http://www.blm.gov/nv/st/en/prog/wh_b/appropriate_management.html] (last updated Nov. 3, 2015).

281. *Id.*

282. *See id.* (“In Nevada, appropriate management levels of [wild horses and burros] are generally determined through the multiple-use decision process. This process begins with an evaluation of range conditions; the evaluation assesses whether or not management and stocking levels for livestock, wild

Alternative 2, the BLM would set AMLs proactively and consider the entire scope of the Wild Horse and Burro Program rather than individual units. Horse and burro genetic viability would also improve under Alternative 2 because each HMA would have a minimum AML above 120 animals.

4. Problems

The problems with Alternative 2 mirror the problems with existing management: primarily, the ineffectiveness of fertility control and the unpopularity of horse slaughter. As explained in Section V(A)(4), agencies have had little success controlling horse herds in the West with contraceptive vaccines. Without effective fertility control, agencies must resort to gathers to control population size. Gathers are expensive, time-consuming, and unpopular. Gathered animals must be transported, sorted, treated, fed, and either sold or adopted. Without legalizing horse slaughter in the United States, the market for horses and burros will remain poor, yet horse slaughter is extremely unpopular. Indian tribes may have better success in declaring their right to operate processing plants for profit than Congress would have in passing horse slaughter legislation, but either entity will struggle with public disapproval. Thus, even the more manageable horse and burro herds envisioned by Alternative 2 would be difficult to control without significant political and social changes.

C. Alternative 3: Privatization

1. Description

Alternative 3 steps outside the box—the WFRHBA—and takes on a completely different management paradigm: privatization. This alternative draws its inspiration from a wildlife management model applied in South Africa,²⁸³ where landowners are permitted to “use” any wildlife found on their private lands for personal profit.²⁸⁴ Importantly, under Alternative 3, landowners would acquire ownership and possession of free-roaming horses and burros by transfer *even though* the animals were not originally found on their lands. By transferring possession from the Secretary to the private parties, the WFRHBA would become

horses and/or burros, and wildlife are achieving rangeland objectives. If rangeland health objectives are not being met, changes in management or stocking levels are proposed. Proposed changes are analyzed in an environmental assessment and a proposed multiple-use decision (PMUD) is issued.”)

283. See generally Jenny A. Cousins, Jon P. Sadler & James Evans, *Exploring the Role of Private Wildlife Ranching as a Conservation Tool in South Africa: Stakeholder Perspectives*, 13 *ECOLOGY & SOC'Y* 43 (2008).

284. See FRED NELSON, U4 ANTI-CORRUPTION RESOURCE CENTER, U4 BRIEF 2009:12, REFORMING WILDLIFE GOVERNANCE IN EAST AND SOUTHERN AFRICA: THE ROLE OF CORRUPTION 2 (2009), <http://www.cmi.no/publications/file/3404-reforming-wildlife-governance-in-east-and-southern.pdf>. In South Africa, ranchers viewed wildlife as pests and relied on the government to control problem animals until legislation was passed that allowed landowners to “use” wildlife found on their private lands for personal profit. After the legislation was passed, ranchers began actively managing their ranches for safari hunting and ecotourism. Kay Muir-Leresche & Robert H. Nelson, *Managing Wildlife in Southern Africa*, 19 *PERC REPORTS*, Sept. 2001, at 7, 7–8, <http://www.perc.org/articles/managing-african-wildlife>.

ineffective and state law would govern.²⁸⁵ The transferees, as full owners, could choose where to graze the animals, whether on private land (high forage production and flexible locations), on federal lands (via a federal grazing permit), or on other lands (via a state lease, arrangement with tribal governments, or other land use arrangement). The transferees could also choose a business model—whether for profit (through eco-tourism or selling “mustangs” and “wild burros”) or not-for-profit (seeking donations or applying for grants).

The transfers under Alternative 3 must: (a) be efficient and economical, (b) prioritize herd dynamics and long-term preservation of genetically viable horse and burro populations, and (c) protect rangeland health on public lands. To ensure efficient and economical transfers, the agencies must maintain a list of potential transferees, how many animals each transferee wishes to accept, and whether each transferee is capable of maintaining the number of animals requested. The agencies should then gather horses and burros as herds²⁸⁶ and, to the extent possible, transfer ownership of herds as a single unit to preserve the herd dynamics. The agencies should grant priority to parties requesting a full herd, and particularly parties requesting a genetically viable population. The agencies should grant second choice to parties requesting less than a full herd, but who are taking the animals for long-term care and maintenance, rather than for resale. Finally, the agencies should offer the remaining animals for sale without limitation. To protect rangeland health, the agencies should begin gathering HMAs immediately, regardless of whether a demand exists for all gathered animals. Any animals not transferred to private ownership or sold should be divided into non-reproducing herds in accord with the methods outlined in Alternative 1. The entire Wild Horse and Burro Program—as it exists on BLM and USFS lands in the West—must be phased out as all animals are transferred to private ownership, sold, or allowed to die naturally in non-reproducing herds on the rangeland. Eventually, the private sector will own and manage all reproducing herds of free-roaming horses and burros.

