



Tule Elk at Point Reyes National Seashore

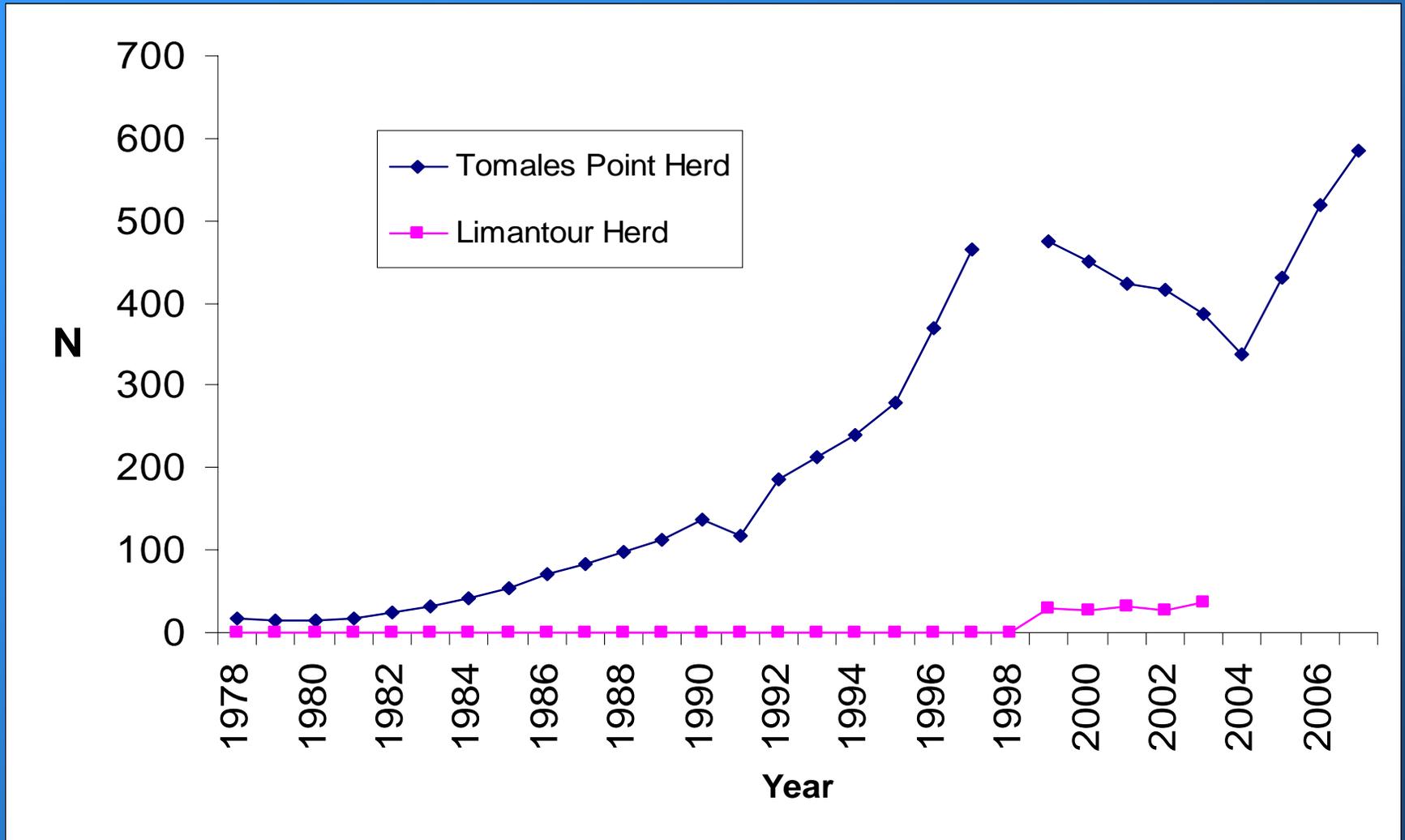
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History of Tule Elk at PRNS

- **Re-introduced to PRNS 1978 (10 animals)**
- **Tomales Point Elk Reserve - 2,300 acres, fenced.**
- **Currently ~ 641 in PRNS**
- **1999 translocation to form free-ranging herd**



