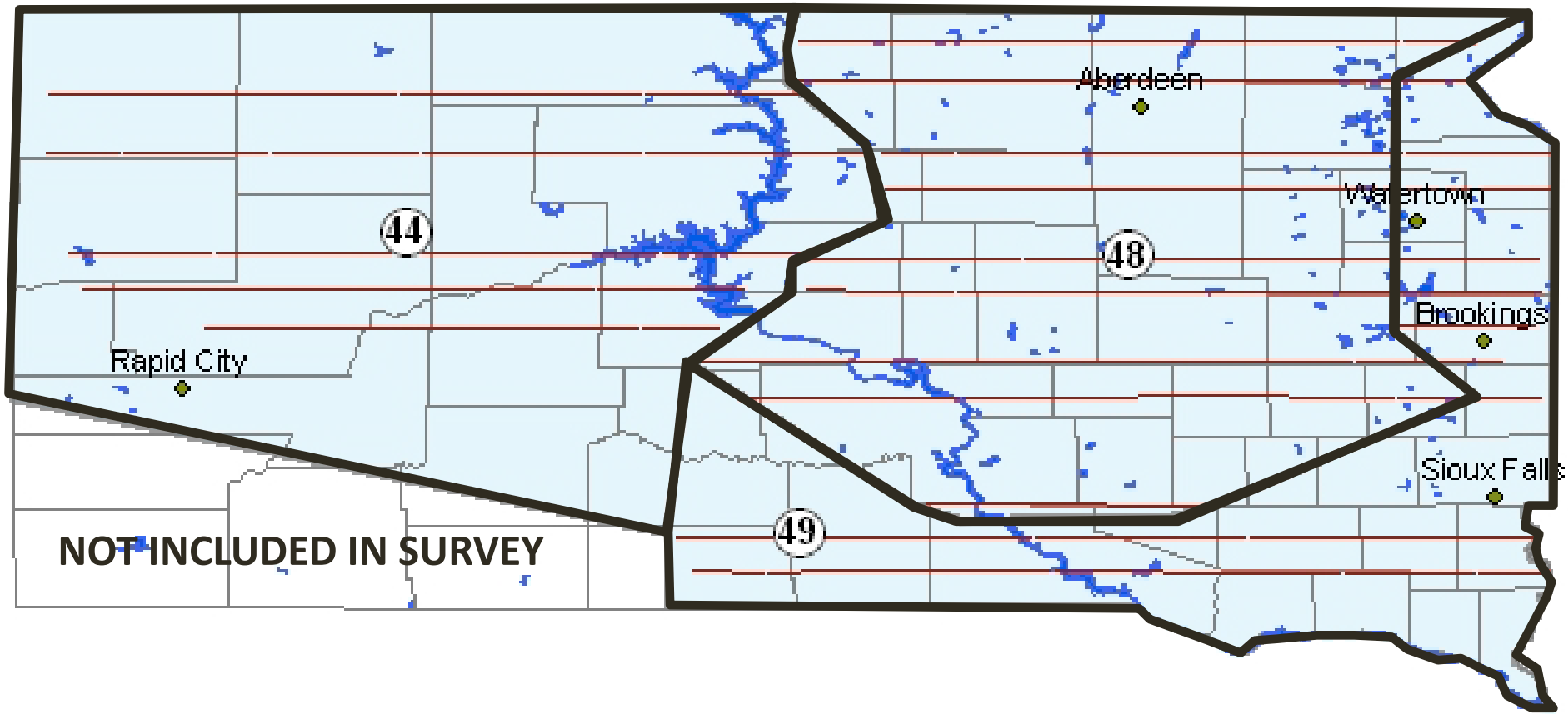
U.S. FISH & WILDLIFE SERVICE "WATERFOWL BREEDING WATERFOWL POPULATION SURVEY"

Summary of Slides

- Slide 3: Shows the three strata (geographic areas) and respective transect lines that are surveyed.
- Slide 4: Statewide Canada goose breeding population index.
- Slide 5: Strata 44 Canada goose breeding population index.
- Slide 6: Strata 48 Canada goose breeding population index.
- Slide 7; Strata 49 Canada goose breeding population index.
- Each figure found on slides 4-7 illustrates a midpoint index estimate, with both an upper and lower 95% confidence interval value.
- What does a 95% confidence interval mean? It means that if the same population is sampled on numerous occasions and interval estimates are made on each occasion, the resulting intervals would bracket the true population parameter in approximately 95% of the cases.

