

The Ups and Downs of Saiga Antelope Conservation: Its Population Dynamics and its Effect on Management

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Ecology of Saiga Antelope

- Migratory ungulates
- Found in arid deserts, semi-arid deserts, and steppes (grassland plains) of Central Asia
- Only wild herbivore in large numbers in the region
- Polygynous species with harems
- Two subspecies
 - *Saiga tatarica tatarica* – located in Kazakhstan. Four sub populations make up 80% of species population
 - *Saiga tatarica mongolia* – located in Mongolia. Little known about this subspecies. Number in the 100s.
- We'll be focusing on *S. t. tatarica*



Male saiga antelope



Capable of covering huge distances on a daily basis

Two yearly migrations where herds travel up to 1,000 km

- Spring migration (north/northwest) to graze on new pastures during 'green flushes'
 - Takes 2-3 months with arrival normally in June
- Fall migration to avoid harsh winters
 - Decide to migrate when rains occur or temperature drops
 - Takes 3-4 months with arrival in November or December

Migration

Rutting and Group Behavior

- Gregarious species
- Can form groups of ten or one thousand
 - Large herds during migration and calving
 - Break up of herds into family groups during lactation
 - Harems during rutting of 50 or less individuals
- Groups are constantly shifting or dispersing
- During rutting adult males will fight over females and drive them away from their harem
- Protuberant nose swells during rutting
- Higher mortality for adult males due to rutting



Male saiga antelope during rutting season

Life History & Population Structure

- High fecundity – 60% increase in population in one year
 - Female characteristics
 - Male characteristics
- Fecundity and age correlated (Kuhl 2009)
- ‘Boom and bust’ method adapted to environmental stochasticity
 - Rutting males vulnerable to severe winters
 - Females and calves vulnerable to summer droughts
 - All vulnerable to dzhuts
- At birth, sex ratio is 1:1
- In adults, females far outweigh males
 - More skewed because of hunting



Small group of saiga antelope

Limiting Factors

- Human influences
 - Primarily poaching/hunting
 - Loss of habitat and desertification
- Climate influences
 - Severe winters
 - Summer Droughts
 - Dzhuts
- Climate change
- Predators – wolves
- Parasites and disease

Decline of the Saiga Antelope



Box of saiga horn for sale online

Background on Harvesting

- Saiga have been hunted for centuries for meat, hide and horns
- Horns are used in Chinese traditional medicines as fever reducer
- Current population decline caused by poaching and lack of management

History of Management

1920s –
Population crashed
because
of
harvest.
Only few
100
remaining

1990 –
Fall of
USSR and
end of
managem
ent

1994 –
Listed in
CITES
Appendix
II

2004 –
Listed as
critically
endangered
by IUCN

1950 –
Beginning
of
managem
ent. #s
increase
1,000,000

1990s –
The use
of saiga
horns as
alternativ
e to
elephant
tusks

2003 –
Surveys
show
saiga
antelope
populatio
n have
declined
95%

Population has crashed from 1,000,000 in 1990s to 50,000 in 2003. But populations are now beginning to rebound.

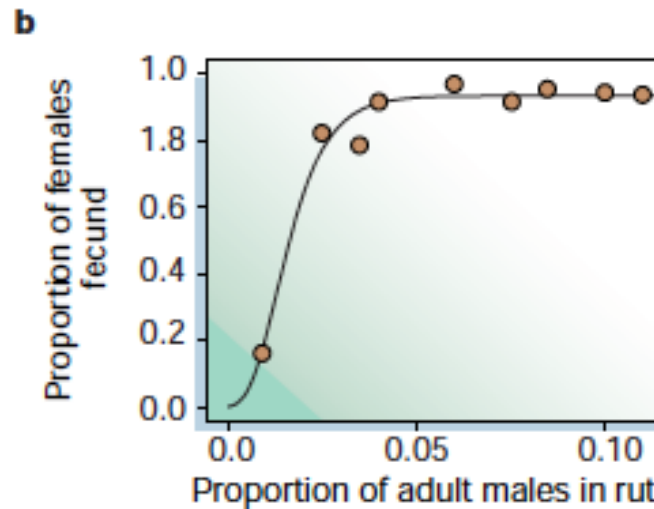
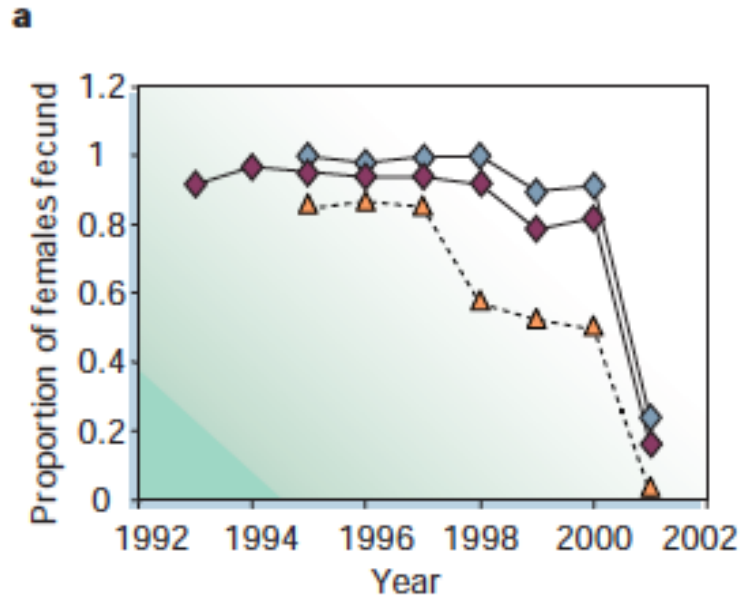
Drop in Female Fecundity due to Hunting bias towards Males

- Since males only have horns, poaching has led to a a hugely skewed sex ratio
- Population fell to 50,000 in 2002, a decline of 95% with small male percentage.
- Harems normally have 1 male with 15-30 females with males fighting over females.
- Now harems have ballooned and adult females push other females out of the harem.
- Can be seen in graph with failure of first-years to breed.

Blue diamonds – adult females

Yellow triangles – juvenile females

Red diamonds – Average



Current Management Efforts

- Protected nationally in Russia and Kazakhstan
- Listed in Appendix II of CITES
- Listed in Appendix II of Convention on Migratory Species
- But poaching still a major problem with little law enforcement
- Kazakhstan has funded anti-poaching enforcement and aerial surveys
- Russia has passed legislation for “emergency conservation efforts” for its population and funded surveys
- China has placed controls on horn stocks in markets
- Several NGO projects underway

Moving Forward

- More research is necessary on migratory habits
- Increased enforcement against poaching is needed
- Efforts to strengthen livelihoods of rural poor
- Protected areas should be established along migratory routes in both summer and winter areas
- Corridors should be established in migratory areas with high human presence
- Cooperation and coordination between Russia and Kazakhstan
- Management should considering changes in climate considering its effect on the species



Saiga antelope female with calf

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