Alternative 3 can only succeed if transferees have incentive to sustainably manage genetically viable populations of free-roaming horses and burros indefinitely. Ideally, the private market will supply the incentive through eco-tourism, donations, sales, and other innovative market schemes. However, the

285. Wild animals are not “owned” in the traditional sense of the word. The state holds title to wildlife “in trust for the peoples’ use and benefit.” 4 AM. JUR. 2D *Animals* § 11 (2007). States have jurisdiction over wildlife except where federal law preempts state jurisdiction. GEORGE CAMERON COGGINS & ROBERT L. GLICKSMAN, 3 PUBLIC NATURAL RESOURCES LAW § 32:1 (2d ed. 2007). The WFRHBA preempts state law governing free-roaming horses and burros. *Kleppe v. New Mexico*, 426 U.S. 529, 545–46 (1976). By removing horses and burros from federal care under the WFRHBA and transferring them to private ownership, the animals would be removed from federal jurisdiction and placed under state law. The WFRHBA already allows transfers to private ownership (and the subsequent removal from federal jurisdiction under the WFRHBA) under § 1333(c)–(d). These transfers would fall into question if horses were defined as “wildlife,” but Congress has never designated them as such. Instead, the WFRHBA specifically distinguishes between horses and burros and wildlife at numerous places in the Act. *See* 16 U.S.C. §§ 1337, 1333(b)(1), (b)(3) (2012). Horses and burros exist in a void, with no legal status. Thus, whereas transitioning to privately owned wildlife would be difficult, transitioning to privately owned horses and burros would not.

286. The WFRHBA defines “herd” as “one or more stallions and his mares.” 16 U.S.C. § 1332(d) (2012).

Secretary could initially offer small grants to transferees who strive to develop a long-term free-roaming horse and burro preserve. Such assistance should in no way incentivize parties to take more horses and burros than they can sustainably maintain.

2. *Necessary Legal Reform*

Under Alternative 3, the WFRHBA must be rewritten to require the BLM and USFS to phase out the Wild Horse and Burro Program on public lands. The revisions should begin with endorsing private ownership of free-roaming horses and burros in § 1331's policy statement. In § 1332, the definition of "range" would become irrelevant and should be deleted. Section 1333 must authorize and direct the Secretary to dispose of all free-roaming horses and burros through transfer, sale, and sterilization. The Section must make such disposal mandatory and provide guidelines for how the mandates should be accomplished. The necessary revisions to § 1333 as well as revisions to §§ 1334²⁸⁷ and 1340²⁸⁸ are provided in Appendix 3. Sections 1335 through 1339 require little to no amendment, although the criminal provisions in § 1338 should clarify that no individual accepting legal transfer of horses and burros would be criminally liable.

Finally, the WFRHBA should have a new section clarifying that after all horses and burros have been transferred to private ownership or died of natural causes on the public rangelands or in off-range pastures, the Secretary's duties under the Act are complete and the status of any animal as a "wild free-roaming horse or burro" should be abolished. The Act should clarify, in case some horses and burros should escape detection or be deposited on the public lands after the passage of the amendment, that the status of any animal as a "wild free-roaming horse or burro" should be abolished no later than 30 years after the passage of the amendment and that any horse or burro found on federal lands after that time shall be treated as a feral animal under that state's estray livestock laws.²⁸⁹

287. Currently, § 1334 requires landowners who find free-roaming horses and burros on their private lands to notify a "Federal marshal or an agent of the Secretary" to remove the animals or to maintain and protect them privately. Under Alternative 3, private landowners must still report animals found on their private lands, but the owners can either ask the agency to remove them or capture the animals themselves, mark them, and hold them for private ownership.

288. Section 1340 requires the Secretary to submit a joint report to Congress biennially. Alternative 3 terminates the Secretary's duty to submit a biennial report once the Wild Horse and Burro Program is phased out.

289. In *Kleppe v. New Mexico*, the United States Supreme Court stated: "Unquestionably the States have broad trustee and police powers over wild animals within their jurisdictions. But . . . those powers exist only 'in so far as [their] exercise may be not incompatible with, or restrained by, the rights conveyed to the Federal government by the Constitution.'" 426 U.S. 529, 545 (1976) (quoting *Geer v. Connecticut*, 161 U.S. 519, 528 (1896)) (alteration in original) (citations omitted). When the WFRHBA is phased out under Alternative 3, all unclaimed horses and burros become subject to state law. Because Alternative 3 provides an end date for the WFRHBA and presumes that all living horses and burros will be privately owned at that time, any horses or burros remaining unclaimed on public lands will be treated as feral animals.

3. Benefits

Alternative 3 preserves the genetic viability and free-roaming nature of horse and burro populations while relieving the federal government of the economic and environmental burden of maintaining them. This alternative has three primary and three secondary benefits. Primarily, the parties with the horses' and burros' best interests in mind will control the animals, the public rangelands will receive immediate and lasting relief from overgrazing, and the taxpayers' economic burden will be reduced. Secondly, the BLM and USFS can focus on rangeland health, the transferees can create sustainable business models for horse and burro management, and the public can view and study the herds in more locations and with greater ease.