Waterfowl Breeding Population Survey



Strata and Transect Lines

Survey Methodology

Breeding Ground Survey Methodology

- Aircraft speed is 90-105 mph and aircraft height is 100’-150’ above ground.
- Two observers, the pilot observer on left side of aircraft and the other observer is surveying out the right side of aircraft. They cover a distance of 1/8 mile (660’) on each side of the aircraft.
- Each observer records observations into a laptop computer, which is interfaced with the aircraft’s GPS.
- Each transect is divided into 18 mile segments. Therefore, each 18 mile segment is 4.5 square miles.
- A single Canada goose is considered a pair, or 2 birds in terms of breeding population.
- A pair is considered 2 birds.
- Any group of 3 or more (up to 45) counts as “face value”. For example, a group of 6 equals 6 birds, a group of 15 equals 15 birds, etc. Any group larger than 45 are not included in the breeding population estimate.

Example

- <u>Example</u>

  If the following were observed in a particular segment:

  3 lone (single) Canada geese – 3x2=6

  4 pair Canada geese – 4x2=8

  A group of 7 Canada geese – 7

  The total indicated birds (TIB) for this segment is

  (3x2) + (4x2) + 7 = 21.

- Now in order to figure out the BPOP index for the whole Stratum, you need to know the expansion factor (EF) and the visibility correction factor (VCF).

