Revising Illinois Deer Management Objectives

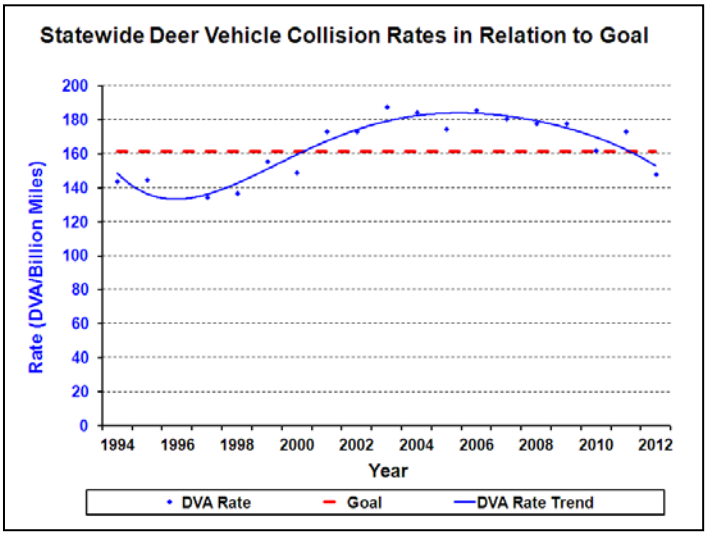
February 13, 2014

Background

Deer management goals currently in effect in Illinois were adopted as a result of recommendations of the Joint Task Force (JTF) on Deer Population Control, which was created by House Joint Resolution 65 of the 95th General Assembly. The resolution characterized Illinois' deer herd in the following terms: "Deer overpopulation is rampant in some counties in Illinois, causing accidents on our highways, increasing crop damage for Illinois farmers, and making it easier for disease and starvation to afflict our deer populations."

The JTF recommended that the rate of deer/vehicle accidents (number of accidents divided by the amount of vehicular traffic miles driven) be used as the objective by which to judge the success or failure of deer management programs. The specific target rate (both statewide and at the county level) was set at halfway between the minimum and maximum deer/vehicle accident (DVA) rates measured during the period 1994 through 2007. This approach was chosen because it worked well not only at the statewide level, but also for individual county data. At the county level, it had the advantage over other approaches in that it distributed necessary deer reductions more effectively into counties with rapid deer herd growth, rather than arbitrarily requiring reductions in every county across the board. The adopted statewide target rate corresponded to a decrease of 14% in accident rate from the statewide peak observed during 2003. Subsequent to adoption, the objectives for the 5 Central Illinois counties previously included in the "Restricted Archery Zone" (Champaign, DeWitt, Piatt, Moultrie, and Macon) were revised using an alternate calculation that only included the years 2001-2007, because in the years before that the Department had been actively encouraging deer populations to increase in those counties.

At the same time as the Joint Task Force was making its recommendations, the Illinois General Assembly passed legislation that increased the amount of damage required for mandatory reporting of vehicle accidents from $500 to $1500, resulting in an immediate decline in reported accidents for the 2009 calendar year. Since reported deer/vehicle collision rates were a virtual flat line during the previous five years (2004-2008), we assumed that no change in the statewide rate of DVAs occurred between 2008 and 2009, and used a factor of 0.777801342 to transform data prior to 2009 to the present reporting rate.



Current Status

The peak in Illinois deer/vehicle accident rates occurred in 2003. Statewide DVA rates approached goal in 2010, and actually dropped below goal in 2012. Although deer populations are near goal levels on a statewide basis, there remain counties significantly above goal, while many

counties are near goal and some are below. Five years of working with this approach has demonstrated its efficacy, but it has also become clear that the original objectives are not always appropriate for every county for a variety of reasons. As a result, Forest Wildlife staff began exploring and testing methodology for revising county objectives that would allow us to more effectively target high deer population counties for adequate reduction, while relieving the burden on some counties with significantly lower populations. Under the existing set of objectives, some counties that had been "late bloomers" (i.e., had historically low populations, and only recently began to grow) had been targeted for somewhat excessive reductions primarily because of the way objectives were originally set. We hoped to alleviate this problem through implementation of the new process.

Counties Not Included in this Process

Counties in which Chronic Wasting Disease (CWD) have been found are managed specifically to control the disease, so the standard objectives are not used in these counties. Lower deer densities, particularly in areas known to have the disease, are required to control disease prevalence rates and minimize the risk of further spread. The following counties fall into this category: Boone, DeKalb, DuPage, Grundy, JoDaviess, Kane, Kendall, LaSalle, McHenry, Ogle, Stephenson, and Winnebago.

