Adaptive Management for Deer: A Case Study

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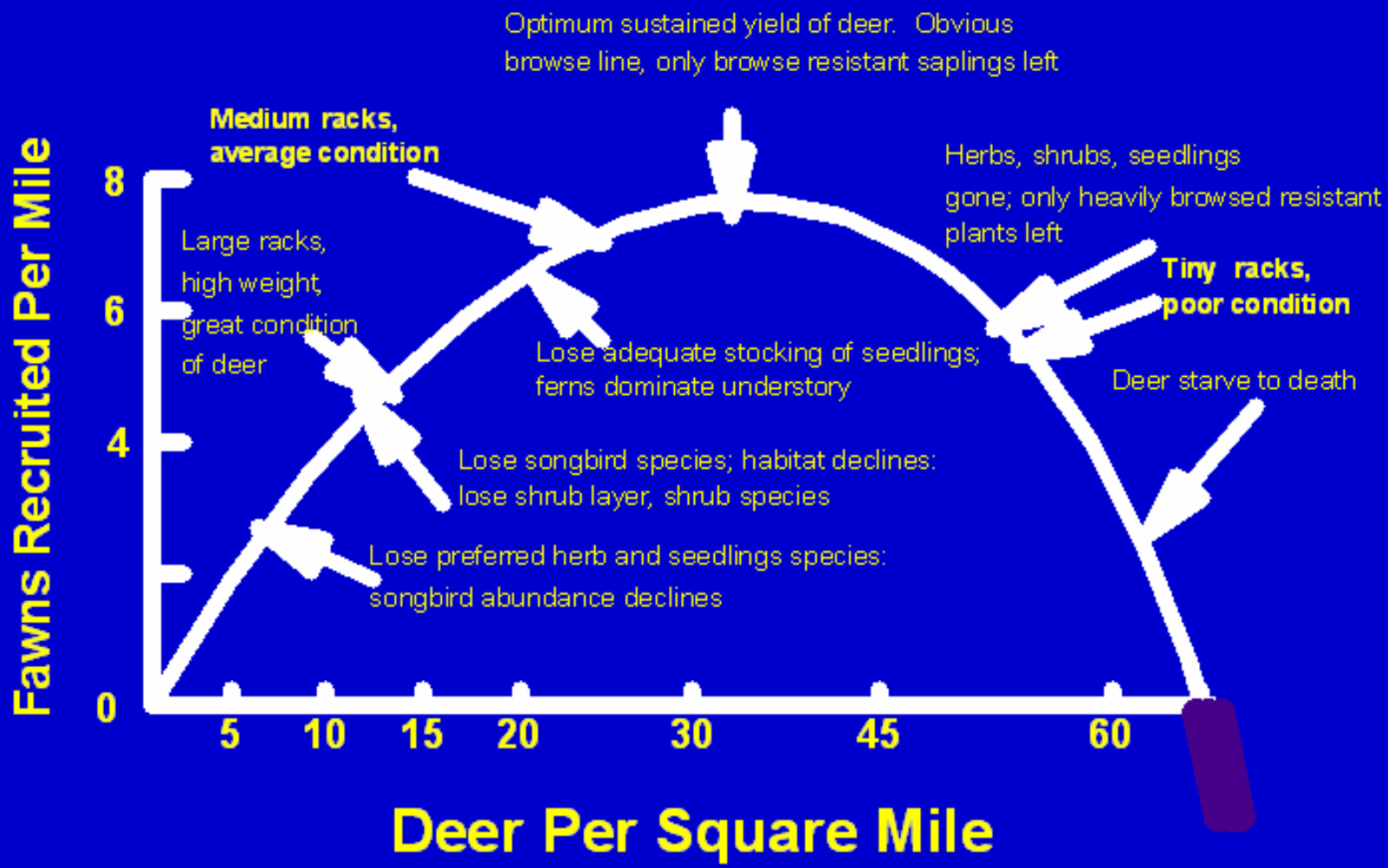
Problem: Deer browsing destroys habitat, affects deer and habitat health – too many deer, too little forage