  BPOP index = TIB x VCF x EF

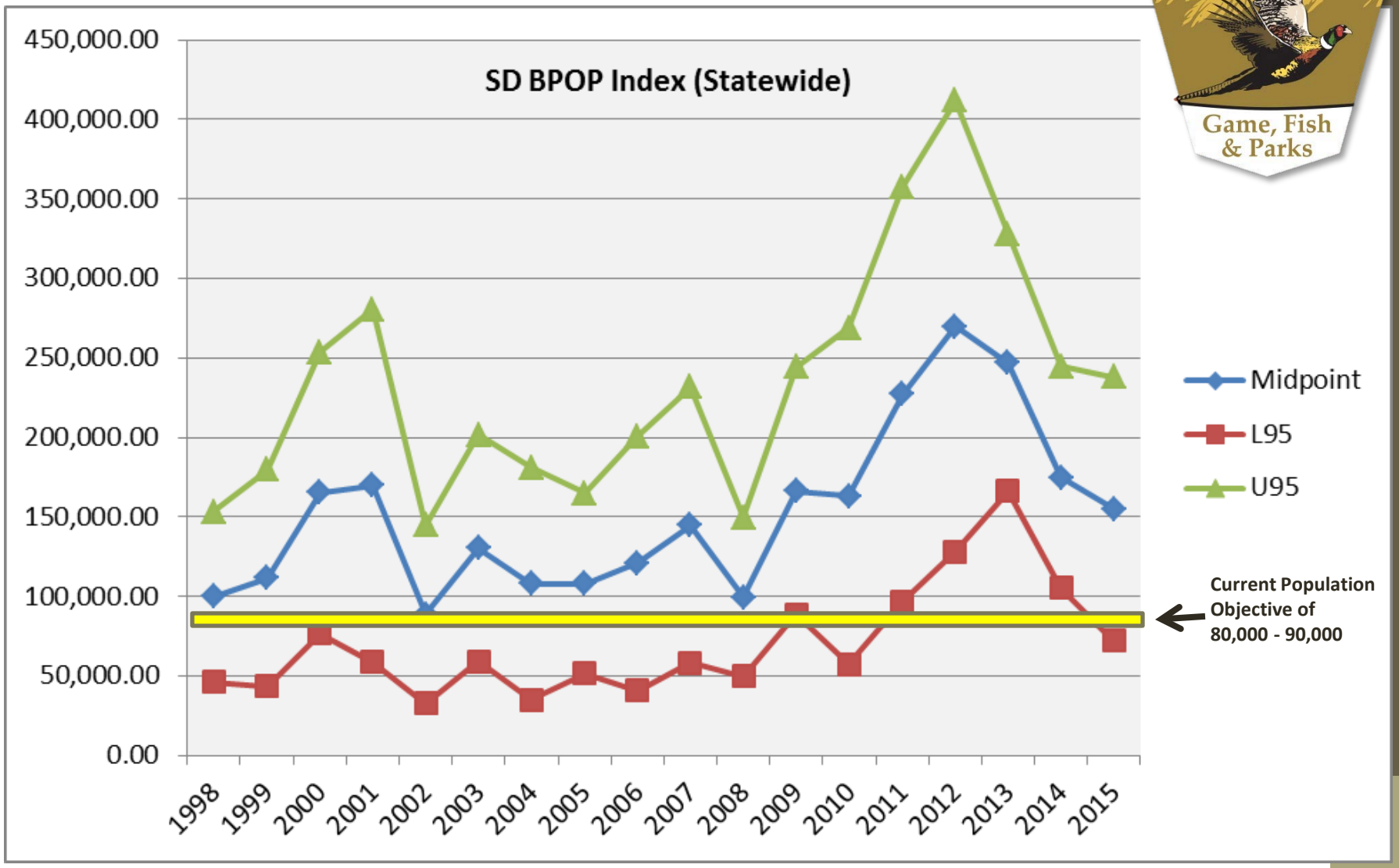
Example

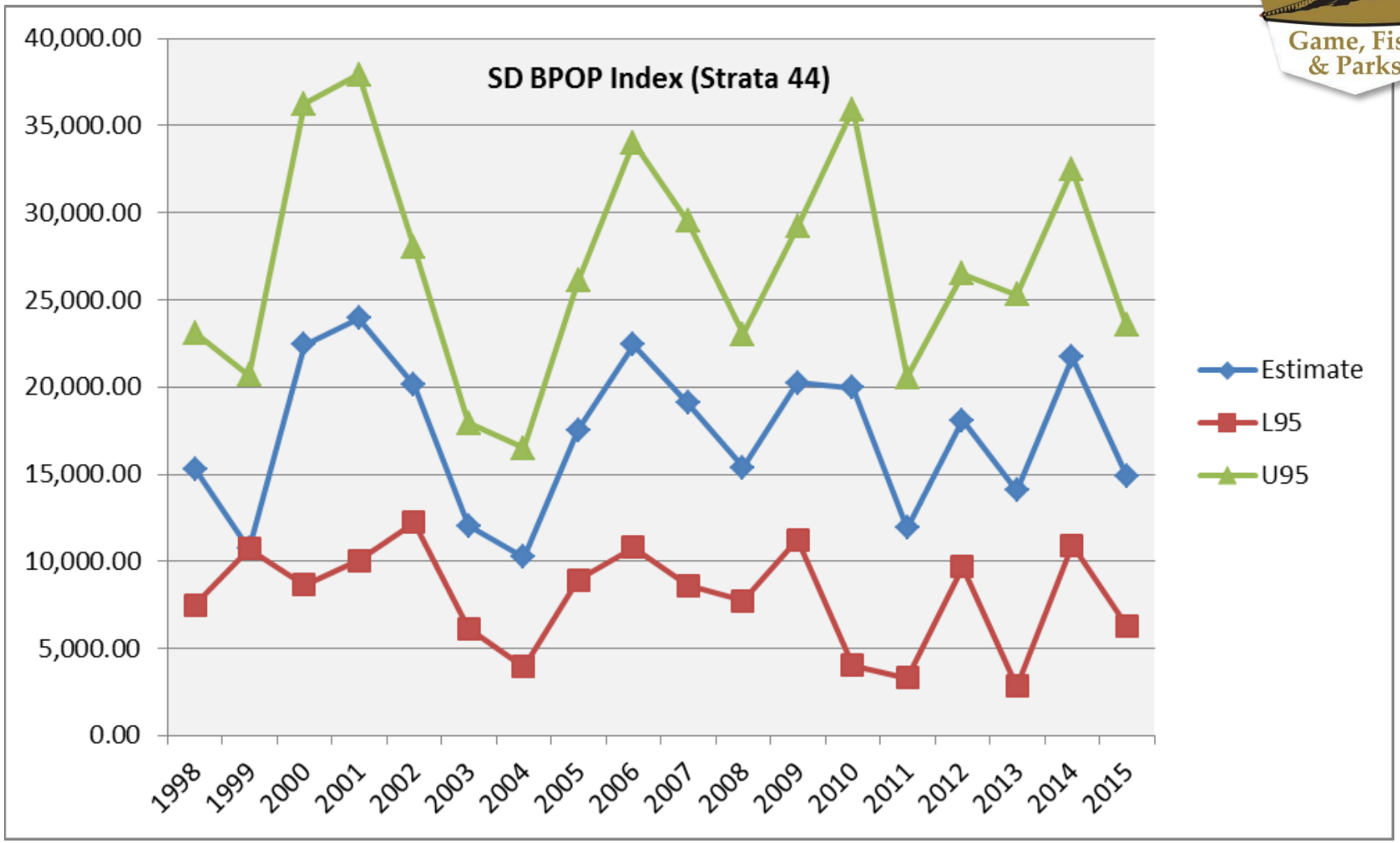
- In Strata 48, there are 70 segments so 70 segment x 4.5 square mile per segment = 315 square miles. This is the area actually sampled. There are 24,587 square miles within the boundary of Stratum 48. Dividing 24,587 by 315 = an EF of 78.05.
- VCF – A pilot/observer and his observer do not see all the birds as they fly over. They use a visibility correction factor (VCF) determined by the ground crews. The VCF for 2003 was about 2.5.
- So, let's use the data for 2003 for Stratum 48, the area with the most breeding Canada geese.
- BPOP index = TIB x VCF x EF

