Managing Wild Horse Population with Birth Control

Presented by North Dakota Badlands Horse

NORTH DAKOTA BADLANDS HORSE

- 501 (c)(3) non-profit organization
- Established in 2009
- Dedicated advocate of Theodore Roosevelt National Park (TRNP) wild horse herd
- Over 40 years of documentation collected
- Position on current horse management is neutral
- Understands the current (TRNP) horse management plan is fluid (ongoing)
- Education of the public, especially, Stakeholders, regarding history, management and status of the TRNP herd

Stakeholder Education

- NDBH is pleased to share its perspective on the future of horse management in TRNP. Our organization is confident in the park's dedication to maintaining a healthy, genetically diverse, sustainable herd of horses. We acknowledge the complexity and ongoing nature of the plan. Furthermore, we recognize the need to control the herd's size. The park has selected GonaCon-EQ, an immunocontraceptive, to halt reproduction until numbers are reduced. What is important to realize is this: Immunocontraception's effectiveness relies on several factors, including, but not limited to, immune response, genetics, and health of the mare. As a result, non-responders will always be present. We hope this presentation offers a more comprehensive understanding of GonaCon-EQ's use over PZP (another immunocontraceptive), as supported by evidence.

How many wild horses?

The current number of horses in the TRNP herd is approximately 204. The horses with "whereabouts unknown" are included in this total. 35-60 head was the 1978 population goal. *This goal may be re-evaluated, according to research, during the development of a new management plan"* https://www.nps.gov/thro/learn/nature/frequently-asked-questions-about-horses.htm.

Data gleaned from the 10/25 roundup will also be instrumental in the new management plan. To our knowledge, the park has not made a decision regarding the number of horses they will keep in the South Unit.

Evidence Based Practice Is The Answer

- Horse management using scientific research
- Ensure the research is peer reviewed
- Believe the experts
- Beware of misleading information
- A healthy, diverse, sustainable herd is paramount

