

Bonaire's Wild Donkeys: Why They Belong and What Can Be Done

By Craig C. Downer, Wildlife Ecologist. President: Andean Tapir Fund/Wild Horse and Burro Fund, P.O. Box 456, Minden, NV 89423. T. 775-901-2094. ccdowner@aol.com www.andeantapirfund.com

July 22, 2014

Introduction:

Bonaire's two civic organizations: Citizens for a Better, Safer, and Animal-Friendly Bonaire & We Care for Bonaire first informed me concerning the plight of this special island's unique wild donkeys. Upon reading as much as I could find on the subject, I decided to accept their invitation to come to the island and learn more about their situation and do what I could to help these animals.

Now, after over a week of observing the donkeys' habitat and other wildlife here and reading several germane studies, I have grown quite concerned that these animals are not being given their due consideration, but rather seem to be targeted for blame. Though the donkeys have established themselves on this island for ca. 500 years, they are being made scapegoats for ecological imbalances and destructive trends that are basically human-caused. For example, the dire problem with their being hit by cars could easily be remedied by the judicious employment of public education, speed bumps, Strieter light reflectors, and strict law enforcement. In fact, their detractors like to blame them for just about everything, from killing birds and snails to killing plants and causing the erosion of soils, though they are greatly outnumbered by goats on this island and their impacts are dwarfed by problems caused by people. These anti-donkey claims seem tinged with prejudice; and lacking is a rational, objective, as well as thorough-going assessment of the situation at hand.

My Background and its relation to the subject at hand:

As a biologist who specializes in the order that contains the donkeys (Perissodactyla), I possess some sound knowledge of the ecological niche of donkeys (a.k.a. burros), horses, tapirs and rhinos and have conducted elaborate investigations of these animals that includes radio-tracking of their movements and fecal germination experiments using control plots and some of my publications are given in the list of references below (Downer, various years; Oxley and Downer, 1994). I am aware that all of these perissodactyl, or odd-toed ungulate, animals, including the donkeys, are excellent soil builders and intact seed dispersers and that they generally contribute to a greater degree in this capacity than do the ruminant grazers, including goats, sheep, cattle, deer, etc. The consequences of their benign role are manifold and include making soils more nutrient-rich and more water-absorptive and creating a more bio-diverse ecosystem by aiding in the dispersal and germination of a greater variety of plant species which in turn support a greater variety of animal species. In other words, a wild-donkey-containing ecosystem is an enhanced ecosystem, one in which the safety net of a greater number of interrelated species is in place.

More on Ecological Benefits of Wild Donkeys:

My preliminary assessment indicates that Bonaire's donkeys constitute a relatively pure and continuous lineage that has been adapting to Bonaire for around five centuries, and that their abrupt removal could cause an ecological unravelling. First point that comes to mind concerns the danger of catastrophic fires, since donkeys can greatly reduce dry flammable vegetation, a point that has been graphically proven in

my native land of Nevada after massive removals of these animals. Also soils, whose humus content is increased through the decomposition of donkey feces, would become drier and less cohesive—and this could lower water tables all over Bonaire, rendering the island ecosystem much more subject to fire. And we should not forget that the donkey is by nature a desert creature, pre-adapted to survive in arid and semi-arid habitats over millions of years of its evolutionary history. No species can survive that long if it is inherently a destroyer of its habitat!

Less degraded donkey feces (as compared with goat and other ruminant herbivores) more greatly feed the animal community, from tiny micro-organisms to dung beetles, to lizards, rodents, birds, and on up the food chain. This major contribution is too often overlooked, and we should do observations to confirm this assertion. Were the donkeys to be suddenly jerked off this island, many of these sound ecological dependencies with species that have been formed here not only over the past five centuries but harken back to the multi-million-year co-evolutionary history of the donkey in the Americas could come to a crashing halt; and many species could suffer or even disappear.