Heavy Deer Browsing = Habitat degradation

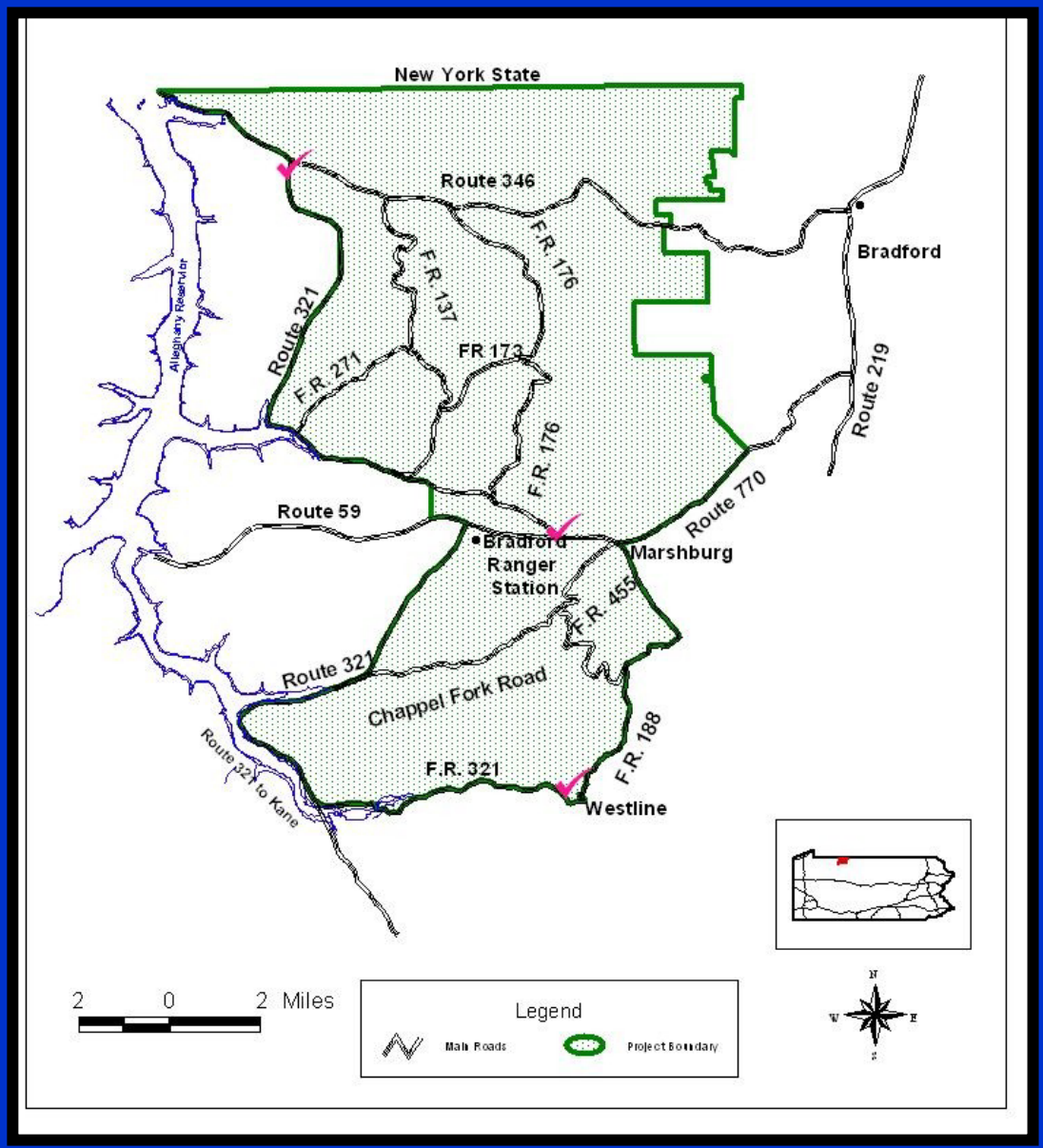
Shrub layer eliminated

Heavy browse line, no regeneration, no herbs

Deer Impact Curve



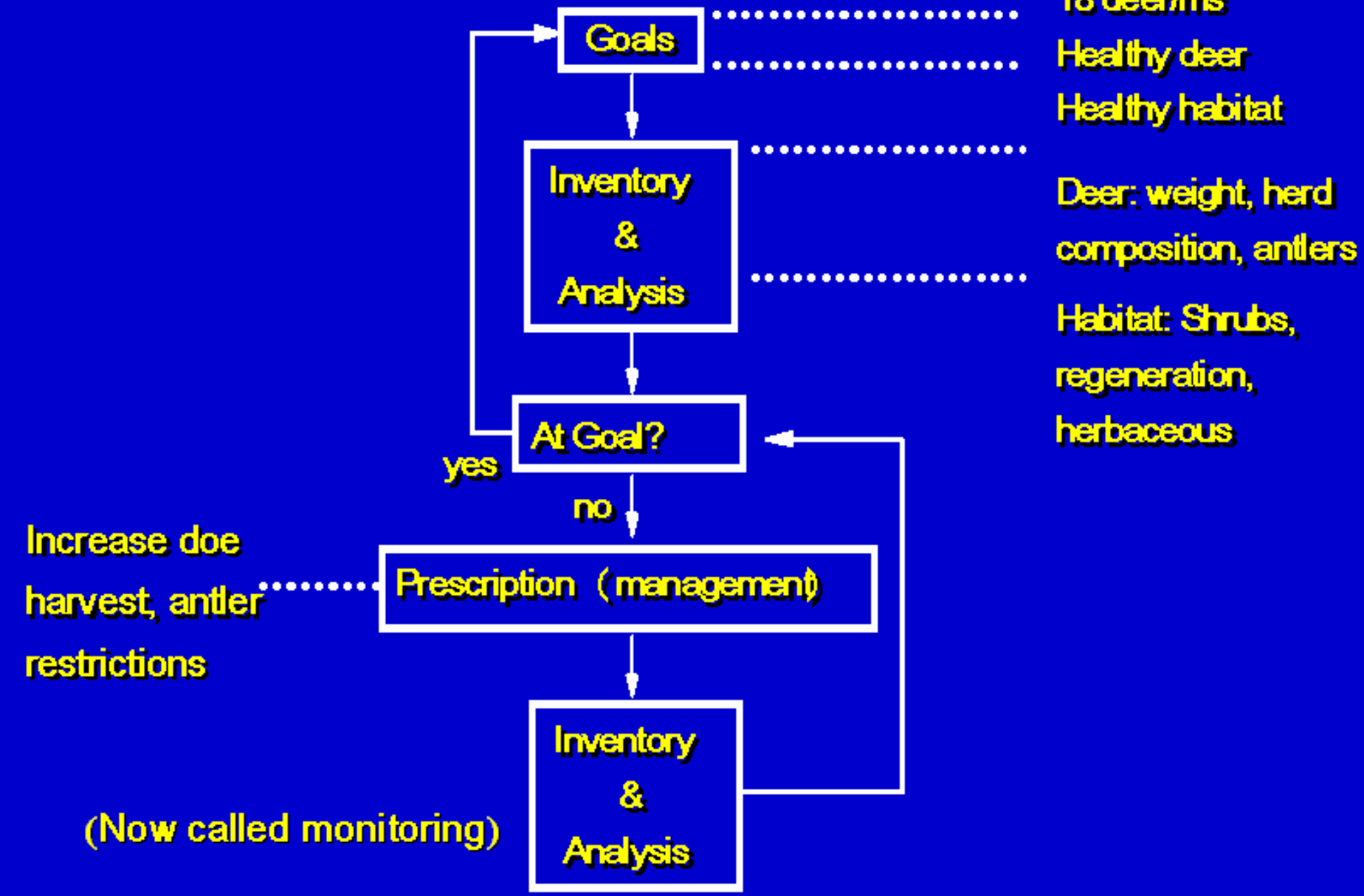
Kinzua Quality Deer Cooperative ~ 74,000 acres



Study Area

Large Landscape Study Area = 74,000 acre KQDC: Allegheny National Forest + Collins Pine + Bradford Watershed + Forestry Investment Associates + RAMCO

Adaptive Management - Deer



Goals: Healthy Deer

Body weight (field dressed): adult bucks ~ 150+, adult does ~ 110+, fawns ~ 70+

Antler characteristics: adults 4x4+; spread >16”, beam diameter >30mm

Buck:doe ratio: ~1:3-4

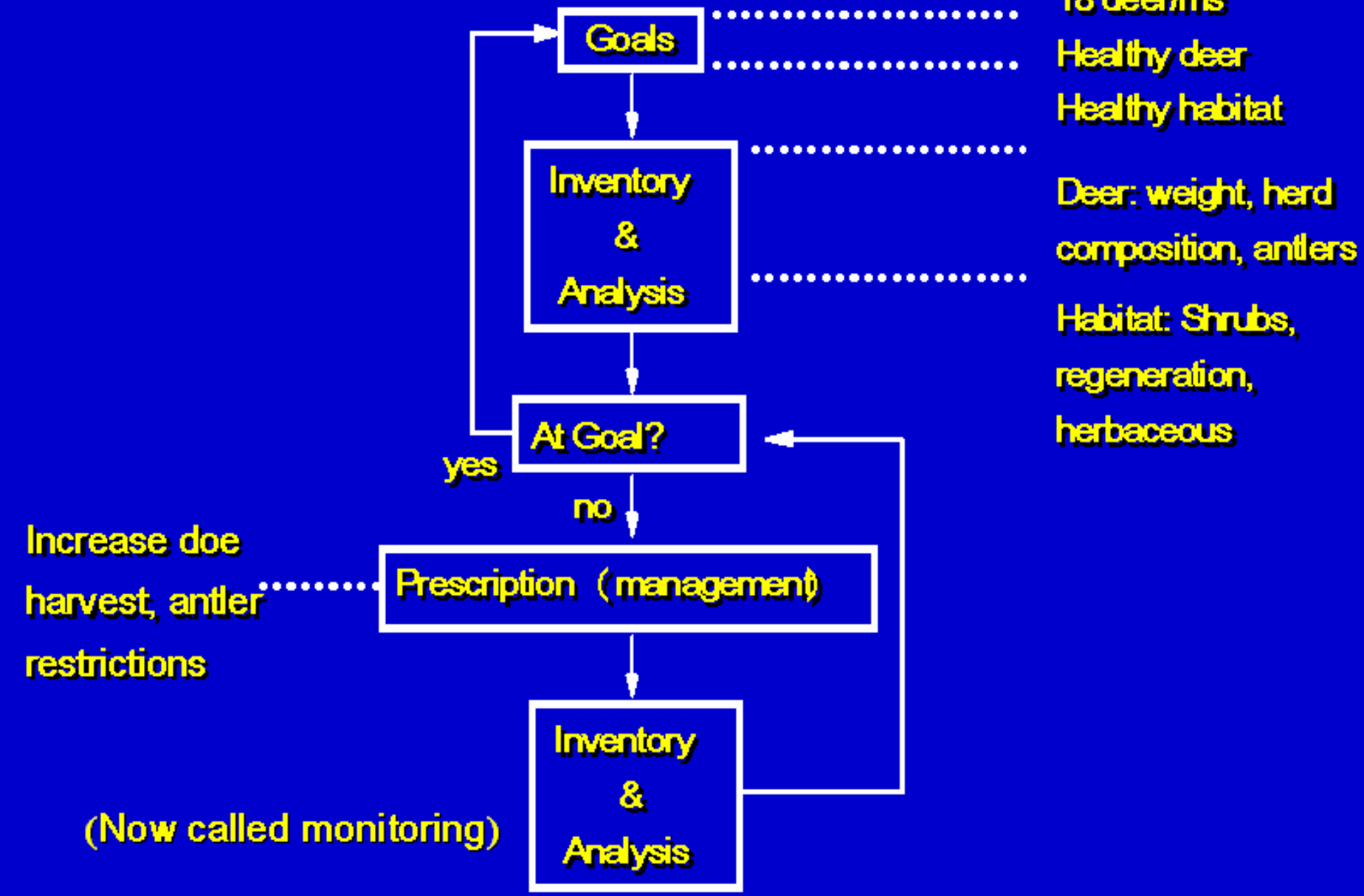
≤ 18 deer/square mile

Fawn:doe ratio >1:2

Goals: Healthy habitat

- Regeneration of preferred tree species >3’
- Reduced level of impact
- Presence of dense shrub layer >3’
- Abundance & diversity of herbaceous plants

Adaptive Management - Deer



Prescriptive Management to reduce deer density, increase trophy bucks

- Education: inform hunters, involve hunters through workshops, training, media
- Improve Access: increase hunter awareness of access roads, open more
- Improve antlers: 3 points or better regulation (courtesy PA Game Commission)
- Harvest more antlerless deer: Lottery and banquet (checking station)
- Harvest more antlerless deer: DMAP program (2003)

Monitoring

Buck:doe ratio and and fawn:doe ratio and recruitment: *pre-hunt roadside counts*

Buck/doe harvest and deer condition: *checking stations*

Deer density and habitat health: *pellet group counts/damage assessment*

Monitoring Deer Condition

Checking stations for weight, antler characteristics, sex, age distribution of harvest