Transferees who hold full ownership of horses and burros can manage the animals for long-term sustainability. Unlike the BLM and USFS, the transferees' management opportunities are not constrained by administrative regulations, granting them better freedom to respond to immediate needs. In addition, transferees who receive full herds can preserve herd dynamics and cause minimal stress on the animals. In response, the public rangelands will receive immediate and lasting relief as horses and burros are removed and only permitted to reenter the HMAs as non-reproducing populations at or below AML. As the horses and burros are transferred to private parties and die of natural causes on the range, the Wild Horse and Burro Program will slowly fade out, and the associated expenses will either disappear or exist only as grants of minor proportion.

Alternative 3 benefits the agencies, the transferees, and the public by allowing each group to perform the role for which it is best suited. Without having to devote time and resources to horse and burro population control, the BLM and USFS can return to their primary duties of "sustain[ing] the health, diversity, and productivity" of America's rangelands and forests for present and future generations.²⁹⁰ Reproducing herds of horses and burros will not be banned from the federal lands under Alternative 3, but will be treated as privately owned animals subject to the owner's federal grazing permit. Therefore, the owner—not the agencies—must ensure the animals graze within the permitted area, for the permitted time, at the permitted number.

Meanwhile, the transferees can choose their business type. The privatization model on which Alternative 3 is based was highly successful in South Africa. There, privatization caused a significant increase in the quantity²⁹¹ and diversity²⁹² of wildlife on private lands, and ranchers began to profit more from

290. See *BLM: Who We Are*, *supra* note 278; U.S. DEP'T OF AGRIC., U.S. FOREST SERV., THE U.S. FOREST SERVICE—AN OVERVIEW 12, (n.d.), https://www.fs.fed.us/sites/default/files/media/types/publication/field_pdf/USFS-overview-0106MJS.pdf.

291. In Namibia, the "widespread investment in wildlife production and conservation by Namibian freehold landholders" resulted in an estimated 80% increase in wildlife populations on private lands. Nelson, *supra* note 284, at 2.

292. Throughout South America, the shift from traditional domestic livestock ranches to wildlife ranches "led to numerous species being reintroduced" to private lands. Cousins, Sadler & Evans, *supra* note 283, at 2.

having wildlife on their lands than not.²⁹³ Of course, profit in the United States with horses and burros will differ from profit in South Africa with safari animals, but the concept is already being applied. In the United States, adopted horses and burros are held in “eco-sanctuaries”²⁹⁴ or “eco-resorts” where anyone can pay to visit, enjoy the luxuries,²⁹⁵ and observe the horses and burros. Finally, by moving horses and burros to private lands throughout the United States, the public will have more opportunities to see the animals first-hand. Another benefit of moving the animals from the arid public lands to more productive private lands is that fewer acres are needed to maintain a herd of horses and burros.²⁹⁶

4. Problems

The problem with Alternative 3 is its unpredictability. Unlike Alternatives 1 and 2, which keep the Wild Horse and Burro Program under the federal government’s control, Alternative 3 places it in the hands of the private market—for better or for worse. In doing so, this alternative risks the program’s long-term sustainability. Alternative 3’s success relies entirely on whether transferees are willing to maintain genetically viable populations of free-roaming horses and burros in the private sector. Many Americans advocate to preserve free-roaming herds of horses and burros,²⁹⁷ but few will take on the responsibility

293. Muir-Leresche & Nelson, *supra* note 284, at 9 (“In 1986, Brian Child surveyed ranchers in the southeastern area (the ‘lowveld’) of Zimbabwe, asking them the most profitable use of their land. None named cattle ranching by itself. Thirty percent said ‘mostly cattle, some wildlife.’ Forty percent said ‘mostly wildlife, some cattle,’ and 30 percent said ‘wildlife only.’”).

294. See, e.g., *Welcome to Deerwood Ranch Wild Horse EcoSanctuary*, DEERWOOD RANCH WILD HORSE ECOSANCTUARY, <http://www.deerwoodranchwildhorseecosanctuary.com/Welcome.html> (last visited Aug. 30, 2018). The horses at Deerwood Ranch remain under BLM ownership, but the landowners use the horses to cater to ecotourism. *Tour Information*, DEERWOOD RANCH WILD HORSE ECOSANCTUARY, <http://www.deerwoodranchwildhorseecosanctuary.com/Tours.html> (last visited Feb. 5, 2017).

295. See, e.g., *Mustang Monument Eco-Resort*, MUSTANG MONUMENT WILD HORSE ECO-RESORT, <http://mustangmonument.com/about-mustang-monument/> (last visited Feb. 5, 2017). Mustang Monument caters to a large tourist base; activities range from the “Wild Mustang Safari Adventures” to “Rapelling/Rock Climbing,” “In-Tipi Spa Treatments,” and “Authentic Native American Beading and Moccasin classes.” *Day & Night Safari Activities*, MUSTANG MONUMENT WILD HORSE ECO-RESORT, <http://mustangmonument.com/activities/> (last visited Feb. 5, 2017).