Origin and Evolution of Donkey in North including Meso America and Associated Implications

Here it should also be noted that the horse family: Equidae, including the ass branch that includes the donkeys, actually had its evolutionary origin and long-standing evolution, or development, in North America, including Meso-America, with emigrations into South America during the past few millions of years (MacFadden, 1992; Downer, 2005, 2014 [both]). So to say the donkey is a mere feral (escaped from domestication) invading species is not true, for such would overlook the many millions of years that this ancient lineage has lived, died and been reborn in the Americas (see Klingel, 1979). As a matter of fact, there occurred a great die out, especially of the larger animals, after the last Ice Age ca. 12,000 years ago; and many of those dying out were large herbivores, like the donkey. These played a vital role of dispersing the relatively large and hard seeds of many tree species. The disappearance of these large herbivores is believed by many paleontologists to have led to the demise of many important tree species. Consequently, equids such as horses and donkeys have been reintroduced in certain regions of Meso-America (as elsewhere). One such place is the Guanacaste National Park in Costa Rica where equids were reintroduced precisely in order to restore this large-tree-seed dispersal role, or niche (see works of Dr. Daniel H. Janzen --Wikipedia). So, ironically, when we consider ways of restoring the original forests that existed on Bonaire, it could very well be that the donkey would provide the practical means of so doing. Many of these seeds need to be conditioned, i.e. to have their hard coats softened, by passing through the digestive system of animal like donkeys and horses. This is fact, not speculation. (See also Stolzenburg, 2006.)

Is there an Overpopulation of Donkeys on Bonaire?

As concerns the claimed overpopulation of wild donkeys on the island of Bonaire, I notice in the studies and articles I have read that these animals are usually lumped together with the domestic livestock population, particularly goats, which possess an extremely efficient digestive system involving caproic acid that is capable of digesting very hard and coarse vegetable matter, such as sharp thorns, hard woody stems and branches, or hard seed cases and often the nutrient-rich seeds themselves. In fact, goats most probably have a lot to do with the profuse thorny vegetation that has evolved on Bonaire where goats and vegetation seem to be involved in a competitive arms race whose object is very survival. Bearing the above point in mind, we should realize that it is unfair to merely unite, or clump, the donkeys with the goats in assigning blame for what has happened to the island ecosystem of

Bonaire. These are very different types of herbivores with different types of digestive systems; and the natural tendency of donkeys is to disperse their foraging pressure over large areas and to keep on the move. Of course, if people force any group of animals into a compromised, overly confined and limited habitat, such as by depriving them of vital water sources, this group may not be able to disperse its foraging as equitably as it would otherwise. (The dumping of raw sewage and toxic chemicals on Bonaire is another major problem here. –Wikipedia, Bonaire article) Ecological studies are called for that will differentiate the donkeys from the goats and other species as to their relative effect on the ecosystem, and a halt must be called to the ongoing removal and castration of Bonaire's unique but fastly disappearing donkeys. Remember that donkeys possess a post-gastric (caecal) digestive system while goats possess a pre-gastric, multi-stomach, ruminant digestive system (see Grzimek, 2004; Janis, 1976, MacDonald, 2001). And post-gastric digesters are known to complement the pre-gastric digesters, to balance out the effects of ruminant grazers, of which there has long been and remains a preponderance on the island of Bonaire (see Bell, 1970; Odadi and Rubenstein, 2011; Johnston, 2011; Downer, 1997 & 2001).

Other species of note include the threatened Yellow-Shouldered Amazon parrot, a nesting species of bright pink flamingo, land iguanas, whip-tailed lizards, pigeons with rings around their eyes, Franklin gulls, migratory terns, and all the amazing marine species that are associated with Bonaire's coral reefs, which entirely surround the island and are protected as a national marine park. In any ecological evaluation, the interrelationships of the donkeys to these and other vital components of the ecosystem should be taken into consideration. (See DeBoer, 2001; DeFreitas et al, 2005.)

Proposal for Bonaire and its Unique, Rare and Endangered Donkeys and Proofs of Endangerment

As a professional wildlife ecologist who has written action plans and species descriptions for endangered perissodactyl species (see Downer, various works cited in References), I propose a plan to preserve the wild donkeys as a balanced, contained, yet key component on Bonaire and to do so in as natural and non-invasive manner as possible. In this regard, please note that **the species and the subspecies to which Bonaire's wild donkeys belong are on the IUCN Species Survival Commission (SSC) Red List of Endangered Species (IUCN) and that the subspecies to which Bonaire's wild donkeys belong: the ancient Nubian Wild Ass – is on the Critically Endangered (CR) list.** This is the next step before Extinction and in northeast Africa their last populations are being rapidly exterminated, their last redoubts: overrun by humanity, livestock, hunters, etc. Since the Netherlands is a cosigner on the international endangered species treaty, it is incumbent upon both Bonaire and the Netherlands to honor this commitment to preserve and protect all endangered species, whether plant or animal, popular or unpopular, etc. The Critically Endangered (CR) status of Bonaire's Wild Asses as part of the remnant survivors of the Nubian Wild Ass has not been arrived at haphazardly or whimsically, but because of hard scientific evidence as considered by world authorities on the subject. It should be respected and not ignored by those with a removal agenda concerning these animals.