Monitoring: Density/damage

- Density estimates: pellet group counts
- Damage estimates: browsing index

Monitoring pre-hunt herd

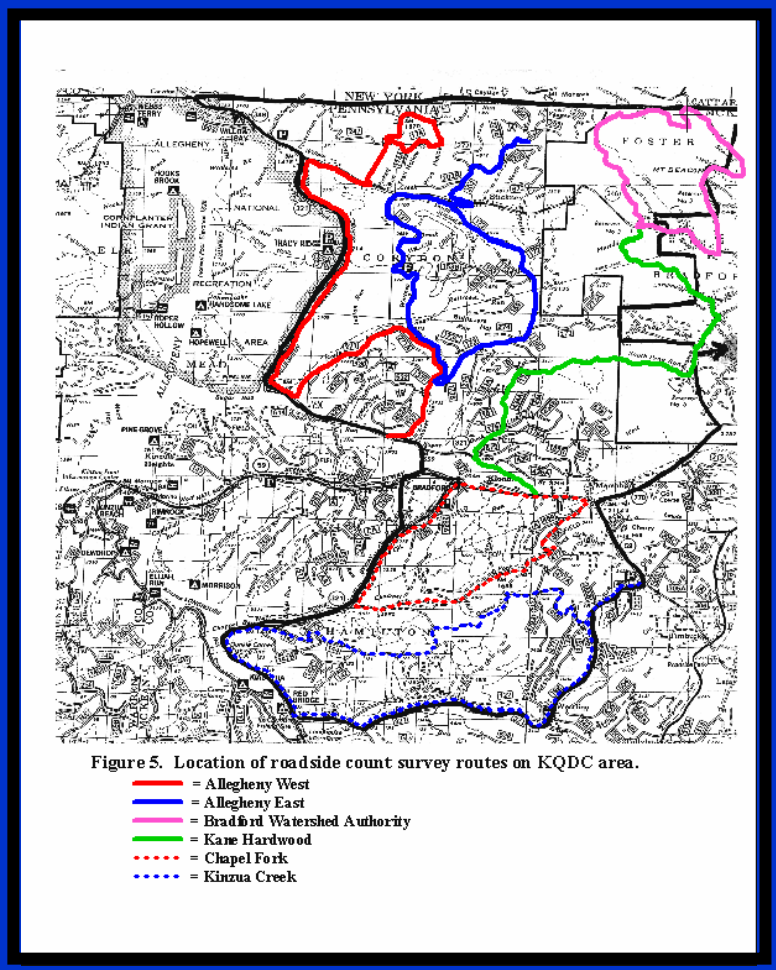


Figure 5. Location of roadside count survey routes on KQDC area.

6 permanent roadside count routes run every fall

Incentive: Hunter Banquet with Lottery

Education and training

- Training sessions for:
  - roadside counts
  - pellet group counts
  - damage assessment
- Information transfer:
  - Gary Alt-type talks
  - progress reports
  - newspaper updates

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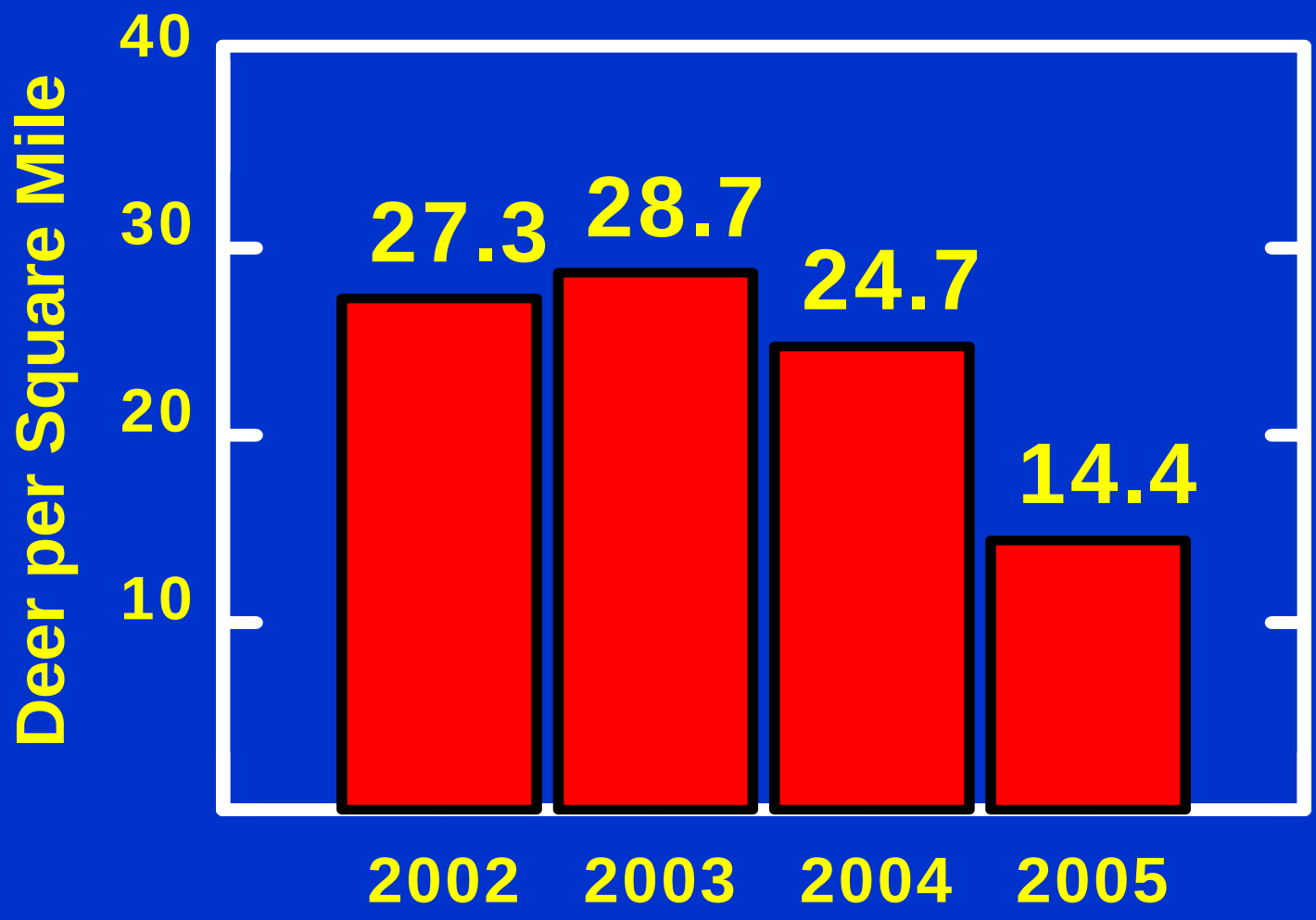
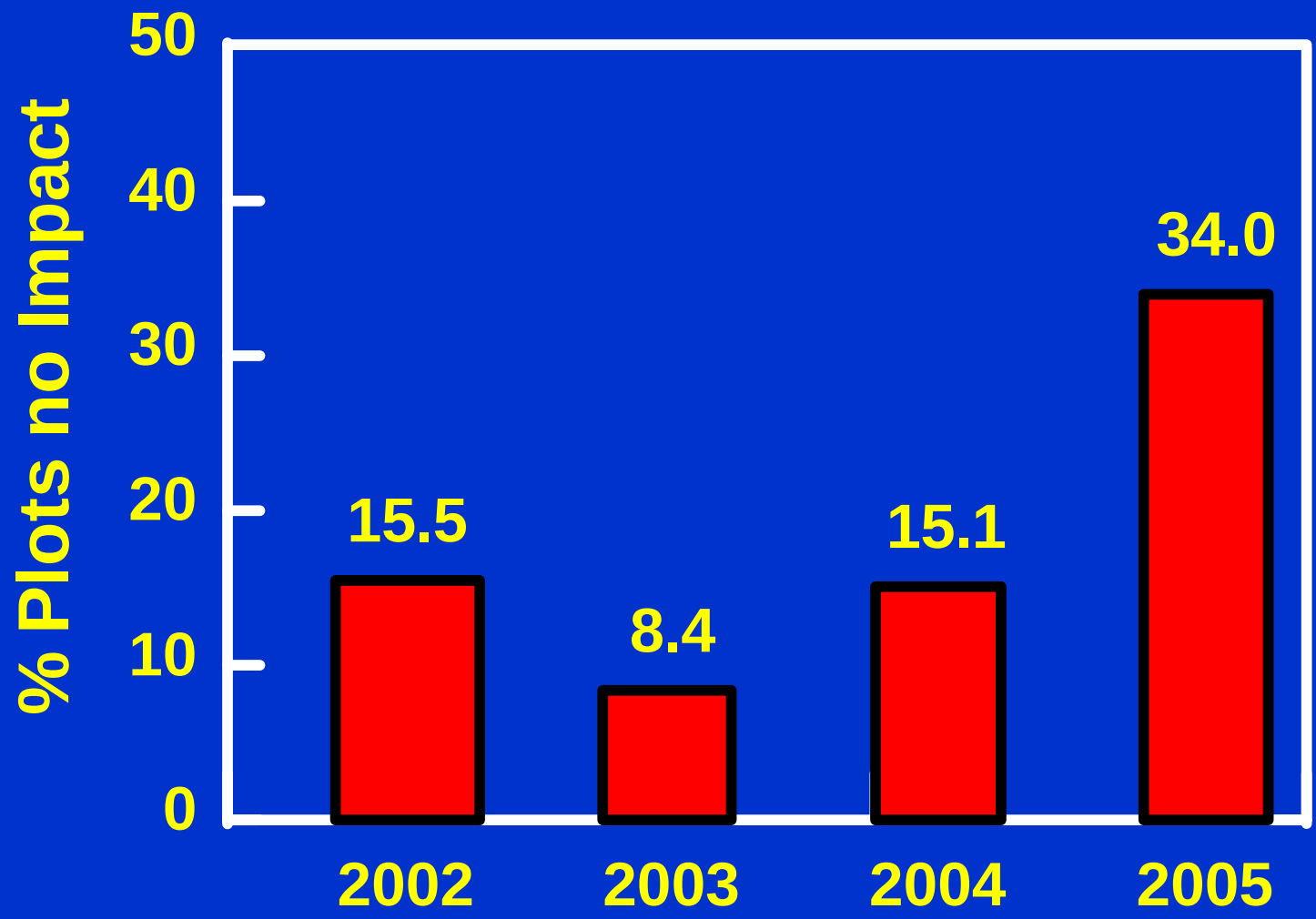
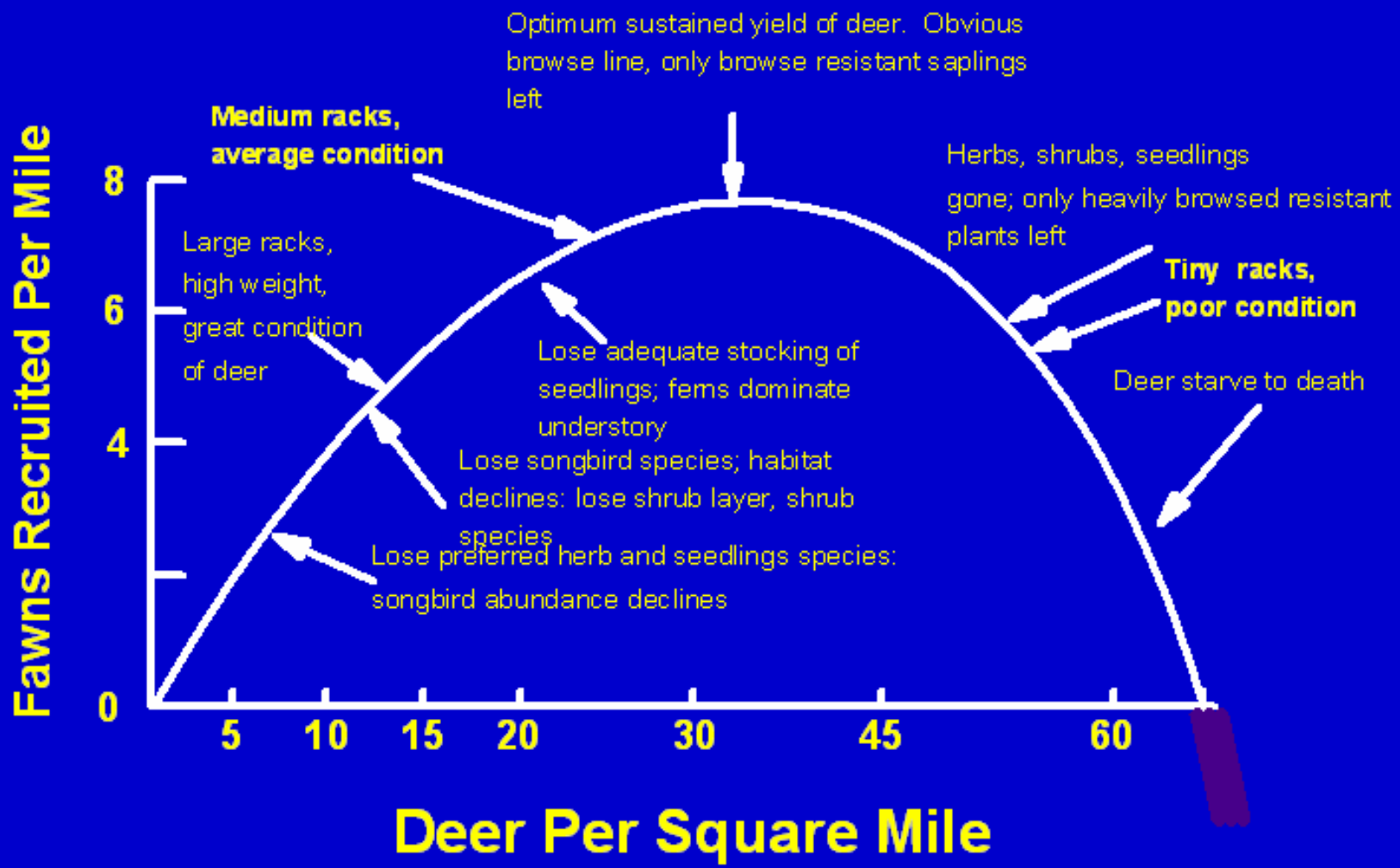
Deer Density 2002-2005