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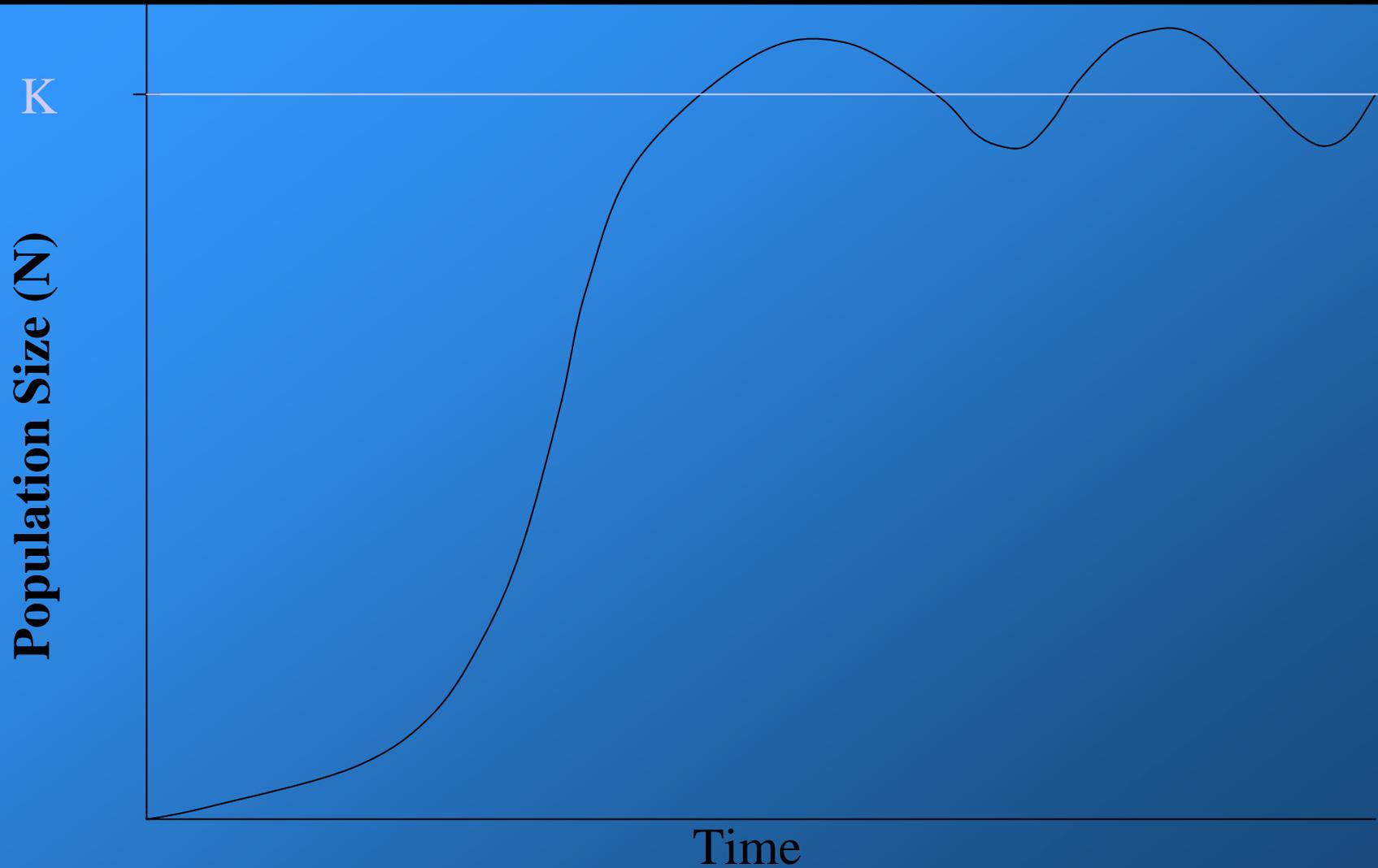




Biological Carrying Capacity (K)