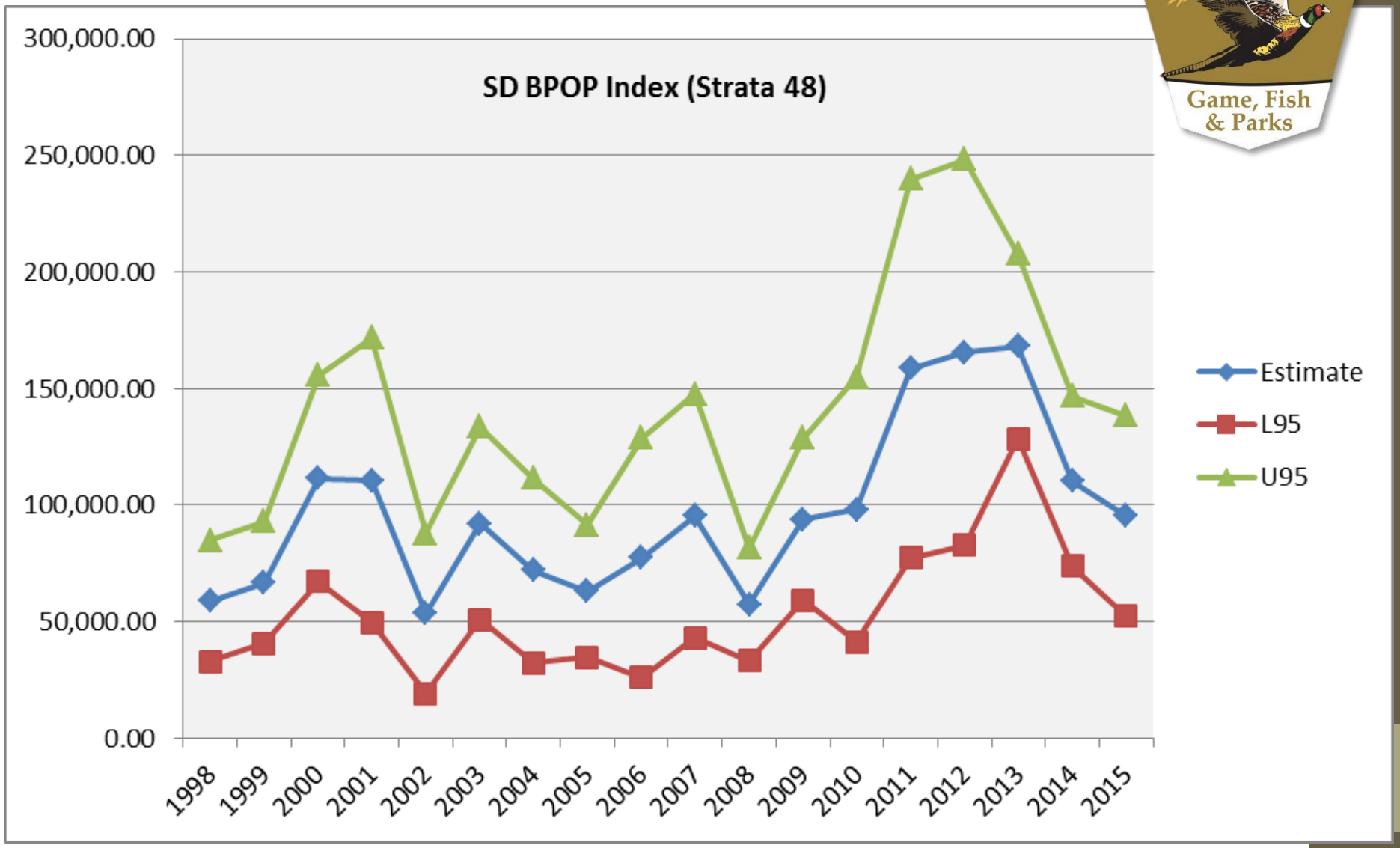
470 x 2.51 x 78.05 = 92,100

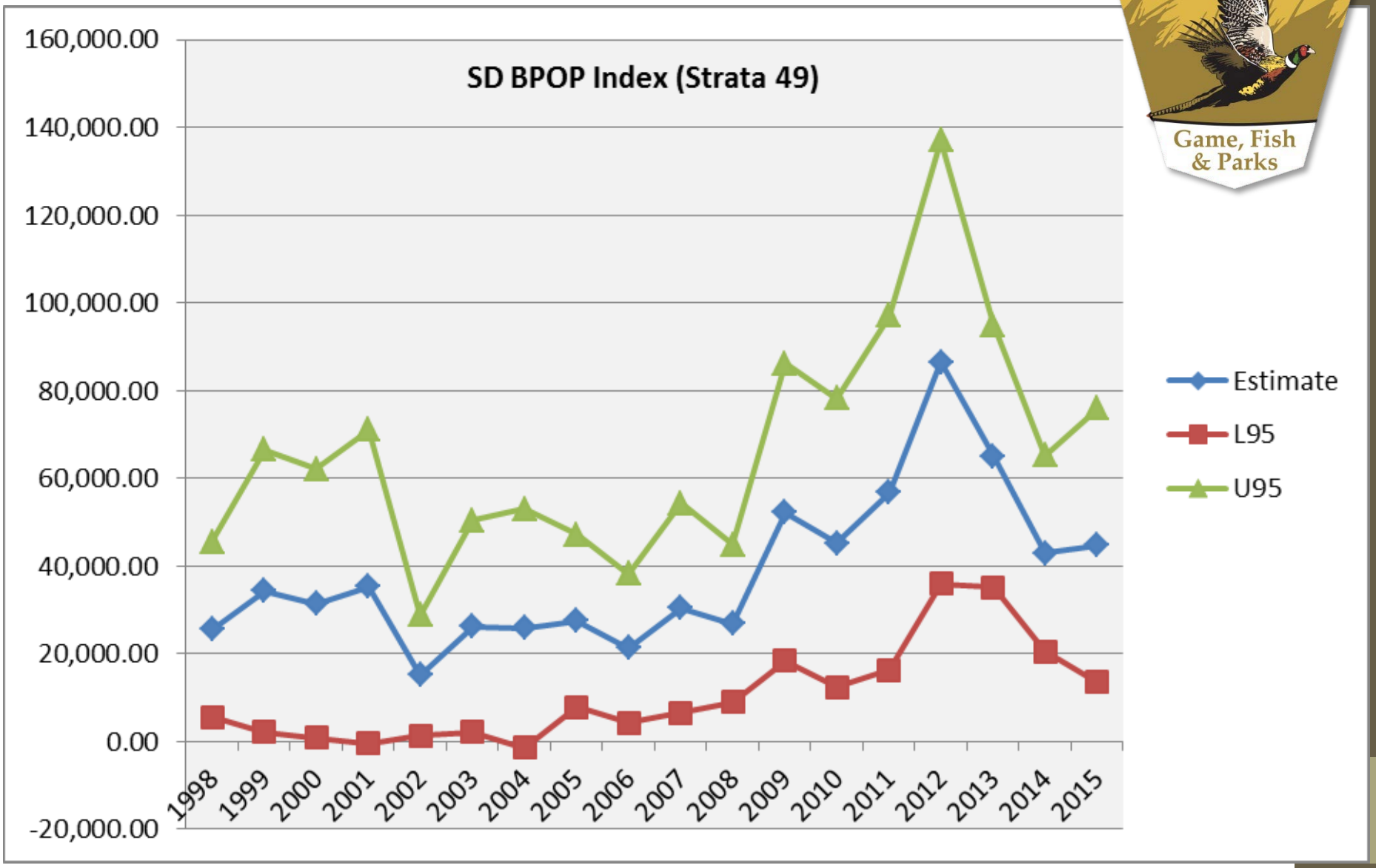
2003 May BPOP Survey

SD May Breeding Pair and Habitat Survey							
2003 DATA							
STRATUM	SINGLES	PAIRS	GROUPS	TIB	VCF	EF	BPOP
44	5	14	4	42	2.27	126.38	12,000
48	39	184	24	470	2.51	78.05	92,100
49	18	37	3	113	2.51	92.57	26,300
Total 2003 Spring Population Index = 130,400							


SD BPOP Index (Statewide)
450,000.00
400,000.00
350,000.00
300,000.00
250,000.00
200,000.00
150,000.00
100,000.00
50,000.00
0.00
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Midpoint
L95
U95
Current Population Objective of 80,000 - 90,000


SD BPOP Index (Strata 44)
40,000.00
35,000.00
30,000.00
25,000.00
20,000.00
15,000.00
10,000.00
5,000.00
0.00
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Estimate
L95
U95


SD BPOP Index (Strata 48)
300,000.00
250,000.00
200,000.00
150,000.00
100,000.00
50,000.00
0.00
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Estimate
L95
U95


SD BPOP Index (Strata 49)
160,000.00
140,000.00
120,000.00
100,000.00
80,000.00
60,000.00
40,000.00
20,000.00
0.00
-20,000.00
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Estimate
L95
U95

"MANAGEMENT TOOLS"	RESTRICTIVE MANAGEMENT	MODERATE MANAGEMENT	LIBERAL MANAGEMENT
	Increase Population	Maintain Population	Decrease Population
Justification	Canada goose population below objective based on available biological data, hunter survey data and comments, landowner input, public comments, and field staff observations. Canada goose depredation on row crops is expected to be limited and should be adequately addressed through the wildlife damage management program. Non-lethal techniques will be used primarily, but unique situations may be addressed using nest work or kill permits.	