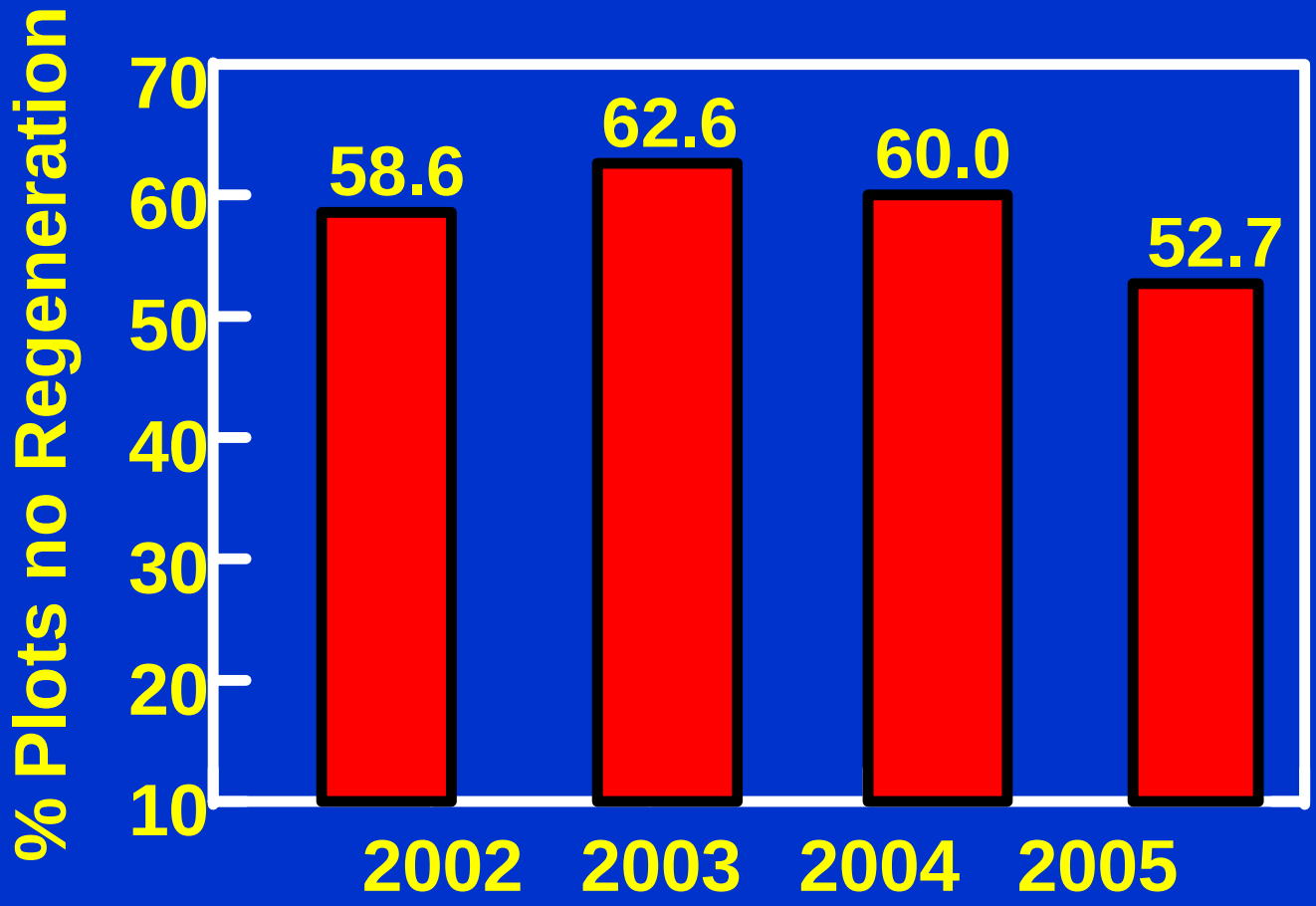
% Plots no Impact 2002-2005



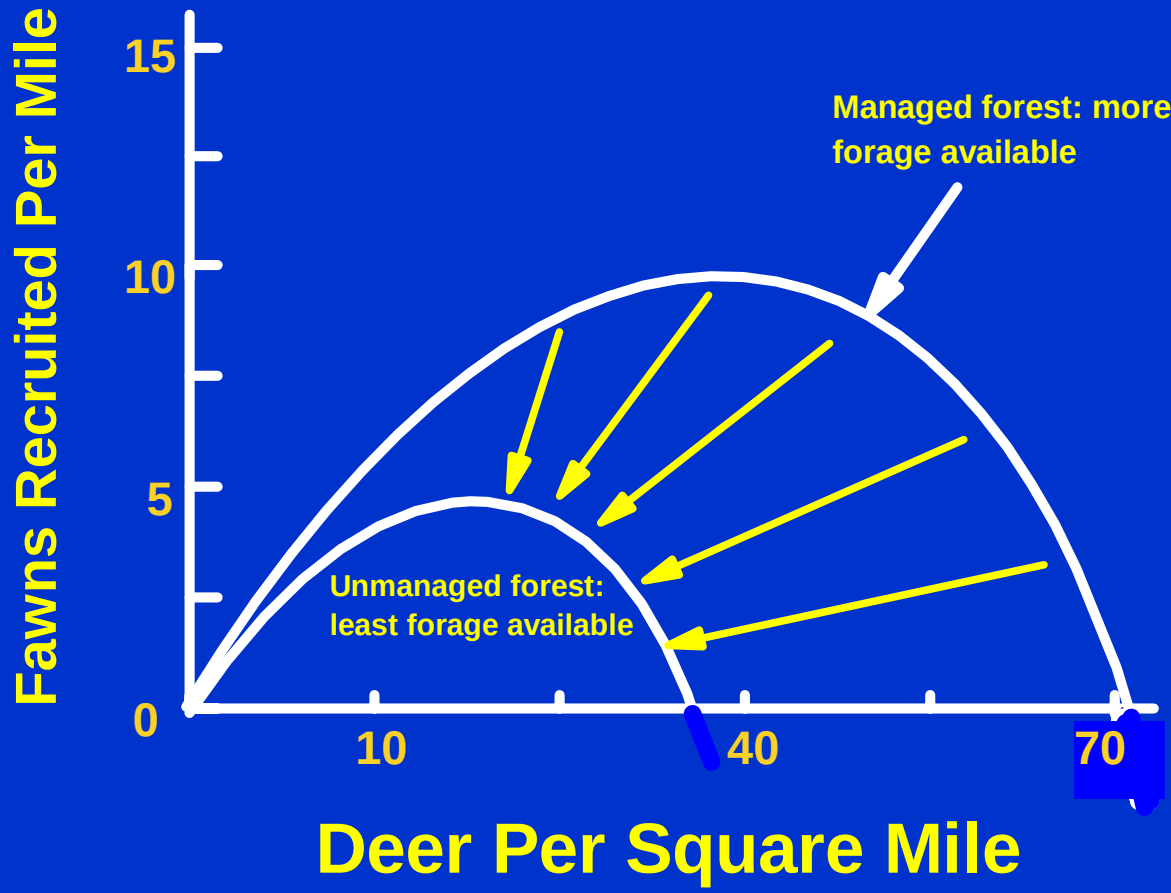
Deer Impact Curve