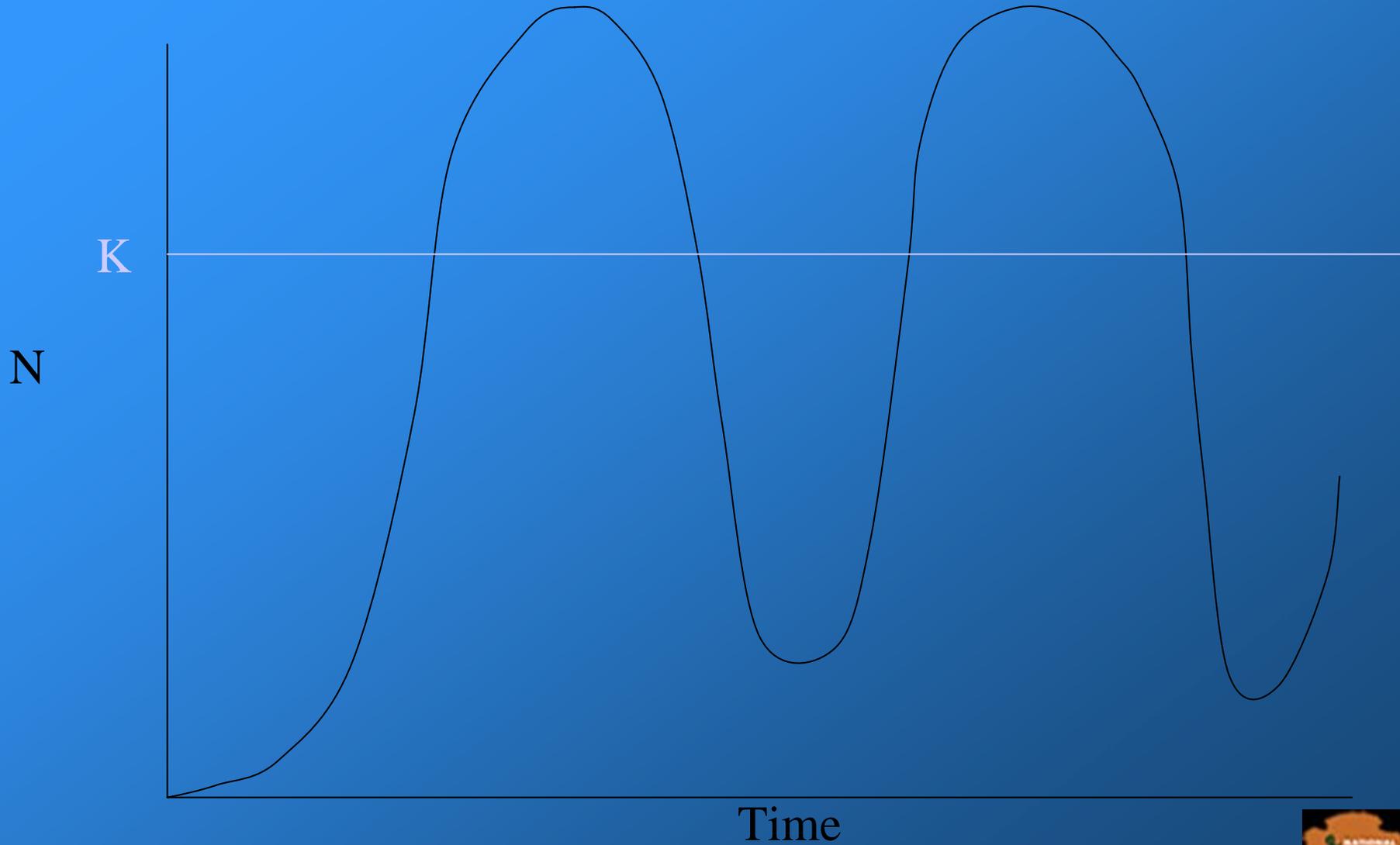
- The number of conspecific animals that can be supported within a given area.
- The upper limit beyond which no further population increase can occur.
- Is NOT a static number but depends on weather patterns, human disturbance, catastrophic events.