Several genetic samples have already been analyzed by an expert equine geneticist (Dr. Gus Cothran of Texas A & M University) and more are about to be analyzed. Results to date indicate that Bonaire's donkeys are a very pure and long-isolated strain of the Nubian Wild Ass. **So, as a professional ecologist and conservationist and as a member of the IUCN SSC, I am calling for the immediate halt to all further capturings and castrations/neuterings of Bonaire's wild donkeys.** This population should also be protected as a unique Bonaire population that merits our respect in its own right and is part of the

special culture and heritage of this island and the Dutch Antilles, whose human inhabitants date back thousands of years and include Native Americans (Caquetio branch of Arawak tribe; and Carib tribe), Negroes of African descent, and White European, particularly Dutch and Spanish races. This is a rich culture as expressed by its fascinating Papiamentu language; and the donkeys have helped people survive here for many generations. These are highly evolved animals known for their strength, intelligence, and wisdom, and they should not be suddenly discarded like so much refuse!

The IUCN SSC Equid Specialist Group (Duncan 1992) recommends that to be viable any population of equids living and interbreeding together in the wild should number at least 2,500 individuals. This figure is considered suitable to preserve the vigor required for long-term survival over the generations.

Some Hows and Whys of the Proposal for Bonaire's Wild Donkeys and the Island of Bonaire

Male donkeys are territorial and it is the "jack" who defends certain parcels of habitat. Females are attracted to a Jack and his territory. This age-old social behavior will allow us to provide for a long-term-viable donkey population that is limited in its expansion, true to the "ecological climax species" into which the donkey species falls.

A mosaic of jack-defended territories, each of which provide the food, water, shelter, and other type necessities for a related group of donkeys, provides a means for achieving the natural self-stabilization for Bonaire's wild donkeys. For by allowing these donkeys to fill their ecological niche upon certain adequate and extensive though bounded stretches of habitat, we can achieve donkey self-stabilization. Donkey numbers can be determined by available resources as these vary season-to-season and year-to-year.

We can provide for a healthy and viable donkey population according to the sound principles of Reserve Design, an important sub-discipline of Conservation Biology (see Peck 1998; Downer 2010). As part of this plan, we can estimate the "carrying capacity" for the donkeys of this island from vegetative productivity data that weighs in resource partitioning with other species. According to knowledgeable sources, only 20% of the island is inhabited by people, which would seem to allow plenty of room for a healthy population of donkeys. However, goats occupy practically the entire island and little is being done to reduce their numbers. These are generally claimed by local farmers. Also wild pigs are on the increase, but I only saw one during my week here, but many goats. It is not fair to single the donkeys out for blame. Data sheets I have recently obtained show that between the early years of White inhabitation of Bonaire and 1956, the human, goat and sheep populations greatly escalated, but the donkey numbers remained fairly stable and not at overwhelming levels, which would suggest some possible self-stabilizing factors at work or outside stabilizing factors (Westermann and Zonneveld, 1956).

Bonaire's biologists and land managers need to concentrate more on other species such as goats, iguanas, etc., and on the influence of warming trends in weather, as well as on habitat clearances by human development, of which I observed much. These factors have all helped to create present ecological conditions, not just the donkeys. To remove the latter without a proper impact study would be a serious error.

Some Major Components of a Reserve Design, specifically adapted to Bonaire and its Donkeys:

- (1) Where possible and/or necessary, employ natural barriers, or where such do not exist, semi-permeable, artificial barriers, to contain Bonaire's wild donkeys to places where they will not

interfere with concentrated human dwellings/activities and be harmed or themselves harm properties, vehicles, etc.