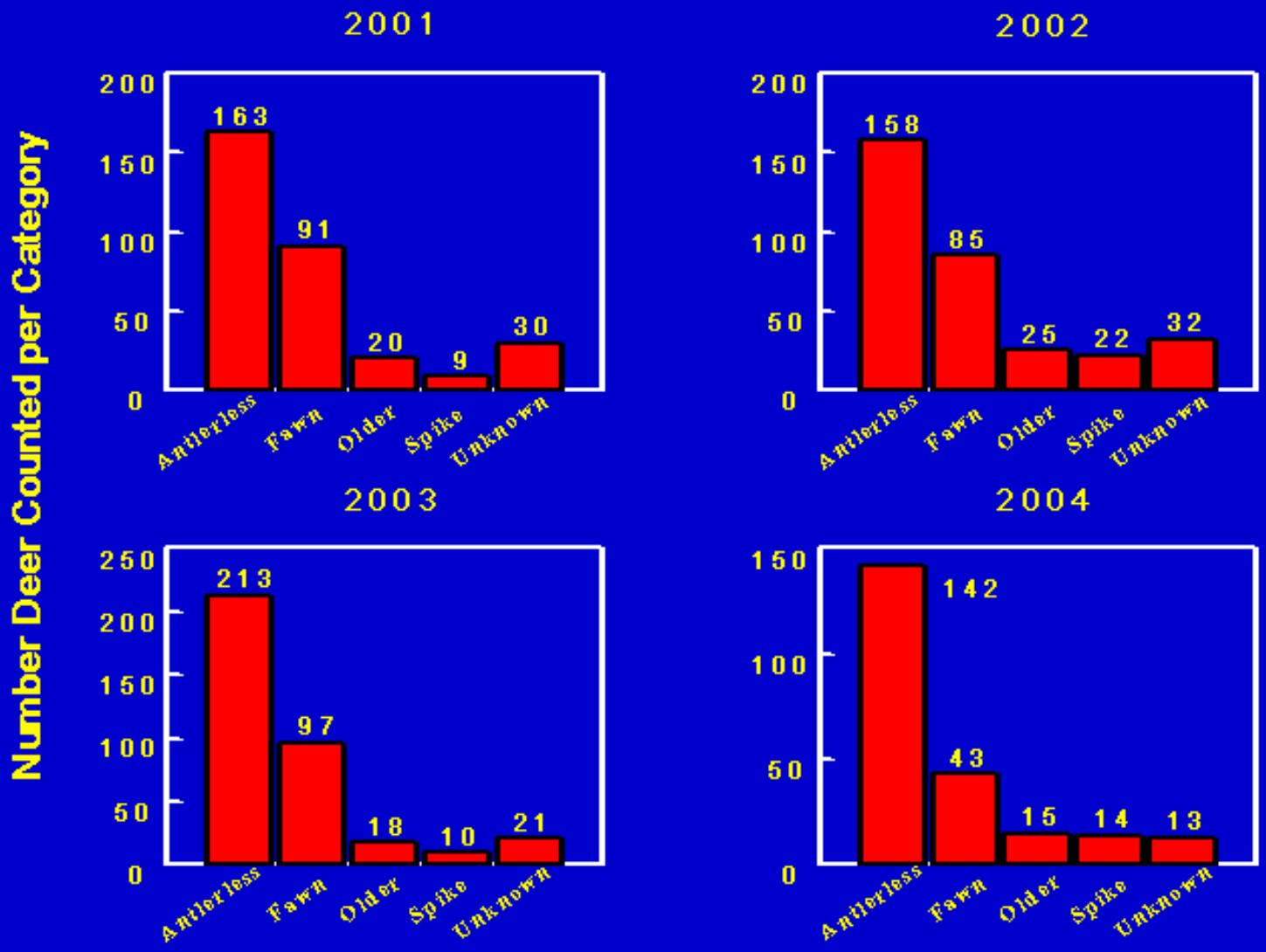
% Plots no Regeneration 2002-2005



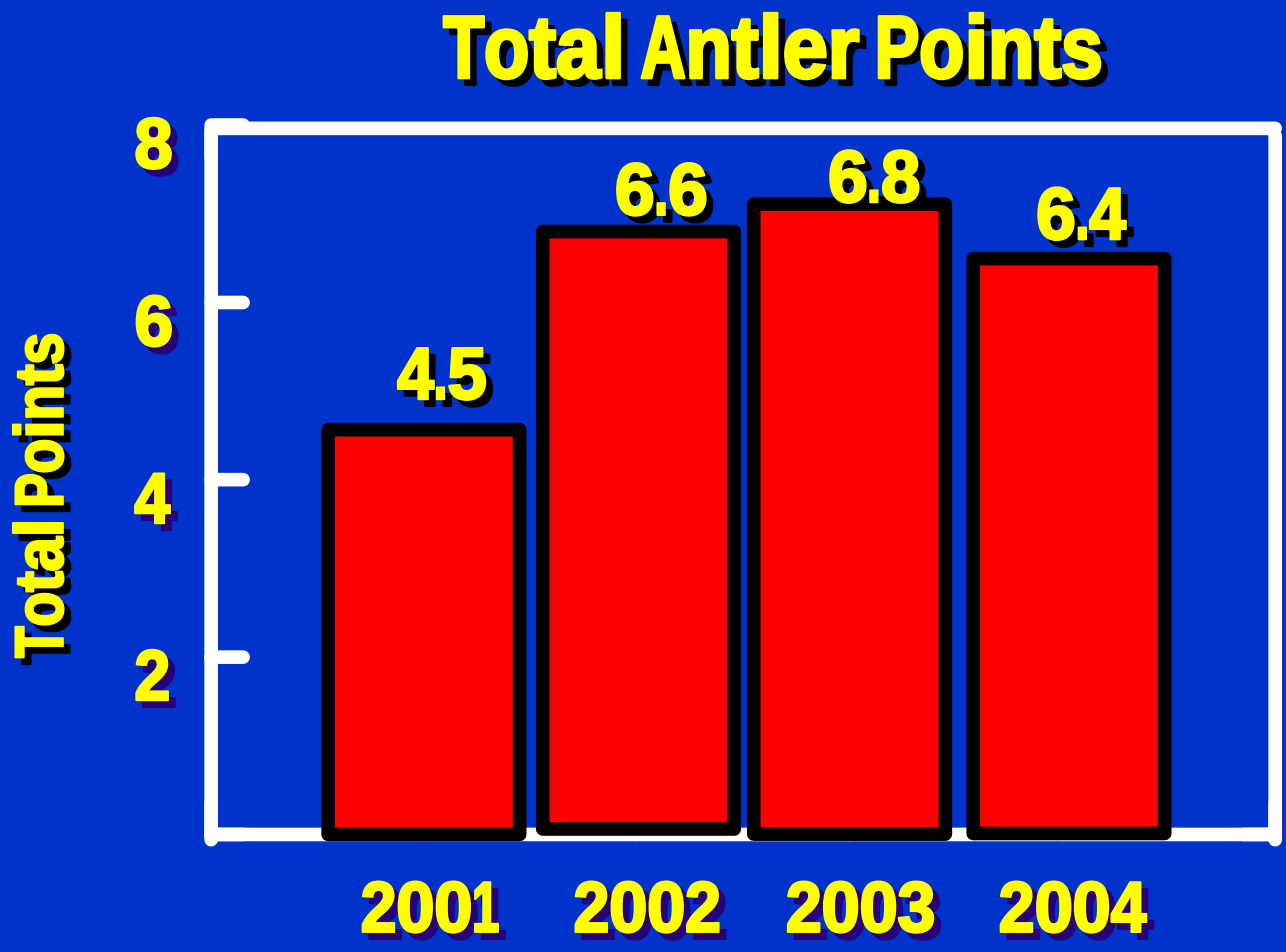
Altered Stable States: vegetation and deer