Classic Logistic Growth and Stabilization Near Carrying Capacity – ungulates





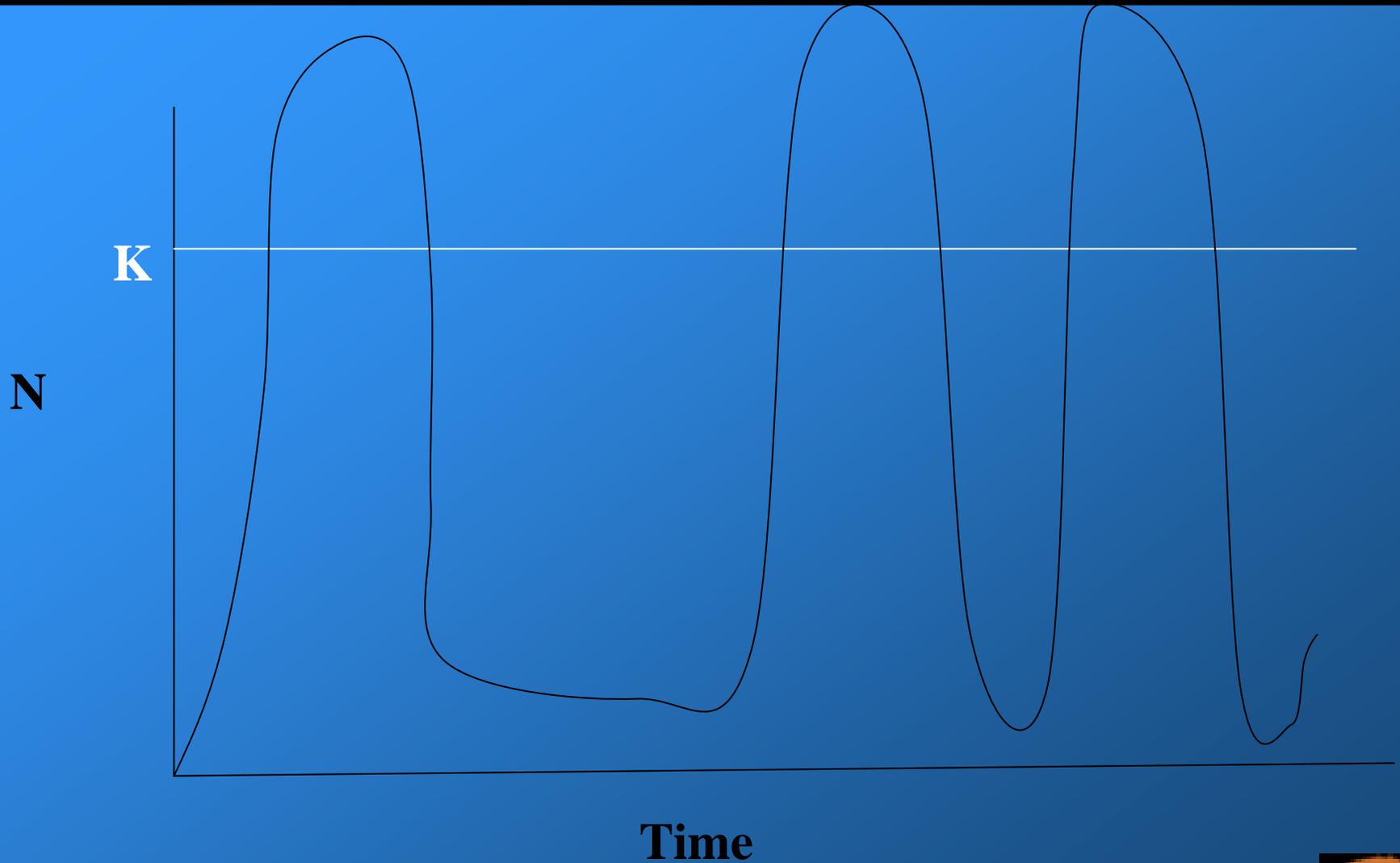
Cyclic Oscillations (Regular Intervals)– lemmings



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Irruption (Irregular Intervals)– house mice Australia





History of Tule Elk at PRNS

- **1992 EA - preferred alternative = culling.**
- **Opposition from animal rights groups and public.**
- **1993 scientific panel recommendations:**
 - **1. Self-regulation**
 - **2. Research on contraception**
 - **3. Habitat monitoring with thresholds**
 - **4. Better herd monitoring**
 - **5. Reserve option of agency culling**

Contraception at PRNS 1997-2001



- **Porcine Zona Pellucida (pZP) = “immunocontraceptive”**
- **pZP injected twice first year, once/yr thereafter.**
- **Up to 47 cows treated yearly over 3 yrs.**
- **Method: hand injection 1st dose, darts thereafter.**