Canada goose population at objective based on available biological data, hunter survey data and comments, landowner input, public comments, and field staff observations. Manageable Canada goose depredation on row crops is expected, and should be adequately addressed through wildlife damage management program. Non-lethal techniques will be used primarily, but chronic depredation issues may be addressed using nest work and kill permits.	Canada goose population above objective based on available biological data, hunter survey data comments, landowner input, public comments, and field staff observations. Canada goose depredation on row crops is expected to be above desired levels, but can usually be adequately addressed through wildlife damage management program. Non-lethal techniques will be used primarily, but nest work and kill permits will be used frequently to stop row crop damage. Indicators for this category would be moderate to overabundant populations causing moderate to major crop depredation.
USFWS Waterfowl Breeding Population Survey	Below Objective 3-year Average	Objective Range 3-year Average	Above Objective 3-year Average
Regular Season Days	Full Federal Framework	Full Federal Framework	Full Federal Framework
Regular Season Daily Bag	Unit 1: 3 or 5 Units 2 & 3: 4	Unit 1: 5 or 8 Units: 2 & 3: 4	Unit 1: 8 Units 2 & 3: 4
August Management Take	No	Open in areas with unacceptable levels of crop depredation. Daily Bag Limit: 8	Open in areas with unacceptable levels of crop depredation. Daily Bag Limit: 15
Nest Work	≤500 Nests	≤1,500 Nests	≤ 2,500 Nests
Early Fall Season (Unit 1)	Yes Consider Restricting Days Daily Bag Limit: 3 or 5	Yes Daily Bag Limit : 5 or 8	Yes Daily Bag Limit: 15
SAH Donations	No	Yes	Yes

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SOUTH DAKOTA

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