- (2) Establish buffer zones between donkey-inhabited areas and human inhabited areas. Employ special techniques of positive reinforcement and where necessary adverse conditioning to keep donkeys away from civilization. Adverse Conditioning need not be overly harsh to be effective.
- (3) Reactivate water sources, including wells to restore donkeys to more extensive habitats. This will relieve donkey pressure from towns and cities, farms and industrial areas, such as the salt ponds and in combination with barriers provide a limit to donkey expansion triggering their natural self-stabilization.
- (4) To the extent possible, restore a full complement of natural species both plant and animal, to ensure a healthy and balanced wild-donkey-containing ecosystem in Bonaire.
- (5) Employ a combination of speed bumps coated with phosphorescent paint to warn people, Strieter-Lite light reflectors, infra-red large warm-blooded animal detectors with flashing warning devices, fences, etc. to greatly reduce donkey-vehicle accidents. My observations here for over a week indicate this is a serious problem that should be dealt with immediately. This would be coupled with point 6 below.
- (6) Mount an intelligent and enthusiastic public education campaign that will increase the appreciation of donkeys in the wild and their positive contribution. This will stress how to live safely and respectfully with them and be coupled with more stringent law enforcement and public education through all types of media: newspaper, magazine, internet, TV and radio. This can be combined with ecotours to show people the donkeys (see point 8).
- (7) Involve qualified scientists as well as the public in monitoring the donkey population, including ongoing ecological and behavioral studies to include: (a) location, (b) census, (c) age and sex composition (d) movement patterns on the island and their seasonality, (e) species-specific dietary composition to assess which plants are eaten by donkeys, (f) effects on soil and plant germination via control plots and germination observations and experiments involving the feces of donkeys (see Downer 2001).
- (8) Mount Wild Donkey Ecotours for Bonarian, Antillean and Dutch citizens and international visitors. This will be rotated among the various donkey-inhabited areas of Bonaire so as not to overly disturb any one group of donkeys. Guides will be very respectful and only observe from a distance. I suggest not feeding the donkeys so as to avoid a dependence upon humans. Since donkeys are a fascinating and ancient presence upon the Earth and they have been associated with mankind for thousands of years, I am confident there will be a very positive response to these ecotours from the public. This will bolster the island economy in a wholesome and non-destructive way and will generate many jobs.
- (9) International financial support can be obtained for the restoration and long-term genetic viability of the Bonairean wild donkeys in the wild wherever and whenever possible. A Bonairean wild donkey conservation and research center can be established whose goal will be the harmonious ecological adaptation of the donkeys to all elements of the Bonairean life community. By working with such organizations as the IUCN SSC Equid Specialist Group, Wild Horse and Burro Fund/Andean Tapir Fund, Wild Horse and Burro Freedom Federation, International Society for the Preservation of Mustangs and Burros, Texas A & M University (all of which have expressed a keen interest in Bonaire's donkeys) as well as Citizens for a Better and Safer Bonaire and We Care for Bonaire, I am confident that enlightened change can come to this

beautiful island. I am sure that a brighter future will dawn over this island with its peaceful yet scintillating blue waters that have been experienced since ancient times by all the many donkeys and wildlife and people who for generations have shared and continue to share this island as home.

The Moral Dimension

As concerns Bonaire's donkeys, we are talking about fellow living beings, ones highly sensitive and intelligent in their own unique way and who have labored arduously yet patiently alongside us humans so that we could survive. Yet their greater story on this planet Earth has been in the wild, in the world of Nature, where they have lived for millions of years and where they have a vital and integral role to play, niche to fill. Let us give them this chance to carry on now and into the future, as a unique and special strand deeply woven into the tapestry of all life. To remove them from this beautiful tapestry would be a transgression of the most serious order, carrying dire consequences for us humans and all the Rest of Life with whom we share this marvelous living world—a place of experience and of progress, of mutual teaching and learning that goes on between and among all individuals and all kinds unto Perfection.

References:

Bell, R.H.V. 1970. The use of the herb layer by grazing ungulates in the Serengeti. In: Animal Populations in Relation to their Food Source. British Ecological Society Symposium. Ed. Adam Watson. Oxford, UK: Blackwell Science Publications.

DeBoer, Dr. Bart A. 2001. Our Animals: Curacao, Bonaire, Aruba. In Papiamentu, Dutch & English. Stichting Dierenbescherming, Curacao.

De Freitas, J.A., Nijhof, B.S. J., Rojer, A.C., and Debrot, A.A. 2005. Landscape Ecological Vegetation Map of the Island of Bonaire (Southern Caribbean). Caribbean Research and Management of Biodiversity Foundation. Curacao. Royal Netherlands Academy of Arts & Sciences, the Netherlands.