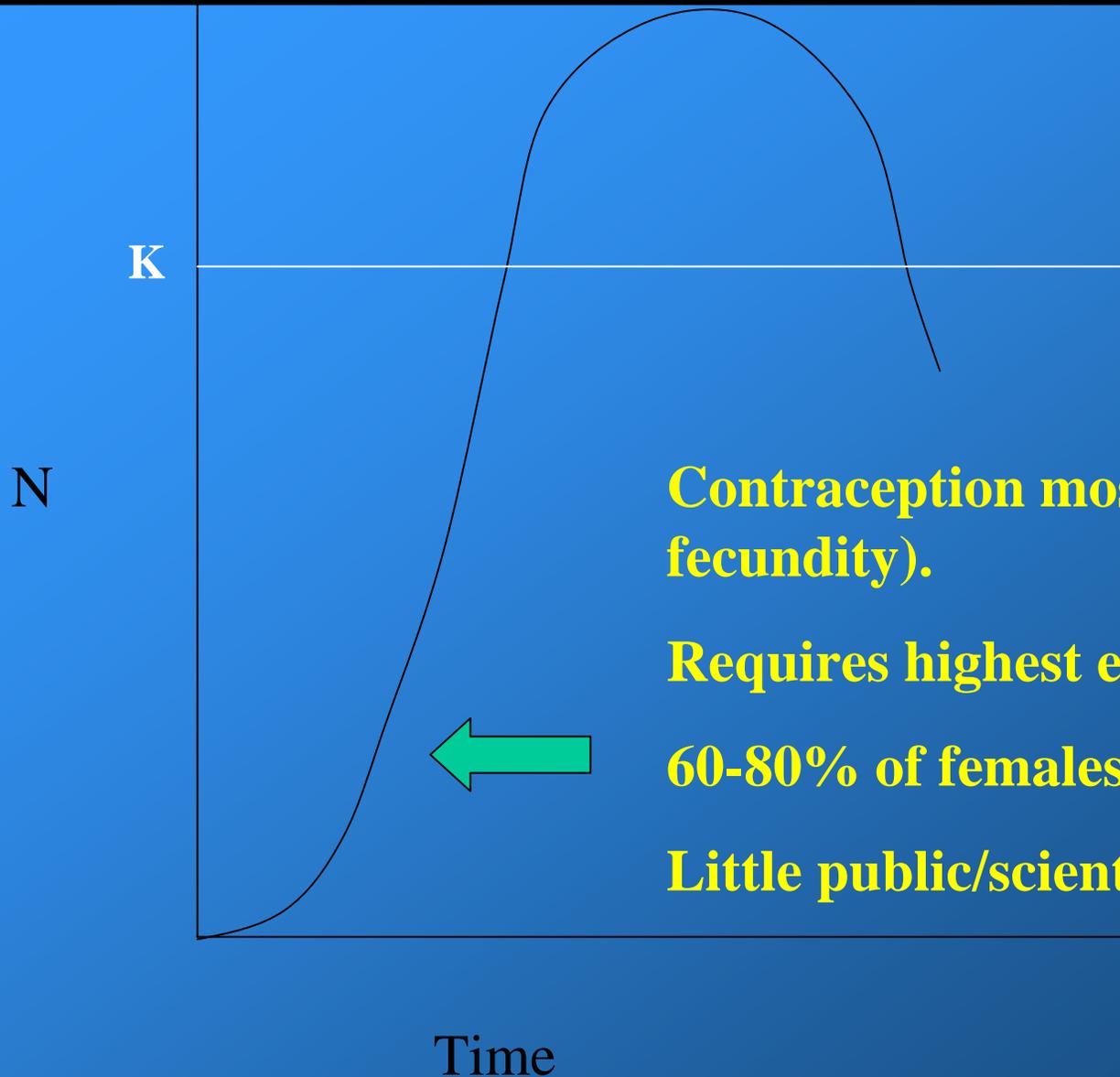
Contraception at PRNS



Contraception at PRNS



- **Field efficacy ~62% in 2001.**
- **13.3 births/yr prevented in 2000-2001 .**
- **Yearly boosting cost >\$16,127 (> \$972 / calf prevented). Costs will increase every year.**
- **Problem:
density/effectiveness
trade-off**