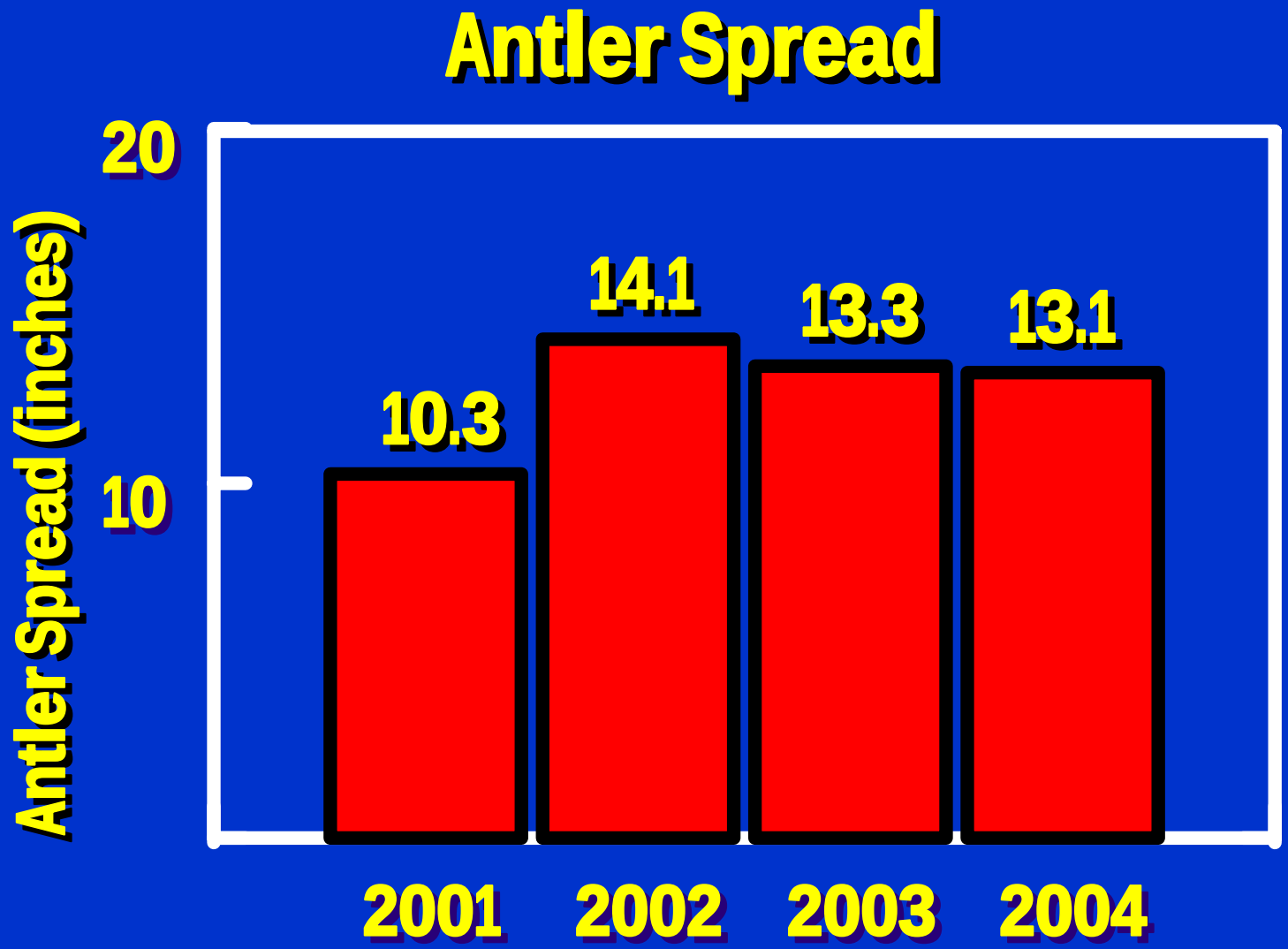
Roadside Counts 2001-2005



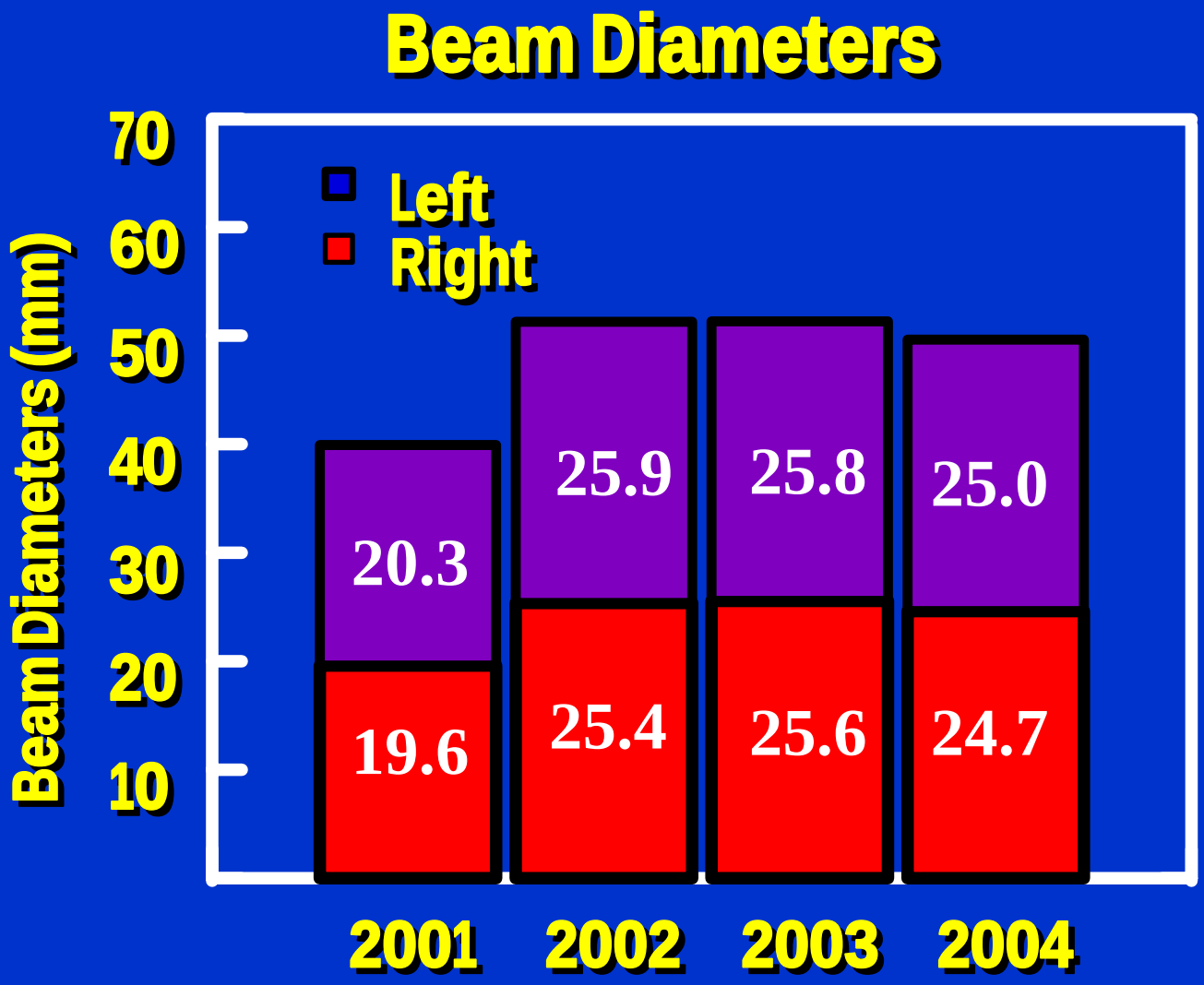
Check Station: Antler Points



Check Station: Antler Spread

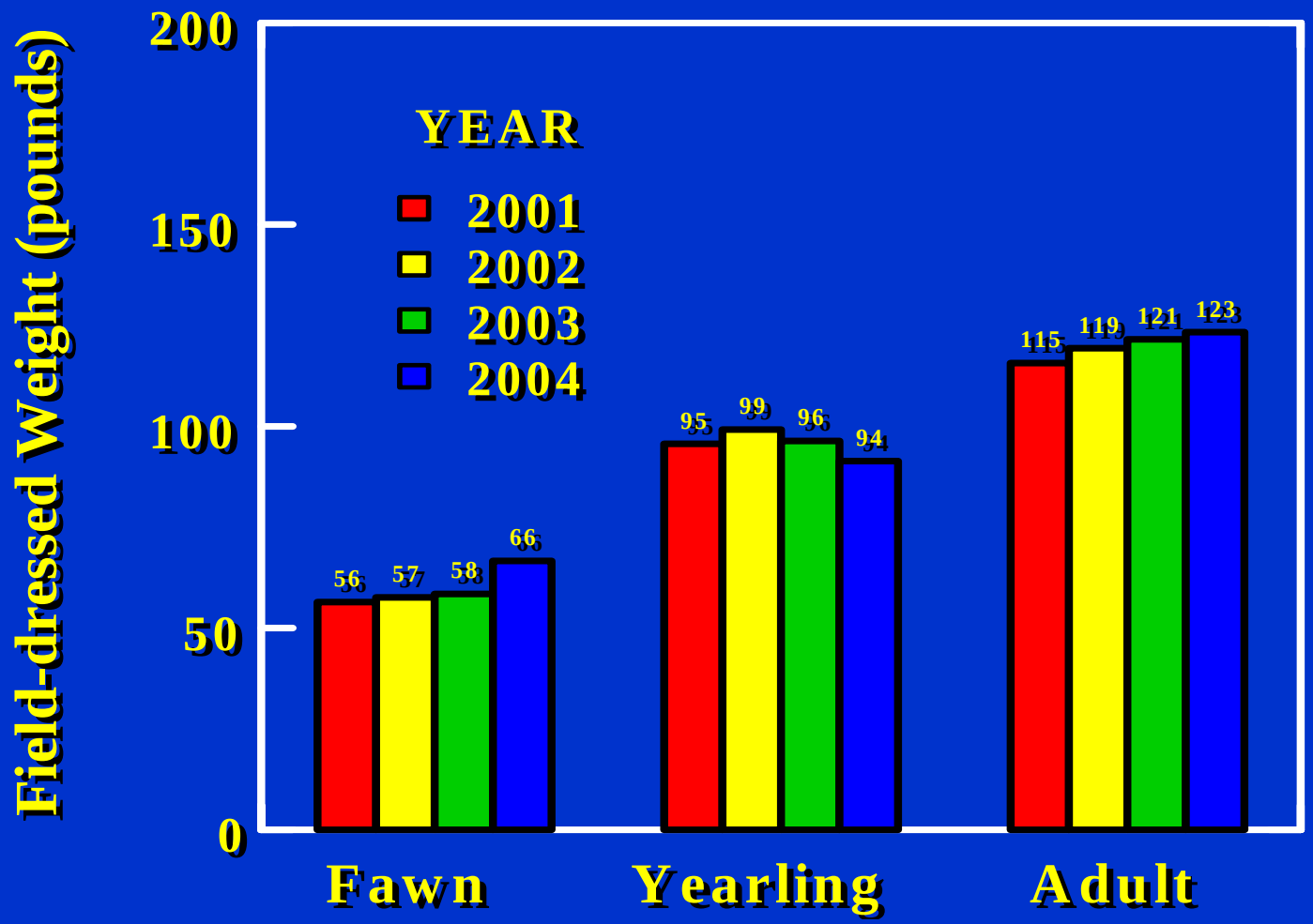


Check Station: Beams



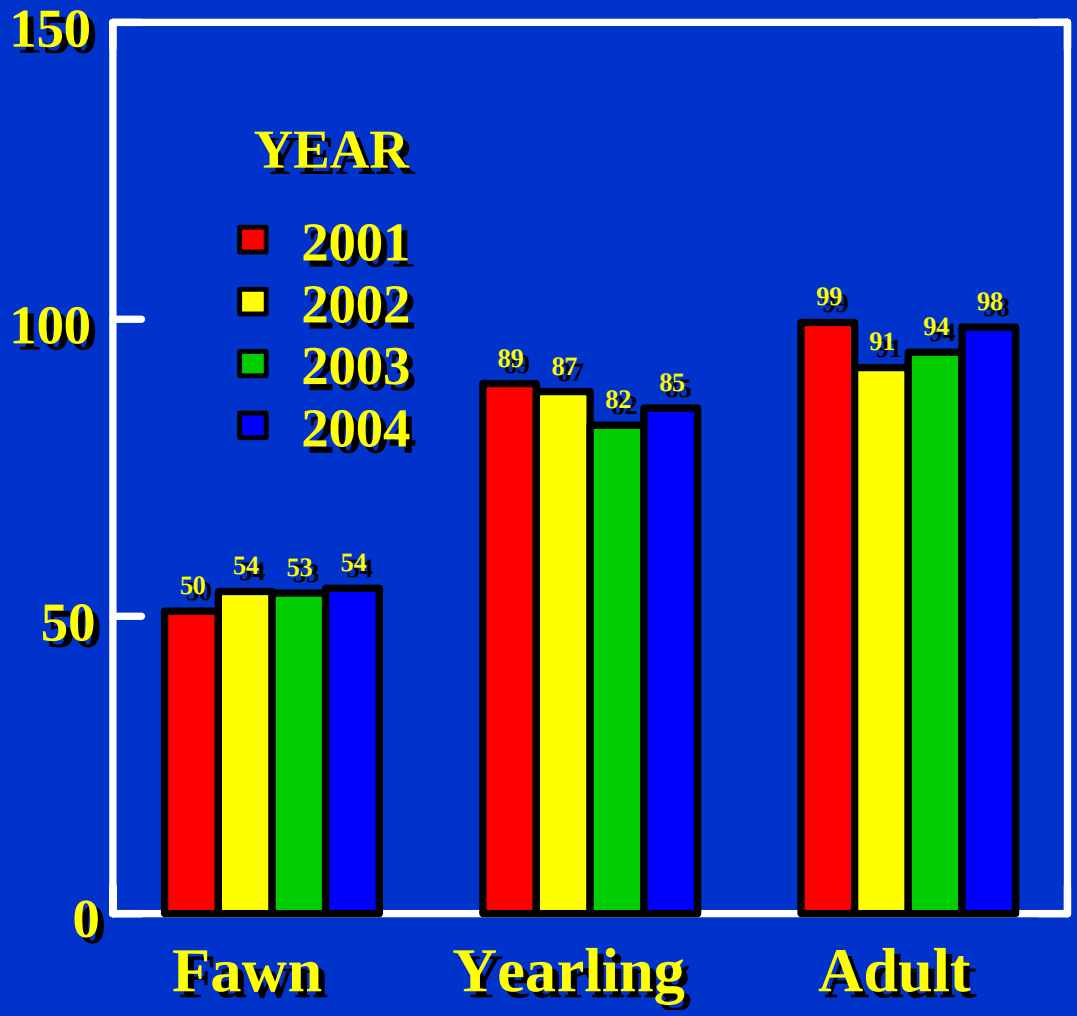
Health: Body Weight

Bucks



Health: Body Weight

Does



Summary

- Improvements in harvest characteristics – hunters selecting for more does, fewer yearling buck, better antlers
- Got to goal on deer density
- Deer condition still only fair
- Slight improvement in regeneration

