

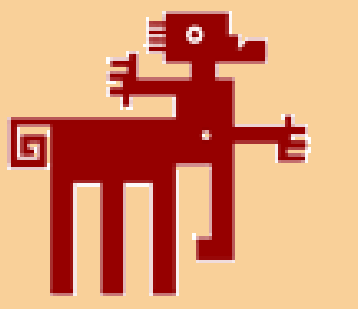
# Reproductive biotechnologies in endangered mammals:



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## The Iberian lynx

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### OBJECTIVES

The aim of this paper is to describe the Iberian lynx's reproductive physiology, to know reproductive biotechnologies that allow to avoid its extinction and to describe the real application of these in lynx populations of the Iberian peninsula.

### INTRODUCTION

Threatened wild species require genetic and reproductive management for its conservation. It is necessary to know the reproductive physiology and anatomic differences between species. Another complication is the population management. The Iberian lynx is the most endangered felid of the world with 397 individuals nowadays. It is considered an "umbrella" and a "flag" species.

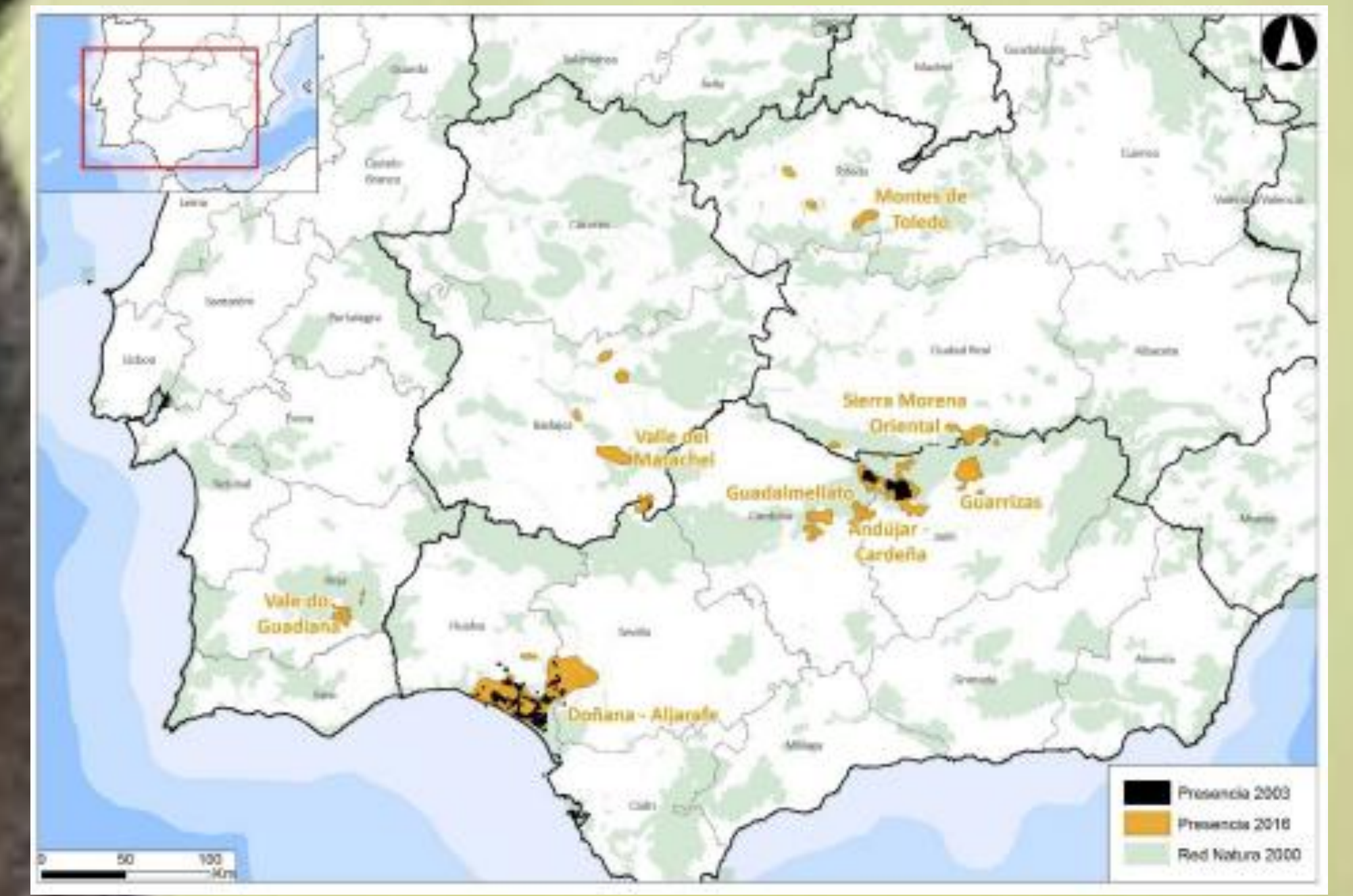


Figure 1: 2003/2016 population areas.  
Source: <http://www.iberlynce.eu/index.php/esp/>

### OVARIAN CYCLE OF THE FEMALE

The female reaches the puberty at the age of 2. Lynxes are monoestric species.