296. In southern Nevada, the annual production of plants palatable to horses is around 114 pounds per acre. See Natural Res. Conservation Serv., *Yield by Species Detail Report*, SOILS ECOLOGICAL SITE INVENTORY, https://esi.sc.egov.usda.gov/ESI_Rangeland/frmYieldReport.aspx?ID=0036832023 (last visited Feb. 5, 2017) (providing the production for a range site in MLRA 29). The 114 pounds of production are comprised of annual forbs (2FA), winterfat (*Eurotia lanata*), and Indian ricegrass (*Oryzopsis hymenoides*). *Id.* Littleleaf horsebrush (*Tetradymia glabrata*), which provides 325 pounds of production, is toxic to horses and therefore not palatable. See *id.*; U.S. Forest Serv., *Species: Tetradymia glabrata*, FIRE EFFECTS INFO. SYS. (FEIS), <http://www.fs.fed.us/database/feis/plants/shrub/tetgla/all.html> (last visited Feb. 5, 2017). In contrast, an acre in eastern Kansas can produce approximately 5,191 pounds of palatable native forage. Natural Res. Conservation Serv., *Yield by Species Detail Report*, SOILS ECOLOGICAL SITE INVENTORY, https://esi.sc.egov.usda.gov/ESI_Rangeland/frmYieldReport.aspx?ID=0018220177 (last visited Feb. 5, 2017) (listing six species of palatable grasses, various perennial forbs and sedges, and the less desirable, but still palatable, Western ragweed (*Ambrosia psilostachya*) for a clay upland range site in the MLRA 106).

297. See *Advisory Board*, SAVING AMERICA’S MUSTANGS, <http://savingamericasmustangs.org/category/advisory-board/> (last visited Feb. 5, 2017); *Supporters*, AM. WILD HORSE PRESERVATION

themselves. Those who do adopt horses and burros generally do so to save individual animals from starvation, abuse, slaughter, and other fates, rather than to productively manage an entire population.²⁹⁸ However, there are exceptions: billionaire Madeleine Pickens recently purchased two ranches in northeastern Nevada²⁹⁹ with over 900 square miles of grazing land³⁰⁰ to use as a sanctuary for mustangs and an eco-resort for horse lovers.³⁰¹ Presumably, others would have similar ideas.

Whether transferees will accept genetically viable populations of free-roaming horses and burros depends primarily on a cost-benefit analysis. Unless a transferee can reap a profit, or at least operate under a balanced budget, the plan will fail. In this regard, Alternative 3 becomes less attractive. Even Pickens has expressed concern about funding her efforts to save free-roaming horses.³⁰² Pickens has proposed three plans for her resort, all of which were rejected.³⁰³ In her latest proposal, Pickens said she would graze free-roaming horses on the federal lands comprising her ranches and “a nonprofit foundation would care for the animals with a government stipend of \$500 a head, per year.”³⁰⁴ In rejecting her proposal,

CAMPAIGN, <http://wildhorsepreservation.org/supporters> (last visited Feb. 5, 2017); *Board of Directors*, CLOUD FOUND., <http://www.thecloudfoundation.org/about-us/board-of-directors> (last visited Feb. 5, 2017); Helin Jung, *Willie Nelson and Sheryl Crow Cry Out for Wild Horses*, PEOPLE (Jan. 15, 2010, 12:00 PM EST), <http://www.peoplepets.com/people/pets/article/0,,20493720,00.html>.

298. See, e.g., *Willie & The Nelson Family*, ANIMAL WELFARE INST., <https://awionline.org/content/willie-nelson-family> (last visited Feb. 5, 2017) (stating that Willie Nelson “currently [has] about 68 [horses,] 25-30 [of which] were rescued directly from slaughter”); *History of Lifesavers*, LIFESAVERS WILD HORSE RESCUE, <http://wildhorsesrescue.org/about/history-of-lifesavers/> (last visited Feb. 5, 2017).

299. Martin Griffith, *BLM Rejects Pickens Horse Rescue Plan*, DESERET NEWS (Jan. 21, 2011), <http://www.deseretnews.com/article/700102861/APNewsBreak-BLM-rejects-Pickens-horse-rescue-plan.html>.

300. *Mustang Monument Eco-Resort*, *supra* note 295.

301. See Tim McGirk, *How a Billionaire’s Wife Is Becoming the Mustangs’ Messiah*, TIME (Aug. 4, 2011), <http://content.time.com/time/nation/article/0,8599,2084328-1,00.html>; *Billionaire Wife Embroiled in Wild Horse Debate*, CBS NEWS (Jan. 11, 2012, 6:54 AM), <http://www.cbsnews.com/news/billionaire-wife-embroiled-in-wild-horse-debate/>.

302. See Lyndsey Layton, *Recession Snags Plan for Wild Horse Sanctuary*, WASH. POST (Mar. 7, 2009), <http://www.washingtonpost.com/wp-dyn/content/article/2009/03/06/AR2009030602211.html> (quoting Pickens’s testimony before a House Natural Resources subcommittee) (“Let me tell you this, seriously, you know, we’re having a horrible financial crisis and it has hurt everybody . . . There isn’t one person I can go to now to ask them to contribute to the foundation. I mean, before, I had so many friends I could go to.”).

303. Initially, Pickens sought permission to graze federally owned free-roaming horses on the BLM land that comprised her ranches. The BLM denied the proposal because her ranch was not within an existing herd area defined by the agency at the time the WFRHBA was passed. Pickens then revised her proposal. Under the revision, Pickens sought title to free-roaming horses, attempted to change her grazing permits from cattle to horses, and sought reimbursement for grazing the animals. The BLM again denied the proposal, stating it lacked the requisite authority. Griffith, *supra* note 299.