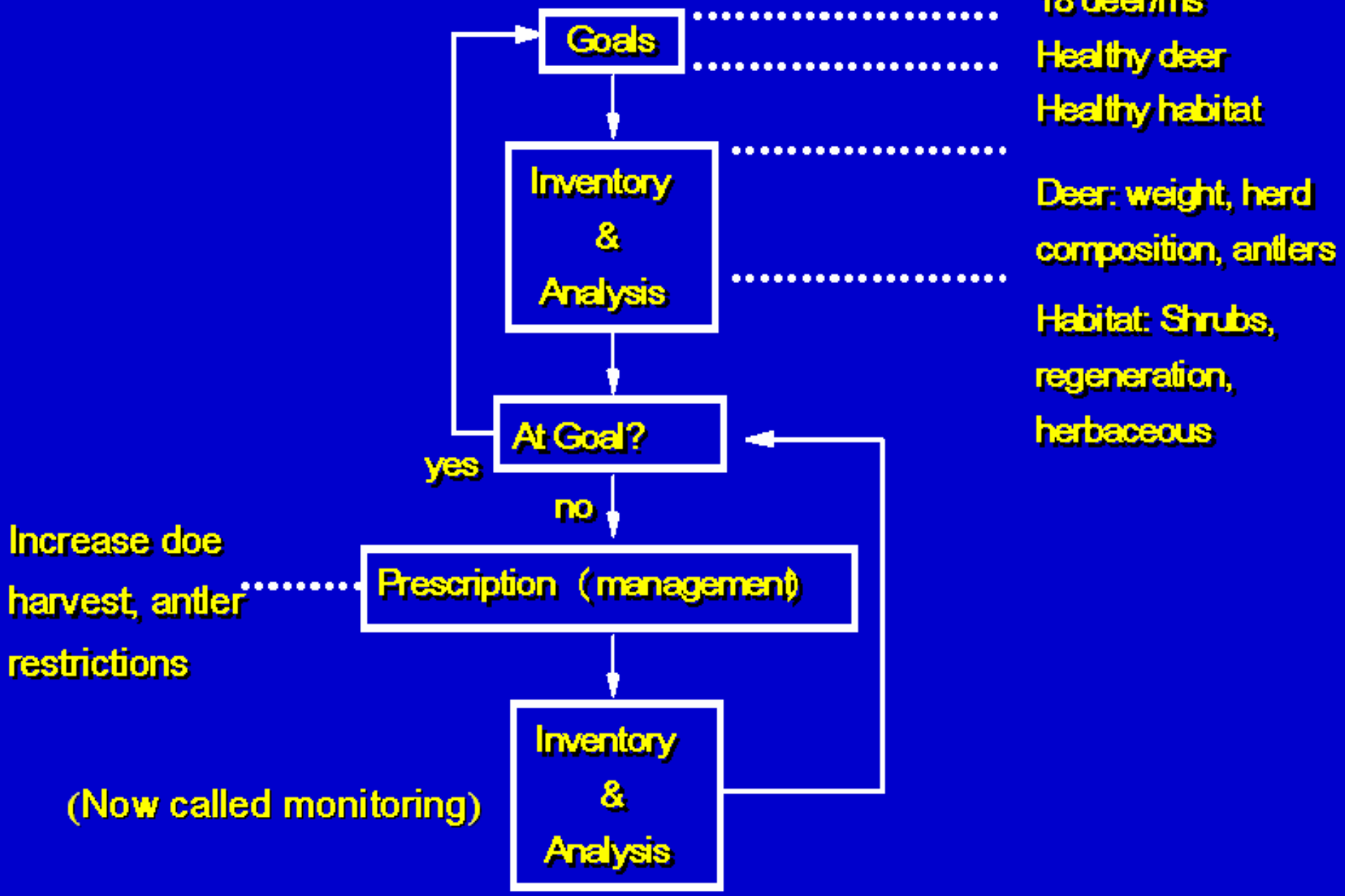
Goals: Healthy Deer

- Body weight (field dressed): adult bucks ~ 150+, adult does ~ 110+, fawns ~ 70+ - better but not yet
- Antler characteristics: adults 4x4+; spread >16”, beam diameter >30mm - better but not yet
- Buck:doe ratio: 1:2 – not yet
- < 18 deer/square mile – yes, but veg lag
- Fawn:doe ratio >1:2 – not yet, in fact worse

Goals: Healthy habitat

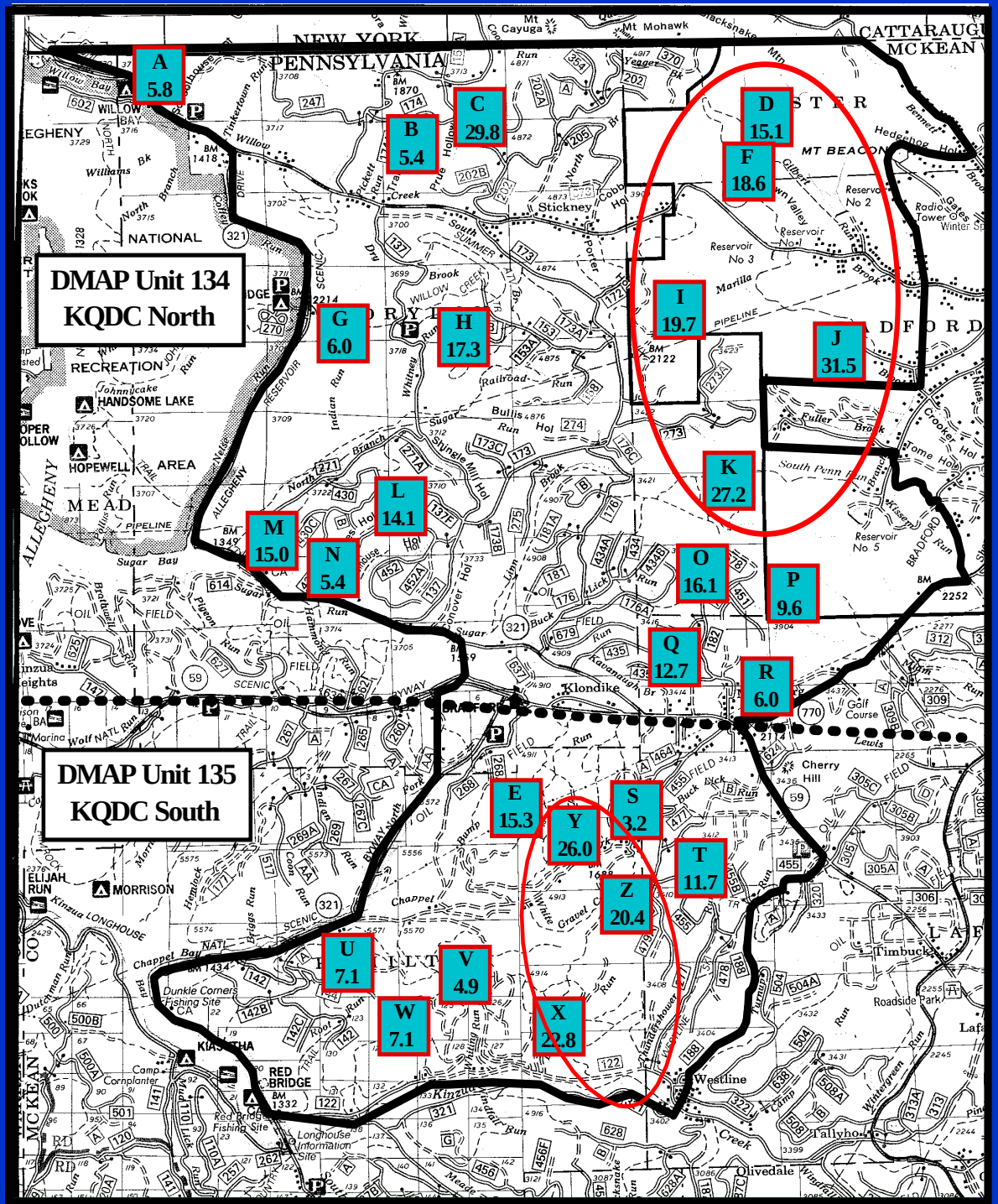
- Regeneration of preferred tree species >3' – not yet
- More plots with no impact - better
- Presence of dense shrub layer >3' – not yet
- Abundance of herbaceous plants – not yet

Adaptive Management - Deer



Management Prescription

- Increase hunter access in little hunted areas: better signing, advance info (maps) to hunters, open more gates
- Obtain 4 point restriction to improve antlers
- Retain hunting pressure: continue and increase incentive program– raffle, banquet, expanded training, and pre-hunt cook-out/field day for DMAP folks
- Continue education program: inform hunters of success, and adjustments to DMAP licenses related to lower deer density
- Increase forage production : increase in timber harvest and reduce use of fencing


DMAP Unit 134
KQDC North
DMAP Unit 135
KQDC South
A
5.8
B
5.4
C
29.8
D
15.1
F
18.6
G
6.0
H
17.3
I
19.7
J
31.5
K
27.2
L
14.1
M
15.0
N
5.4
O
16.1
P
9.6
Q
12.7
R
6.0
E
15.3
Y
26.0
S
3.2
T
11.7
Z
20.4
U
7.1
V
4.9
W
7.1
X
22.8
PENNSYLVANIA
NEW YORK
MCKEAN
CATTARAUGUS
NATIONAL
RECREATION
HANDSOME LAKE
HOPEWELL
AREA
MEAD
MORRISON
RED BRIDGE
Klondike
Stickney
Westline
Olivedale
Timbuck
Cherry Hill
Roadside Park
Dunkle Corners Fishing Site
Red Bridge Fishing Site
Longhouse Information Site
Reservoir No 1
Reservoir No 2
Reservoir No 3
Reservoir No 5
PIPELINE
Golf Course

Challenges

- Retaining hunters and maintaining hunting pressure
- Guessing right on number of antlerless opportunities to provide
- Demonstrating through monitoring continued improvements in deer and forest health with expected lags in vegetative response