The counties with the highest volume of vehicular traffic (>2.5 billion miles travelled annually) were not considered for revised objectives (i.e., potential increases), because even in cases where the rate of accidents is low, the raw number of deer/vehicle accidents is still very high. These counties are typically metropolitan areas or on the outskirts of metropolitan areas, which may have a limiting effect on hunter access both now and in the future. The following counties fall into this category: Cook, Lake, Madison, St. Clair, and Will.

Recommendations

After developing and testing a number of different approaches, we recommend the following, which calls for progressively increasing rates of reduction as deer population size increases:

1. The STATEWIDE objective will remain the same – i.e., a 14% reduction in DVA rate from peak levels. Only COUNTY objectives will be adjusted.
2. Individual county rates will either remain the same (i.e., the original objective) or they will be adjusted upward if the new method of calculating rates identifies a higher objective. No county objective will be reduced from its current status.
3. The objectives for counties with highest rates of deer-vehicle accidents (i.e., with current objectives that are ≥1000 DVA/billion miles traveled) will not be adjusted upward. They will remain the same. These counties include Brown, Calhoun, Crawford, Edwards, Pike, Pope, and Schuyler.
4. The baseline by which we evaluate each individual county will be the average of the highest consecutive four years of deer-vehicle accidents that occur during the period 1997-2008. This value is hereafter referred to as "PEAK". We used 1997 as the beginning year because complete statewide DVA information is lacking for 1996 due to some changes in data collection at the Illinois Department of Transportation during that year, preventing the calculation of running means. We used 2008 as the stopping point because this was the year

in which the original JTF recommendations were made. A 4-year mean was used in order to smooth out the data, and avoid biases caused by widely fluctuating values that occur in some counties.

5. Counties with a PEAK below the statewide goal (161 DVA/billion miles traveled) were assigned a goal equal to PEAK if PEAK was higher than the original goal (i.e., they're not required to reduce accidents below their PEAK); else their goal remained at the original level.
6. The new goal for counties with a PEAK of 161-300 was a reduction of 6% from PEAK; else they remained at their original goal if higher.
7. The new goal for counties with a PEAK of 300-500 was a reduction of 12% from PEAK; else they remained at their original goal if higher.
8. The new goal for counties with a PEAK of 500-750 was a reduction of 18% from PEAK; else they remained at their original goal if higher.
9. The new goal for counties with a PEAK of 750-1000 was a reduction of 24% from PEAK; else they remained at their original goal if higher.

Discussion

For the 85 counties evaluated, adopting this approach will result in no change in objective for 44 counties; an increase of 0-10% for 24 counties; an increase of 10%-20% for 12 counties, and an increase of 20%-30% for 5 counties. For individual county data, see the table below. Most of the changes by far occur in the lower range of DVA rates, so counties with lower deer populations are not being required to shoulder as much of the reduction burden as in the past. Counties in the range of moderate DVA rates (~400-800) that would receive an increase are typically counties that did not support significant deer populations until recently, and their previous objectives called for population reductions that many constituents would view as punitive, or at least excessive.

These increases in county objectives will likely result in additional county closures during the Late Winter Season beginning in the 2014 hunting year, and probable declines in the availability of antlerless tags for some counties during firearm and muzzleloader seasons. As is customary, such changes will be evaluated when all data are available for the year.