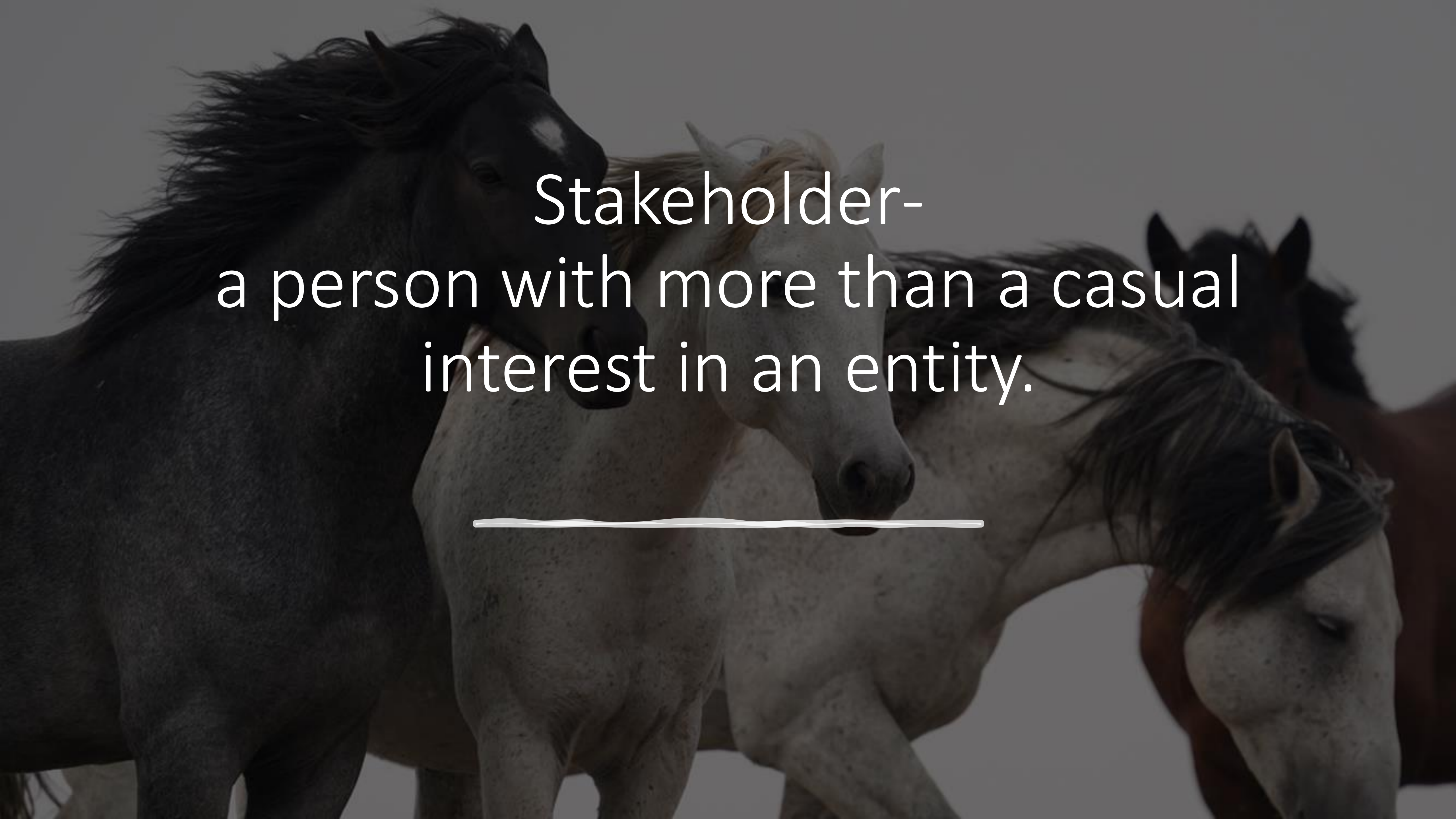
VOCABULARY

APA (American Psychological Association) format - the most widely used format for taking any information from peer-reviewed publications. We will not use information, facts, or quotes without citing the author(s).

Peer reviewed – articles reviewed, and determined accurate, by a field of experts of the same field.

Disinformation – false information, which is intended to mislead.

Misinformation - false or inaccurate information that is unintentionally spread.



Stakeholder-

a person with more than a casual interest in an entity.

OBJECTIVES:

At the end of this presentation the stakeholder should be able to:

- Name two methods of birth control approved for use on feral, free-range mares.
- Report the overall reversibility of GonaCon-EQ as indicated by Dr. Dan Baker
- List the research indicating GonaCon-EQ is sterilizing mares in TRNP (trick question because there is none)

Guidelines vs Policies

Guideline - advice or recommendations developed during research.

Guidelines offer management FLEXIBILITY to use research to fit the needs of a specific problem or program.

Policy – MANDATORY steps that must be followed.

Evidence based practice is “a healthcare approach that uses the best scientific evidence to inform clinical decision making”. I would like to add ”the latest evidence” to this NIH definition because science is always evolving. Any evidence used to develop a management program based on science, should use the most recent research.

*Definitions taken from National Institute of Health

BIRTH CONTROL IN FERAL HORSES

Controlling reproduction in feral horses, and other feral species, has been studied for decades. Birth control in feral horses, mares specifically, can be managed several ways. Some of these birth control measures require procedures. TRNP currently elects to control population with the use of GonaCon-EQ. For the sake of this presentation, I will discuss GonaCon-EQ and PZP (porcine zona pellucida), two popular methods of immunocontraceptive birth control.

INFERTILITY – the ultimate sign is the mare's failure to produce a foal. Infertility is considered reversible.

Birth control can be responsible for infertility.

STERILITY - the inability of a mare to produce a foal when there is no contraception method being used. Sterilization is a permanent form of birth control.

Sterility is not reversible.

Extensive diagnostic testing is needed to determine that a mare is "sterile".

STAKEHOLDER CONCERNS / GONACON-EQ

CONCERN

GonaCon-EQ is sterilizing the mares, therefore, eradicating the entire herd.