304. *Id.*; see also *A Prospectus*, SAVING AMERICA’S MUSTANGS, http://www.blm.gov/pgdata/etc/medialib/blm/wo/CommunicationsDirectorate/public_affairs.Par.76646.File.dat/SAM_pospectus.pdf [https://web.archive.org/web/20121021142500/http://www.blm.gov/pgdata/etc/medialib/blm/wo/Communications_Directorate/public_affairs.Par.76646.File.dat/SAM_pospectus.pdf] (last visited May 22, 2015).

the BLM noted that the stipend exceeded the annual per head cost for holding horses in long-term pastures in the Midwest.³⁰⁵

Finally, even if transferees successfully manage a free-roaming herd temporarily, Alternative 3 provides no promise of permanency. If one transferee abandons his efforts, his entire population could be broken up for sale or destruction. In South Africa, the type and number of wildlife species in which ranchers invest is driven by tourism and hunter preferences.³⁰⁶ Similarly here, the permanency of private free-roaming horse and burro management may be affected by various market pressures, including the ability of private owners to sell their excess animals. In other words, transferees will have the same management concerns as those faced by the BLM and USFS today. Private owners are better positioned to manage individual horse and burro populations, but the expenses would be substantial, particularly when horses and burros are unsalable.

VI. CONCLUSION

The Wild Horse and Burro Program requires substantial revision. In the 44 years the WFRHBA has been in effect, it has met one goal: ending the decline in free-roaming horse and burro numbers. In every other regard, the Act has failed—at the expense of the rangeland,³⁰⁷ taxpayers,³⁰⁸ federal agencies, and horses and burros themselves. The control methods employed by the agencies—removing animals and placing them in off-range corrals and pastures—have merely compounded the problem, rather than solving it.

The three alternatives in this paper provide fresh ideas for horse and burro management, but none are perfect. Alternative 1 may generate public approval, but it contains the greatest logistical challenges: namely, finding enough contiguous mountain lion habitat to accommodate large populations of horses and burros. Alternative 2 has potential for economic gains and a stable horse and burro population, particularly if Indian Tribes are able to build and reap a profit from horse processing facilities, but it will require the right political atmosphere. Given the current negative attitude toward horse slaughter, Alternative 2 does not seem like an immediate solution or one that would proceed without its own setbacks. Alternative 3 is likely the best option for the BLM, USFS, rangeland, and taxpayers, but its long-term success is uncertain.

The full solution, therefore, should not consider these alternatives independently, but collectively. The agencies can set aside a sanctuary under Alternative 1, but a sanctuary small enough to easily manage. Instead of 500 to 1,000 animals in each sanctuary, perhaps each sanctuary should contain 250 to 500 animals. The agency can remove all remaining horses and burros from the public

305. Griffith, *supra* note 299.

306. Cousins, Sadler & Evans, *supra* note 283, at 8 (“Demand-Driven Wildlife Ranching”).

307. The rangelands have suffered severe degradation as the BLM and USFS failed to control the number of horses and burros in each HMA. GAO, *OPTIONS*, *supra* note 55, at 31–34.

308. In the past 16 years, the Wild Horse and Burro Program budget has quadrupled. In Fiscal Year 2016, Congress appropriated \$80.555 million to the Wild Horse and Burro Program. *Program Data*, BUREAU OF LAND MGMT., *supra* note 72. In 2000, the budget was \$19.8 million. Garrott & Oli, *supra* note 92, at 847.

lands—consistent with Alternatives 1 and 3—but instead of sterilizing and sorting them all, can offer them up for transfer to private maintenance. The agencies can transfer entire herds to transferees, rather than the one to four animals currently authorized by the Act. Consistent with Alternative 2, Congress can refund federal inspection of horse processing facilities or permit Indian Tribes to buy and process horses, and the agencies can sell the remaining horses without restriction. Any animals not sold can be returned to the rangeland in non-reproducing herds to live out their lives. Taken together, these changes could reverse the negative impacts of the Wild Horse and Burro Program and provide for a sustainable, long-term solution.

APPENDICES

The WFRHBA consists of eleven statutes, all in Chapter 30 of Title 16 of the United States Code. Section 1331 states Congress’s policy regarding free-roaming horses and burros. Section 1332 defines key words used in the Act. Section 1333—the heart of the act—provides the Secretary’s powers and duties with regard to horse and burro management. Section 1334 provides for the removal of free-roaming horses and burros from private lands by government agents and prohibits private parties from removing the animals themselves. Section 1335 permits individuals to recover privately owned horses and burros from public lands “only if recovery is permissible under the branding and estray laws of the State in which the animal is found.” Section 1336 permits the Secretary to issue regulations and enter into agreements with private parties, state agencies, and local governments in furtherance of his duties under the Act. Section 1337 authorizes the Secretary to establish a joint advisory board to advise him on matters relating to horse and burro management and protection. Section 1338 establishes criminal liability for mistreatment of free-roaming horses and burros. Section 1338a permits the Secretary to use motor vehicles, aircraft, and helicopters to humanely capture and transport free-roaming horses and burros. Section 1339 prohibits the Secretary from relocating free-roaming horses and burros to public lands where they did not exist in 1971. Section 1340, the final section, requires the Secretary to submit a biennial joint report to Congress, summarizing actions taken and expenses incurred in furtherance of the Wild Horse and Burro Program.