County	**Original Goal:** The deer/vehicle collision goal resulting from Joint Deer Task Force recommendations (Accidents per billion miles travelled)	Average of highest four consecutive years of deer/vehicle collision rates during 1997-2008 (Accidents per billion miles travelled)	**Proposed Goal:** The deer/vehicle collision goal resulting from the current revision (Accidents per billion miles travelled)	Percent Change in Goal
Adams	503.9	600.2	503.9	0.0%
Alexander	329.1	378.4	333.0	+1.2%
Bond	339.0	394.0	346.7	+2.3%
Brown	1652.8	2256.1	1652.8	0.0%
Bureau	413.5	624.2	511.8	+23.8%
Calhoun	2395.8	3510.1	2395.8	0.0%
Carroll	742.4	896.2	742.4	0.0%
Cass	836.0	1060.5	836.0	0.0%
Champaign	102.4	112.4	112.4	+9.8%
Christian	374.9	444.1	390.8	+4.2%
Clark	463.0	562.6	463.0	0.0%
Clay	666.3	863.8	666.3	0.0%
Clinton	227.3	284.7	267.6	+17.7%
Coles	252.4	287.4	270.1	+7.0%
Cook	19.8	*Not subject to revision*		
Crawford	1205.8	1515.0	1205.8	0.0%
Cumberland	360.5	446.4	392.8	+9.0%
DeWitt	523.2	558.2	523.2	0.0%
Douglas	154.7	202.9	190.7	+23.3%
Edgar	520.6	648.7	531.9	+2.2%
Edwards	1003.4	1279.2	1003.4	0.0%
Effingham	275.4	316.1	278.2	+1.0%
Fayette	333.6	408.5	359.5	+7.7%
Ford	248.8	304.8	268.2	+7.8%
Franklin	442.4	516.8	442.4	0.0%
Fulton	719.9	1037.0	725.9	+0.8%
Gallatin	541.8	657.3	541.8	0.0%
Greene	945.0	1158.5	945.0	0.0%
Hamilton	695.2	1136.8	795.7	+14.5%
Hancock	724.9	995.0	736.3	+1.6%
Hardin	796.8	1107.7	796.8	0.0%
Henderson	634.3	883.8	654.0	+3.1%
Henry	271.7	336.2	295.9	+8.9%
Iroquois	262.8	301.4	265.2	+0.9%
Jackson	608.7	616.8	608.7	0.0%
Jasper	752.3	946.9	752.3	0.0%
Jefferson	374.2	488.9	430.2	+15.0%
Jersey	665.1	892.8	665.1	0.0%
Johnson	523.8	598.3	523.8	0.0%

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Kankakee	129.8	124.7	129.8	0.0%
Knox	184.1	208.6	196.1	+6.5%
Lake	78.0	*Not subject to revision*		
Lawrence	801.6	1052.1	801.6	0.0%
Lee	402.3	428.5	402.3	0.0%
Livingston	152.2	183.2	172.2	+13.2%
Logan	210.1	262.1	246.4	+17.3%
Macon	233.2	278.2	261.5	+12.1%
Macoupin	515.7	609.1	515.7	0.0%
Madison	143.5	*Not subject to revision*		
Marion	428.0	528.2	433.1	+1.2%
Marshall	414.6	482.2	424.4	+2.4%
Mason	806.1	890.2	806.1	0.0%
Massac	622.1	655.4	622.1	0.0%
McDonough	547.1	725.2	594.6	+8.7%
McLean	98.0	101.9	101.9	+3.9%
Menard	683.8	1079.3	755.5	+10.5%
Mercer	458.7	581.3	476.7	+3.9%
Monroe	237.6	300.5	264.4	+11.3%
Montgomery	296.3	332.1	296.3	0.0%
Morgan	447.2	541.2	447.2	0.0%
Moultrie	614.6	658.3	614.6	0.0%
Peoria	208.4	268.6	252.5	+21.2%
Perry	911.0	1117.9	911.0	0.0%
Piatt	247.7	257.3	247.7	0.0%
Pike	1571.4	1904.9	1571.4	0.0%
Pope	1158.9	1176.8	1158.9	0.0%
Pulaski	569.8	597.6	569.8	0.0%
Putnam	968.6	1401.2	980.9	+1.3%
Randolph	799.7	971.8	799.7	0.0%
Richland	749.9	867.7	749.9	0.0%
Rock Island	155.0	181.5	170.6	+10.1%
Saline	605.4	712.2	605.4	0.0%
Sangamon	184.4	217.4	204.3	+10.8%
Schuyler	1269.0	1617.9	1269.0	0.0%
Scott	771.7	960.0	771.7	0.0%
Shelby	587.6	667.7	587.6	0.0%
St. Clair	101.1	*Not subject to revision*		
Stark	583.1	754.0	583.1	0.0%
Tazewell	216.1	259.5	243.9	+12.9%

County	**Original Goal:** The deer/vehicle collision goal resulting from Joint Deer Task Force recommendations (Accidents per billion miles travelled)	Average of highest four consecutive years of deer/vehicle collision rates during 1997-2008 (Accidents per billion miles travelled)	**Proposed Goal:** The deer/vehicle collision goal resulting from the current revision (Accidents per billion miles travelled)	Percent Change in Goal
Union	543.4	602.6	543.4	0.0%
Vermilion	179.8	242.8	228.3	+27.0%
Wabash	715.3	829.2	715.3	0.0%
Warren	448.3	606.3	497.1	+10.9%
Washington	340.1	420.8	370.3	+8.9%
Wayne	673.2	848.7	673.2	0.0%
White	684.5	919.5	684.5	0.0%
Whiteside	344.8	397.1	349.5	+1.4%
Will	95.7	*Not subject to revision*		
Williamson	365.3	387.9	365.3	0.0%
Woodford	193.7	264.8	248.9	+28.5%