EXPERT

Dr. Dan Baker Horse Talk (Time Stamps) ("Chasing Horses Horse Talk/Dr Dan Baker and Ginger Fedak")

- (that is) "an expensive question to answer, it takes a long time to do (prove) that." 18:18
- "we can't say yes or no, we don't know if some of those mares aren't sterile" 18:30
- "fertility could have been age suppressed" 18:45

STAKEHOLDER CONCERNS / GONACON-EQ

CONCERN

GonaCon-EQ is not reversible.

Reversibility of GonaCon-EQ:

Reversibility of GonaCon-EQ immunizations occurred in all treatment intervals.

Overall reversibility was 40%.

(Baker et al.)

EXPERT

Dr Dan Baker Horse Talk (Time Stamps) ("Chasing Horses Horse Talk/Dr Dan Baker and Ginger Fedak")

- "We have the reversibility of each one of these (dosing) intervals" 18:41
- "well, I think we've demonstrated that its not 100% sterility, ok" 1:07:08

STAKEHOLDER CONCERNS / GONACON-EQ

CONCERN

The aggressive use of GonaCon-EQ continues.

RESEARCH

Responsible birth control:

A fundamental premise of successful use of fertility control technology to maintain a feral horse population at a steady-state target density is the need for the breeding population to be relatively small, with little influx of new animals, and logistically available for contraceptive treatments. In some management settings, however, small, closed breeding populations can be at risk of stochastic loss of genetic variability or possibly extinction if management actions resulting in over-treatment of a population. For these situations, it may be prudent for resource managers to consider a management approach using shorter interval GonaCon-Equine treatments, delivered by syringe dart, that were shown to be effective in this investigation. This strategy has been shown to be particularly appropriate and effective at the population level for small, overabundant populations, that are fenced, or geographically closed (e.g. national parks, conservation areas, urban parks, and refugia) (Baker et al.).

STAKEHOLDER CONCERNS / CONCERNS

CONCERN

- The aggressive use of GonaCon-EQ continues.

EXPERT

Dr Dan Baker Horse Talk (Time Stamps) ("Chasing Horses Horse Talk/Dr Dan Baker and Ginger Fedak")

- ❖(Concerning BLM use of GC) "more applicable to their management operation" 23:40
- ❖"I can see the rationale behind that" 29:12
- ❖"I can see why TRNP would not want the herd to get any larger" 36:21

STAKEHOLDER CONCERNS / GONACON-EQ

CONCERN

A foal in November in TRNP is no longer with the band and is considered deceased. This is related to GonaCon-EQ causing foals to be born out of season and subjected to the elements.

REALITY

The foal in question had an injury to his leg early on and failure to keep up with the band was most likely the cause of his demise. Untreated mares also have foals outside of the foaling "season". Given the past survival of foals born in TRNP in winter does not support the statement that GonaCon-EQ increases foal deaths or "failure to thrive". Question: If GonaCon-EQ is sterilizing mares then how are foals being BORN out of season? Make it make sense.

STAKEHOLDER CONCERNS / GONACON-EQ

CONCERN

Neonatal demise is associated with foaling out of season due to use of GonaCon-EQ.

RESEARCH

GonaCon-EQ study: (Baker et al.)

Out of season foaling DID NOT result in higher mortality rates for neonates.

STAKEHOLDER CONCERNS / GONACON-EQ

CONCERN

Park management is "halting reproduction of the herd".

INCOMPLETE INFORMATION

Where is the time frame on this? One year, five years, until the herd is at a certain number? Did TRNP say they were "halting reproduction of the herd forever"? No.

Don't be misled. The park has agreed to keep a sustainable herd of horses. A herd is not sustainable if there is no reproduction.