The following three appendices provide excerpts from the WFRHBA with proposed amendments unique to each alternative. In each excerpt, the language of the Act appears in normal font, proposed deletions appear as a strike-through, and proposed insertions appear as italicized text. Sections that are not specifically mentioned do not require amendment under that alternative.

APPENDIX 1: Horse and Burro Sanctuary

16 U.S.C. § 1331. Congressional findings and declaration of policy

Congress finds and declares that wild free-roaming horses and burros are living symbols of the historic and pioneer spirit of the West; that they contribute to the diversity of life forms within the Nation and enrich the lives of the American people; ~~and that these horses and burros are fast disappearing from the American scene.~~ It is the policy of Congress that

wild free-roaming horses and burros shall be protected from capture, branding, harassment, or death; and to accomplish this they are to be considered ~~in the area where presently found~~ *within their designated range*, as an integral part of the natural system of the public lands.

16 U.S.C. § 1332. Definitions

(c) “range” means the ~~amount of land necessary to sustain an existing herd or herds of wild free-roaming horses and burros, which does not exceed their known territorial limits, set aside by this Act and specifically designated as a sanctuary for horses and burros. and which is devoted principally but not necessarily exclusively to their welfare in keeping with the multiple-use management concept for the public lands;~~

Section 1333, the heart of the WFRHBA, should be revised in multiple ways. Most importantly for Alternative 1, the second sentence of § 1333(a) should be revised to read:

The Secretary is ~~authorized and~~ directed to ~~protect and manage wild free-roaming horses and burros as components of the public lands, and he may designate and maintain specific ranges on public lands as sanctuaries for their~~ *the protection and preservation of free-roaming horses and burros.;* ~~where the Secretary~~ *These sanctuaries shall be established* after consultation with the wildlife agency of the State wherein any such range is proposed and with the Advisory Board established in section 1337 of this title ~~deems such action desirable.~~³⁰⁹

Section 1333 should also be revised to shift the focus from species-level management to a balanced-ecosystem approach that prioritizes the health of rangelands, riparian areas, water sources, and native flora and fauna. In addition, § 1333 should require the governing agency to monitor each component by establishing monitoring sites and returning annually to collect data, and permit the governing agency to make rangeland improvements to improve ecosystem health.

Finally, § 1333 should require the governing agency to manage horses and burros in accord with ecosystem health by maintaining the horse and burro population below a maximum AML and above the minimum AML using the best available science to control herds where mountain lion predation is insufficient.

Under § 1338a, amendments should restrict the agencies’ use of helicopters, airplanes, and motor vehicles, except where necessary to conduct emergency gathers or where other methods of removing excess animals are unsuccessful or inefficient. Section 1339 should be amended to allow the Secretary to locate the sanctuaries outside the traditional bounds of horse and burro habitat under the WFRHBA.

309. The remainder of § 1333(a) is not affected by Alternative 1. 16 U.S.C. § 1333(a) (2012).

APPENDIX 2: A New Attempt at the Old System

16 U.S.C. § 1332. Definitions

(c) “range” means the amount of land necessary to sustain ~~an existing herd or herds~~ a viable population³¹⁰ of wild free-roaming horses and burros, which does not exceed ~~their known~~ the territorial limits defined in 1971, and which is ~~devoted principally but not necessarily exclusively to their welfare in keeping~~ to be held in keeping with the multiple-use management concept for the public lands[.]³¹¹

(g) “herd management area” means the amount of land delineated by the Secretary as a single management unit for wild free-roaming horses and burros.³¹²

Section 1333 must be substantially revised to require the Secretary to actively manage the free-roaming horse and burro population to prevent degradation of the rangelands and harm to native species. The final two sentences of § 1333(a) should state:

All management activities ~~shall be at the minimal feasible level and~~^[313] shall be carried out in consultation with the wildlife agency of the State wherein such lands are located in order to protect the natural ecological balance of all wildlife species which inhabit such lands, particularly endangered wildlife species. Any adjustments in forage allocations on any such lands shall take into consideration *local conditions and* the needs of other wildlife species which inhabit such lands.

After § 1333(a), a new subsection must be added requiring the Secretary to evaluate the horse and burro program, set a sustainable AML, and draw new HMAs with baseline AMLs through a programmatic EIS. The restructuring should be initiated immediately upon passage of the amendments. Sample language for the new § 1333(b) is as follows:

(b) The Secretary shall conduct a thorough analysis of the horse and burro program and recommend revisions to the program to provide for an economically and environmentally sustainable, genetically viable

310. In requesting legislation to protect free-roaming horses and burros, proponents sought to protect the animals from inhumane treatment and preserve a small population. They did not argue that the population should be allowed to grow without limits. See generally *Protection of Wild Horses and Burros*, *supra* note 37 (providing testimony from numerous individuals who were concerned that, without management, horses (and burros) would disappear from the public lands altogether).

311. 16 U.S.C. § 1332(c) (2012).

312. “Herd management areas” are defined in 43 C.F.R. § 4710.3-1. The intent in adding the definition to the statutory text is to allow the statute to use agency language.

