



# ABA Info Sheet

## Fertility Control For Wild Horses

### **About Fertility Control for Wild Horses**

Fertility control is aimed at managing the foaling rate in wild horse populations and has been used for over 20 years in the United States in the form of an annual vaccine called Porcine Zona Pellucida (PZP). Today are several methods of control that are in various states of research and development. Examples of treatments most promising for wild horses in the foreseeable future are:

*Porcine Zona Pellucida (PZP)* – PZP is an immunocontraceptive vaccine made from the Zona Pellucida of pigs. When PZP is injected into another mammal it causes antibodies to adhere to the animal's own uterus thus blocking the sperm receptors. PZP does not disrupt the reproductive cycle but it prevents fertilization from male sperm. “Conventional” PZP vaccine requires a primer shot followed by an annual booster. To enhance the immune response, PZP vaccine is mixed with an adjuvant: Freund's Modified for the primer shot and Freund's Incomplete for the annual boosters. Conventional PZP can be hand injected or via remote darting.

*Multi Year, Single Shot PZP vaccine (Spay Vac and Polymer pellets)* While conventional PZP is effective and safe, effective treatment requires annual boosters and a primer shot in the first instance. PZP can be mixed with various polymers to form a pellet which is injected into the animal and, like 24 hour cold and flu tablets, the polymer releases the vaccine over time, thus enabling treatment for multiple years via a single shot. Another product, Spay Vac uses liposomes in conjunction with PZP to extend effectiveness. Research to date suggests the polymer vaccine is reliably effective for 2 years and Spay Vac for up to 4 year. Unfortunately these vaccines cannot, as yet, be reliably delivered via remote darting.

*Gonadotrophin Releasing Hormone (GnRH)* - GnRH is also an immunocontraceptive vaccine that stimulates production of antibodies that surround endogenous GnRH. This suppresses follicle stimulating hormone and luteinizing hormone, thereby disrupting the reproductive cycle. Research on GonCon, a GnRH product shows efficacy over 4 years. Like multi-year PZP, GonCon is only reliable at present when hand injected.

### **Why is it important?**

Wild horse populations in many parts of the world are competing for resources with other species in the environment. In some places, like the USA rangelands, there are economic implications as in places where cattle are also using the land. Various legislation and government policies are now requiring control of wild horse populations and sometime this includes lethal control. While Fertility Control is not the total answer, it has a potential to add a humane and non-lethal control strategy to the management of wild horse populations.

### **Where is it used?**

While some treatments, such as PZP are used around the world for a number of mammalian species, it is not extensively used on wild horses. The United States has had the longest history of PZP use, commencing with trials and then ongoing programs for over 20 years at Assateague Island National Seashore. Since then various trials and programs have been implemented in Montana (Pryor Mountain), Colorado (Little Bookcliffs Horse Management Area) and Wyoming (McCullough Peaks Herd Management Area). These areas have small to medium size horse populations which is more suitable to implementing PZP trials than large populations.

*This Info Sheet is a general overview of several possible vaccines and is not intended to be a detailed description of individual treatments or treatment programs. Please see the list of references for further information on this subject.*



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In Australia, PZP is used at the Perth Zoo and research is in progress using GonaCon on Australian marsupials. There have been no trials of fertility control in Australian wild horse populations.

### **Issues**

Fertility Control has the promise to provide humane management of wildlife but there are many challenges to achieving this. Because of this governments tend to be reluctant to implement fertility control programs. While there is some research on fertility control for wildlife in other species, there is no current programs for wild horses in Australia.

#### Pros

- Potential for a humane, non-lethal method of wildlife control if remote delivery and longer lasting vaccines can be developed.
- Some products have been used and studied for over 20 years with proven efficacy and minimal side effects
- Some treatments are reversible.
- There is often a delay in return to fertility following withdrawal of treatment and some mares do not return to fertility at all, suggesting vaccines can be effective for longer periods.
- Treated mares live longer, healthier lives

#### Cons

- Delivery of currently available vaccines is difficult. Remote darting requires ability to approach and recognise individual mares for booster shots. Hand injection requires suitable handling equipment and infrastructure and the ability to capture horses on a regular basis. Oral delivery is highly desirable but not likely to be realised for a long time.
- Vaccines currently reliable via remote darting (PZP) requires annual vaccination.
- Vaccines showing longer efficacy (2-4 years) still require hand injection for reliable dosage.
- Injections, particularly via remote darting, may incur temporary abscessing or nodules.
- There is often a delay in return to fertility following withdrawal of treatment and some mares do not return to fertility.
- Treated mares live longer, impacting on population decline.

### **ABA's Position**

ABA understands that wild horse populations need to be controlled but we advocate for humane non-lethal controls where possible. While current fertility control treatments are not suitable for all wild horse populations, ABA believes that there are areas of Australia where these methods could be implemented and studied for the Australian environment. In this way, Australia will add another valuable strategy to controlling numbers of brumbies while at the same time helping progress the global effort to improve the delivery and use of fertility control for wildlife.

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If we as a nation are not prepared to try and improve the promise of fertility control through research and development, it is likely that the cycle of ground and aerial shooting will continue with far too little management in between, allowing population numbers to again increase until it becomes necessary to shoot again.

### References and Links

Ballou, Johnathan D., et.al., 2008, Simulation model for contraceptive management of the Assateague Island feral horse population using individual-based data, *in Wildlife Research*, V35, 502-512, CSIRO Publishing

Botha, A.E., et.al, 2008, The use of GnHR vaccine to suppress mare ovarian activity in a large group of mares under field conditions, *in Wildlife Research* v35, 513-519. CSIRO Publishing

Killian, Gary, et.al., 2008, Four-year contraception rates of mares treated with single-injection porcine zona pellucida and GnRH vaccines and intrauterine devices, , *in Wildlife Research* v35, 521-539. CSIRO Publishing

Kirkpatrick, Jay F., and Turner, Allison, Achieving population goals in a long-live wildlife species (Equus caballus) with contraception, 2008, *in Wildlife Research* v35, 513-519. CSIRO Publishing

Kirkpatrick, Jay, F., *personal communication*, July 2008

Turner, John W. Jr, 2008, Controlled-release components of PZP contraceptive vaccine extend duration of infertility, *in Wildlife Research* v35, 555-562. CSIRO Publishing

Butch Roelle (USGS), Jason Ransom ( USGS), Allan Sheppard (US Bureau of Land Management), meeting at USGS Fort Collins Colo Science Centre, June 2008,

#### Websites

ZooMontana Science and Conservation Centre:

[http://www.zoomontana.org/conservation\\_center/index.html](http://www.zoomontana.org/conservation_center/index.html)

Wildlife Fertility Control

<http://www.pzpinfo.org/pzp.html>

USGS Fort Collins Science Centre

<http://www.fort.usgs.gov/WildHorsePopulations/Resources.asp>

SpayVac for Wildlife Org – [www.terramar.bc.ca/](http://www.terramar.bc.ca/)

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