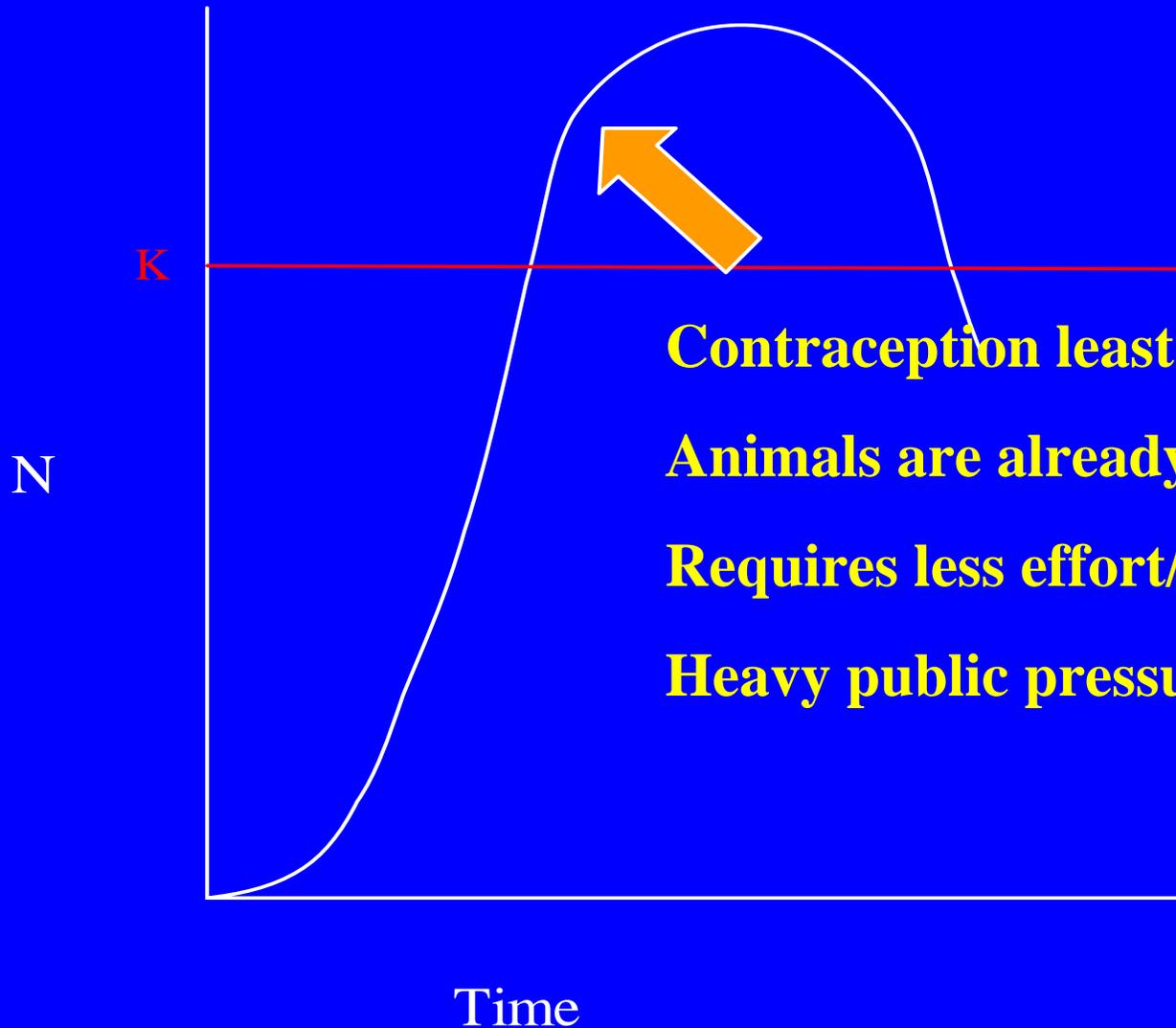


Contraception most effective (high fecundity).

Requires highest effort/animal.

60-80% of females must be treated.

Little public/scientific pressure.



Contraception least effective (lo fec.).
Animals are already “overabundant”.
Requires less effort/animal.
Heavy public pressure.

Limantour Relocation

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- 1998: 45 elk were removed from Tomales Point and moved 10 miles away.
 - Quarantined for 6 months and tested for Johne's disease.