313. The National Academy of Sciences report included a statement that the Wild Horse and Burro Program would benefit from “more intensive management of horses and burros” comparable to the management of horses on Assateague Island in Maryland and Shackleford Banks in North Carolina, where the WFRHBA does not apply. NAT’L RESEARCH COUNCIL ET AL., *supra* note 4, at 305.

population of wild free-roaming horses and burros.³¹⁴ In conducting the analysis, the Secretary shall consider comments from qualified scientists in the fields of biology and ecology, economists, members of the Advisory Board established in § 1337 of this Title, and members of the public. The Secretary shall determine how many horses and burros the Secretary can sustainably manage on the range, taking into consideration all factors affecting the management of free-roaming horses and burros, including horse and burro population growth, the efficacy of fertility control options, rangeland production and health, water quality and quantity, wildlife populations, other approved uses of the ranges, and economic factors. The Secretary shall designate sufficient herd management areas to support the number of horses and burros the Secretary determined can be sustainably managed. In drawing herd management areas, the Secretary shall ensure that each herd management area can support a genetically viable population of horses or burros, take into consideration other authorized uses of the areas, and combine or eliminate existing herd management areas as necessary to achieve management objectives. The Secretary shall recommend a formula for determining the apportionment of grazing resources within a herd management area and shall establish appropriate management levels for each area. Appropriate management levels shall be set as follows:

(1) *Maximum Appropriate Management Level (Maximum AML):* the maximum number of horses or burros a herd management area can support on an average year in combination with other uses of the land (20% greater than the target AML).

(2) *Target Appropriate Management Level (Target AML):* the number of horses or burros the Secretary strives to maintain within a herd management area (83% of the maximum AML and 20% greater than the minimum AML).

(3) *Minimum Appropriate Management Level (Minimum AML):* the lowest number of horses or burros the Secretary will permit a herd management area to drop (83% of the target AML and 69% of the maximum AML).

In § 1333(b) (§1333(c) in the proposed amendments), before subsection (1), a new subsection should be added describing an ecosystem-level management system that requires the Secretary to maintain annually-updated records tracking water conditions, riparian habitat health, and upland range health within HMAs. The subsection should require the Secretary to prioritize these factors in making future determinations regarding horse and burro management and should emphasize the need for an approach that places the overall health of the land above the health of any one species or genus.

314. In effect, this section requires an agency action that “significantly affect[s] the quality of the human environment,” thereby triggering a full EIS under NEPA. 42 U.S.C. § 4332(2)(C) (2012).

The current § 1333(b)(1) (§ 1333(c)(2) in the proposed amendments), can then be narrowed to pertain only to maintaining an inventory. In other words, the entire subsection should be reduced to two sentences:

(c)(2) The Secretary shall maintain a current inventory of *all* wild free-roaming horses and burros on ~~given areas of~~ the public lands, *with data specific to each herd management area*. The purpose of such inventory shall be to: ~~make determinations as to determine~~ whether and where an overpopulation exists and ~~whether when~~ action should be taken to remove excess animals[.]

The current § 1333(b)(2) (§ 1333(c)(3) in the proposed amendments), should be revised as follows:

(2) *The Secretary shall administer fertility control within each herd management area to hold each population between the minimum AML and target AML.* Where the Secretary determines on the basis of (i) the current inventory of lands within his jurisdiction; (ii) information contained in any land use planning completed pursuant to § 1712 of Title 43; (iii) information contained in court ordered environmental impact statements as defined in section 1902 of Title 43; and (iv) such additional information as becomes available to him from time to time, including that information developed in the research study mandated by this section, or in the absence of the information contained in (i–iv) above on the basis of all information currently available to him, that ~~an overpopulation exists on a given area of the public lands and that action is necessary to remove excess animals—the number of horses and burros within a herd management area exceeds the target AML,~~ he shall immediately increase population control efforts or remove horses and burros. ~~excess animals from the range so as to achieve appropriate management levels.~~ Where the Secretary determines, on the same basis, that the number of horses and burros within a herd management area exceeds the maximum AML, the Secretary shall immediately remove horses and burros. ~~Such action shall be taken—~~Removals shall be conducted, in the following order and priority, until all excess animals have been removed and the herd management area's population is reduced to the minimum AML so as to restore a thriving natural ecological balance to the range, and protect the range from the deterioration associated with overpopulation:

(A) The Secretary shall order old, sick, or lame animals to be destroyed in the most humane manner possible;

(B) The Secretary shall cause such number of additional excess wild free-roaming horses and burros to be humanely captured and removed for private maintenance and care for which he determines an adoption demand exists *pursuant to subsection (c)(4) of this section.* ~~by qualified individuals, and for which he determines he can~~

~~assure humane treatment and care (including proper transportation, feeding, and handling): Provided, That, not more than four animals may be adopted per year by any individual unless the Secretary determines in writing that such individual is capable of humanely caring for more than four animals, including the transportation of such animals by the adopting party; and~~

(C) The Secretary shall cause additional excess wild free-roaming horses and burros for which an adoption demand by qualified individuals does not exist to be *made available for sale without limitation, including through auction to the highest bidder, at local sale yards or other convenient selling facilities.* ~~destroyed in the most humane and cost efficient manner possible. Additional excess wild free-roaming horses and burros for which an adoption demand by qualified individuals does not exist shall be sold under subsection (e).~~

(c)(4) The Secretary shall maintain a list of qualified individuals requesting adoption of excess animals.