STAKEHOLDER CONCERNS / GONACON-EQ

OLD RESEARCH

Aggressiveness and aberrational behaviors are not caused by native PZP use. (information taken from studies done 1983-1991)

*reference (DeMayo)

MORE RECENT RESEARCH

- Behavioral research has suggested that recipients of PZP extend the receptive breeding period into what is normally the non breeding season. (Nunez et al, 2010)
- Mares treated with PZP demonstrated decreased fidelity to the band stallion, increased and prolonged reproductive behavior, and increased likelihood of extending reproductive cycling into the non breeding season and these effects can persist several years after treatment (Nunez, 2018)

Literature Review of Peer Reviewed Studies

(Appendix E. Literature Reviews on PZP and GonaCon Fertility Control Vaccines, and Wild Horse – Ecosystem Interactions)

- GonaCon-EQ and PZP vaccines are registered by the EPA and are not experimental.
- PZP label - “For maximum efficacy, ZonaStat-H is administered as an initial priming dose followed by a booster dose at least two weeks later.”
- GonaCon-EQ label - “If longer contraceptive effect is desired, a second vaccination may be given *30 or more days after the first injection or during the following year with no known adverse health effects to the vaccinated animal.”

*2025 label states “7” or more days

Literature Review of Peer Reviewed Studies

- Even after booster treatment of GonaCon-EQ, it is expected that most, if not all, mares would return to fertility at some point.
- Repeated treatment with PZP led to long-term infertility in Przewalski’s horses.
- PZP vaccination may cause direct effects on ovaries by reducing the anti-Mullerian hormone (AMH) levels. AMH is thought to effect ovarian function. This was not documented in GonaCon-EQ dosing.
- Mares that are treated with GonaCon-EQ vaccine can be expected to return to fertility when the immune response to the antigen declines.

Literature Review of Peer Reviewed Studies

- Not all mares should be expected to respond to the GonaCon-EQ vaccine.
- Predicting long-term immune responses to antiGnRH vaccines is difficult.
- Short term evaluation of anti-GnRH vaccines, show contraception appears to be temporary (i.e. reversible).

Flexibility

Remember the definitions in the beginning of this presentation? A guideline is advice or recommendations developed during research. Guidelines offer management FLEXIBILITY to use research to fit the needs of a specific problem or program (I. e. Horse management)

Summary

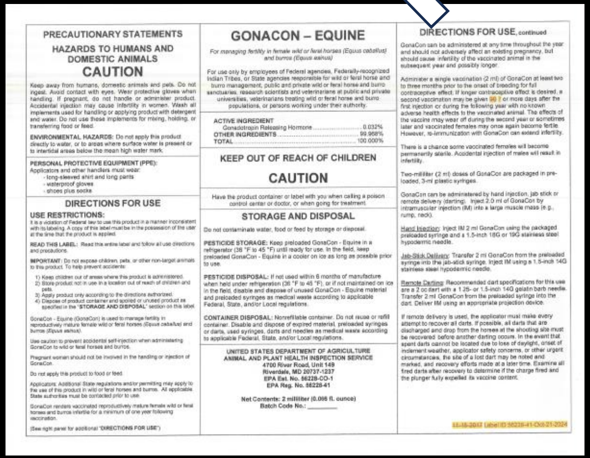
- TRNP wild horse numbers must be controlled, and GonaCon-EQ is a safe form of birth control.
- Wild horse management plans take time, resources, and evidence to be sustainable.
- RECENT research is implicit.
- Research allows for “flexibility” in management plans.
- TRNP use of GonaCon-EQ is consistent with its labeling (no off-label use).

GONACON-EQ

DIRECTIONS FOR USE, continued

GonaCon can be administered at any time throughout the year and should not adversely affect an existing pregnancy, but should cause infertility of the vaccinated animal in the subsequent year and possibly longer.

Administer a single vaccination (2 ml) of GonaCon at least two to three months prior to the onset of breeding for full contraceptive effect. If longer contraceptive effect is desired, a second vaccination may be given ~~90~~ 7 or more days after the first injection or during the following year with no known adverse health effects to the vaccinated animal. The effects of the vaccine may wear off during the second year or sometimes later and vaccinated females may once again become fertile. However, re-immunization with GonaCon can extend infertility.



https://www3.epa.gov/pesticides/chem_search/ppls/056228-00041-20250121.pdf

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- Don’t jump to conclusions!
- Read the research.

- NDBH thanks you for your attention!!