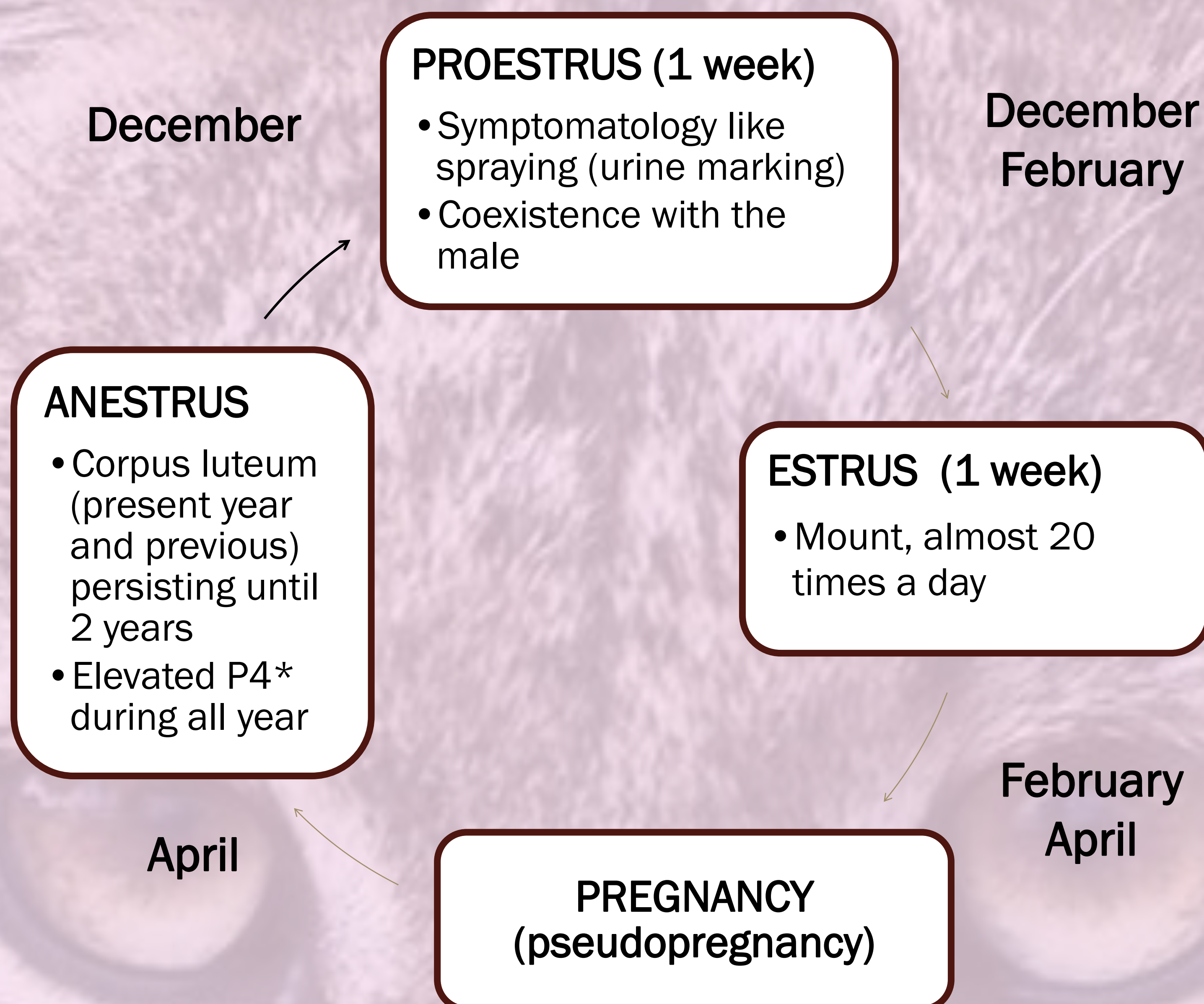


Fig 2. Ovarian cycle of the female. Source: own creation.  
\* Progesterone

### ECOLOGY OF THE LYNX

The Lynx population decreased because of the Rabbit Hemorrhagic Disease that concerned the rabbit population, its main prey. Actually lynxes live practically in Doñana National Park and also in zones of Sierra Morena (Jaén) (Figure 1).

### EJACULATE VARIATIONS OF THE MALE

Table 1: Ejaculate variations observed in the male Lynx.