Current subsections (c) through (e) of § 1333 should be stricken. In their place should be a single section stating that, upon adoption or sale to a private party, the federal government relinquishes all ownership to that animal and the animal loses its status as a “wild free-roaming animal.” This section may, but need not, include a statement that animals that lose their status as “wild free-roaming” animals are subject to state or tribal law regarding property and animal cruelty.

APPENDIX 3: Privatization

Section 1331 must be entirely rewritten to endorse private ownership of free-roaming horses and burros. In § 1332, the definition of “range” (subsection (c)) must be stricken.

Section 1333 must be amended to authorize and direct the Secretary to dispose of all free-roaming horses and burros through transfer to private ownership.

16 U.S.C. § 1333. Powers and duties of Secretary

(a) Jurisdiction; power to transfer ownership

All wild free-roaming horses and burros are hereby declared to be under the jurisdiction of the Secretary. The Secretary is authorized and directed to *provide for the transfer of all wild free-roaming horses and burros to private ownership and maintenance in accordance with the provisions of this chapter.* [All remaining text must be stricken].

(b) Inventory and transfer

(1) The Secretary shall maintain a current inventory of all wild free-roaming horses and burros on public lands. The purpose of the

inventory shall be to make determinations as to where, and by how much, an overpopulation exists.

(2) The Secretary shall maintain a list of parties requesting adoption of wild free-roaming horses and burros. Adoption requests shall be processed in accordance with subsection (3).

(3) Upon passage of this Act, the Secretary shall gather all wild free-roaming horses and burros from public lands, with greatest priority placed on the areas determined to have the largest overpopulation under paragraph 1 of this subsection. Gathered animals shall be disposed of in the following order and priority:

(A) The Secretary shall, wherever possible, transfer an entire herd to a party requesting adoption, provided that the Secretary has determined such adopting party is capable of humanely caring for the entire herd, including transportation of such animals and sufficient acreage and forage to adequately meet the needs of the herd.

(B) The Secretary shall transfer animals less than an entire herd to a party requesting adoption, provided that the Secretary has determined in writing that such adopting party is capable of humanely caring for the requested number of animals, including transportation of such animals and sufficient acreage and forage to adequately meet the needs of the animals.

(C) The Secretary shall cause animals not disposed of under paragraphs (A) or (B) to be made available for sale without limitation, including through auction to the highest bidder, at local sale yards or other convenient livestock selling facilities.

(i) Funds generated from the sale of animals under this subsection shall be used for the costs related to the gathering and transfer of wild free-roaming horses and burros, and the costs of sterilizing and maintaining animals not adopted or sold.

(ii) Any animals sold under this provision shall no longer be considered wild free-roaming horses or burros for purposes of this chapter.

(D) Animals not transferred or sold under paragraphs (A), (B), or (C) shall be sorted by gender and disposed of in one of two ways:

(i) Placed in gender-specific privately owned holding facilities to live out their lives under private maintenance at the cost of the federal government; or

(ii) Placed in herd management areas or other appropriate management areas, provided that the animals remain separated according to gender without the possibility of intermixing or that each animal in an intermixed herd is sterilized and the herd closely monitored to sterilize any foals born within the management unit.

(c) Title of transferee to transferred animals; loss of status as wild free-roaming horses and burros

(1) Where the Secretary has relinquished animals to a qualified transferee, to a buyer, or to a person taking control of wild free-roaming horses and burros found on his property under § 1334, the Secretary shall grant title to those animals to the transferee.

(2) Wild free-roaming horses and burros or their remains shall lose their status as wild free-roaming horses or burros and shall no longer be considered as falling within the purview of this chapter upon passage of title pursuant to subsection (c)(1) of this section.

§ 1334. Private maintenance

If wild free-roaming horses or burros stray from public lands onto privately owned land, the owners of such land may either: (1) inform the nearest Federal marshal or agent of the Secretary, who shall arrange to have the animals removed, or (2) notify the appropriate agent of the Secretary of the owners' intent to take ownership of the animals, supply him with a reasonable approximation of the number of animals, and thereafter treat them as private property with no further restrictions under this Act.

§ 1340. Joint Report to Congress

Every twenty-four calendar months, until all horses and burros have been transferred to private ownership or otherwise disposed of, the Secretary shall submit to Congress a joint report on the administration of this chapter, including a summary of enforcement and/or other actions taken thereunder, costs, and such recommendations for legislative or other actions as he might deem appropriate.

Under Alternative 3, Congress must add a section to the WFRHBA clarifying that after all horses and burros have been transferred to private ownership or died of natural cause in HMAs or in holding facilities, the Secretary's duties under the Act are complete and the status of any animal as "wild free-roaming" shall be abolished. The Act should further state an end date when the Wild Horse and Burro Program shall be definitively abolished, such as 30 years from the date the last HMA is gathered, and any unclaimed horses and burros found on the federal lands after that date shall be treated as feral animals under the state's estray livestock laws.