Downer, C.C. 2014 (Jan. 30). The horse and burro as positively contributing returned natives in North America. *American Journal of Life Sciences* 2014; 2(1):5-23

_____ 2014 (updated from 2012 original edition). The Wild Horse Conspiracy. See Ch. IV for Reserve Design and for donkey information see burro in Index. 313 pages, illustrated, also as eBook. www.amazon.com/dp/1461068983

_____ 2010. Proposal for Wild Horse/Burro Reserve Design as a Solution to Present Crisis. *Natural Horse*. Vol. 12, Issue 5, pages 26 ff.

_____ 2005. Wild and Free-Roaming Horses and Burros of North America: Factual and Sensitive Statement – How They Help the Ecosystem. *Natural Horse* (Dec) 7(3): 10 ff.

_____ 1997. Status and Action Plan of the Mountain Tapir (*Tapirus pinchaque*). In: Tapirs – Status Survey and Conservation Action Plan. Eds. D.M. Brooks, R.E. Bodmer, & S. Matola. Gland, Switzerland and Cambridge UK. IUCN SSC Tapir Specialist Group. Pages 10-22, also in Spanish in same publication.

_____ 2001. Observations on the diet and habitat of the mountain tapir (*Tapirus pinchaque*). *Journal of Zoology* (London) 254: 279-291.

Duncan Patrick. 1992. Zebras, Asses, and Horses: An Action Plan for the Conservation of Wild Equids. IUCN SSC Equid Specialist Group. Gland, Switzerland. International Union for Conservation of Nature/IUCN.

Fahnestock, Jace T. and James K. Detling. 1999. Plant response to defoliations and resource supplementations in the Pryor Mountains. *Journal of Range Management* 52: 263-270 (May)

Groves, Colin P. 1974. Horses, Asses and Zebras in the Wild. London: Newton Abbot Publishers

Grzimek, Bernhard. 2004. Grzimek's Animal Life Encyclopedia. 2nd Ed. Farmington Mills, MI: Gale. See section on horse feeding ecology on pages 141, 220, 228 and surrounding pages.

IUCN Species Survival Commission. 2014 and earlier years. Red List of Threatened Species. Switzerland: IUCN. Available online. Search: Nubian Wild Ass under African Wild Ass.

Janis, C.M. 1976. The evolutionary strategy of the Equidae and the origins of rumen and cecal digestion. *Evolution* 30: 757-774.

Jenkins, S.H. and M.C. Ashley. 2003. Wild Horse, *Equus caballus*, and Allies. Chapter 53. In: Wild Mammals of North America: Biology, Management and Conservation. 2nd Ed. Eds. G.A. Feldhamer, B.C. Thompson, & J.A. Chapman. Baltimore and London: The John Hopkins University Press. See pages 1148-1163.

Johnston, Jesica, M.S. 2011. California's Wild Horses and Burros: Twin Peaks HMA. California State University-Sacramento. Master's of Science Thesis. Departments of Environmental Science and of Public Policy. Available online.

Klingel, Hans, Ph.D. 1979. A Comparison of the Social Organization of the Equids. In: Symposium on the Ecology and Behavior of Wild and Feral Equids. Proceedings: University of Wyoming, Laramie. September 6-8, 1979.

MacDonald, David. 2001. The New Encyclopedia of Mammals. New York, NY: Oxford University Press. Hoofed Animals, see pp. 456-458; and Horses, Zebras and Asses, see pp. 471-472.

MacFadden Bruce J. 1992. Fossil horses: systematics, paleobiology, and evolution of the family Equidae. Cambridge, UK: Cambridge University Press. See especially Chapter 12 and also page 112.

Martin, P.S. 2005. Twilight of the mammoths: ice age extinctions and the rewilding of America. Berkeley CA: University of California Press.

Odadi, W. and D.I. Rubenstein. 2011 (Aug.). Facilitation between Bovids and Equids on an African Savanna. *Evolutionary Ecology Research*.

Oxley, Ralph and Craig Downer. 1994. "Deserts" In: Nature Worlds. Tony Hare ed. London: MacMillan Reference. See page 116.

Peck, Sheila. 1998. Chapter 5: Reserve Design. In: Planning for Biodiversity: Issues and Examples. Washington, DC. Island Press. Pages 89-114.

Stolzenburg, William. 2006. Where the Wild Things Were. *Conservation in Practice* (Jan-Mar) 7(1): 28-34.

Walker, Ernest P. 1999. Walker's Mammals of the World. 6th Ed. Vol. 11. Baltimore, MD: John Hopkins University Press.

Westermann, J.H and Zonneveld, J.I.S. 1956. Geological Observations and Land Capability and Land Use Survey of the Island of Bonaire. See page 41.