	Sub-adults (<3 years old)	Adults (>3 years old)
pH	7,0	8,0
Sperm motility	++	+++
Sperm abnormalities	+++ (73%)	++ (56%)

	Free-ranging	Captive
Sperm motility	++ (58%)	+++ (85%)
Seasonality	+++	++
Teratospermia	63-81%	

	Breeding season	Non-breeding season
[testosterone] feces*	0.66 ng/g	0.4 ng/g
Testis weight	+++	++

Source: own creation.  
\* Studied in Eurasian lynx.

### PREGNANCY AND ITS DIAGNOSIS

Pregnancy lasts 63-65 days. The diagnosis is made by feces and urine samples. Metabolites in feces of estrogens and gestagens are not a reliable method to determine pregnancy. PGFM\* (prostaglandin metabolite in feces) and relaxin are currently used. These two metabolites follow a similar pattern, increasing until the birth both in blood and feces/urine.

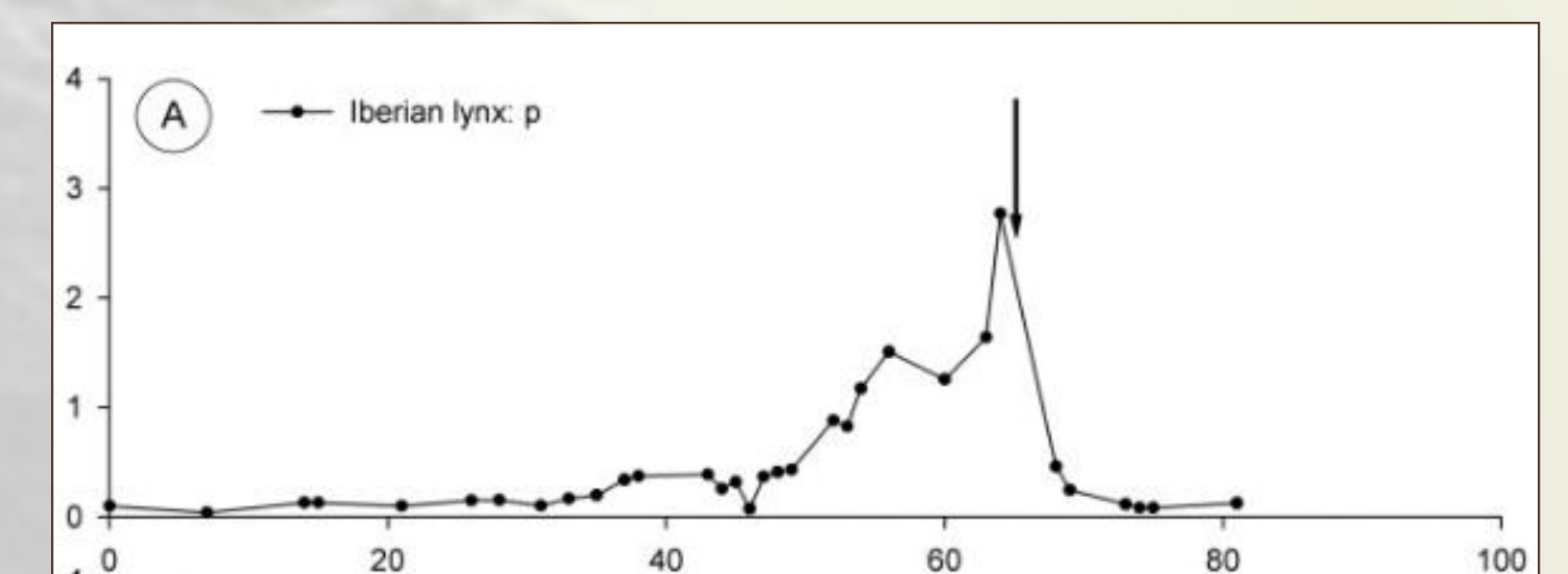


Fig 3. PGFM\* patern during pregnancy. The arrow represents the birth.

Source: Dehnhard et al. 2012

### CONCLUSIONS

- ✦ The *ex situ* Conservation Programme of the Iberian lynx is essential to avoid the extinction of this species. This program is increasing the number of individuals since 2005. The key element to improve its conservation is to know their reproductive physiology.
- ✦ The seasonality of the female depends on the latitude. She always have a physiologically persistent corpus luteum that maintains high progesterone levels during all year in comparison to other felids.
- ✦ The male also presents seasonality, and the ejaculate's quality and quantity also depend on the age of the male, and if they are captive or free-ranging animals.
- ✦ Further studies are needed to achieve better cryopreservation protocols and to develop assisted reproductive techniques reliable in the future. The Genome Resource Banks creation is the basis of this.