Status of White-tailed Deer in Forest and Forest Fringe Wildlife Management Zones

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Saskatchewan
Ministry of
Environment

Introduction

Historically white-tailed deer populations in Saskatchewan's commercial forest (WMZ 56-69) and forest fringe (WMZ 47-50, 53 and 55) areas have been lower than in farmland areas. However, for nearly a decade beginning in the late 1990s, deer numbers in the forest and forest fringe rose to historical highs.

These high populations were well above long-term averages. Although forest habitats can support high deer populations, winter mortality can be a significant limiting factor. Snowfall amounts are often higher than in other areas of the province. Deep snow (over 50 cm or 18") can severely hamper deer movement, restricting their access to food sources and putting them into a negative energy balance. Further to snow depth, cold weather, early snow accumulation and/or a late spring can greatly affect deer survival. Stressful winter conditions do not affect all animals in a deer population uniformly. Fawns and bucks start the winter with much lower fat reserves and often are the first to die. Adult does are in the best position to survive a severe winter but may lose the fawns they are carrying. In summary, after a difficult winter there can be a significant loss of young of the year and adult males, as well the following spring's fawn production.

Recent aerial survey results and reports from the field all show that white-tailed deer populations have declined significantly across the forest and forest fringe. This decline can be associated to the most recent winters that have been much more severe in terms of temperature and snow depth.

Historical Context

Starting in the late 1990s anecdotal reports from hunters, outfitters and Ministry of Environment field staff suggested that white-tailed deer populations were high throughout the Forest and Fringe WMZs. By 2004 some observers suggested that in the west (Meadow Lake area) deer populations were higher that they had ever been in their memory.

Ministry of Environment ground surveys conducted each fall also show very high fawn production during these years. Deer productivity is expressed in the number of fawns per 100 does; the Saskatchewan long-term average is 88 fawns/100 does. In the western areas production was 20 per cent above the long-term average, while in the east the numbers were lower and more variable but still above average.

The winters during this period were for the most part mild, but more importantly snow accumulations were often well below normal. This corresponded to low winter mortality for the area's deer and this combined with above average fawn production allowed populations to rise.

However, after this period of mild, low snowfall, winters began to change. Winter conditions in 2004-05 for the central area (WMZ 62-66) may have caused some mortality. And both subsequent seasons (2005-06 and 2006-07) had a negative impact on deer populations, beginning in central and eastern forest and forest fringe areas and then in the west.

This past winter (2007-08) also has negatively impacted deer survival especially since the snowmelt and spring green-up of vegetation was slow.

Aerial Surveys

The Ministry of Environment uses aerial surveys to estimate white-tailed deer populations. In winter 2003-04 extensive white-tailed deer surveys were conducted in the Hudson Bay (WMZ 56-57) and Meadow Lake (WMZ 67) areas. These surveys confirmed populations were high with deer densities of 3.0 and 2.8 deer per km^2 respectively. These densities approach the very high population levels recorded in southeastern Saskatchewan in the mid 1990s (4.6 + deer/km^2).

Surveys were also completed in the Candle Lake area (WMZ 63-65) in 2004-05. Densities recorded here were quite low and in retrospect part of the reason for this low result is that some winter mortality had already occurred in the previous winter. These zones are predominantly treed with spruce and pine, which increases the difficulty of observing deer from the air. This may be another reason why the density was much lower (0.11 deer/$km^{2)}$. As well, conifer forests are not able to support as many deer as the mixed-wood forests, which predominate in the Hudson Bay and Meadow Lake areas.

A portion of WMZ 50, near Nipawin, was also surveyed in 2006-07. This survey resulted in a deer density of 1.37 deer/$km^{2.}$

The surveys conducted this past winter were designed to repeat previous efforts. Direct comparisons are possible for the surveys completed in the Hudson Bay, Meadow Lake and Candle Lake zones as the survey methodology and survey areas were very similar. These areas show drops in deer densities from 23 per cent in the west to 51 per cent in the east.

A portion of WMZ 50 was again surveyed in 2007-08; however, there was little overlap with the 2006-07 survey. Comparing the two densities shows a 76 per cent decrease from 2007 to 2008. This high degree of loss was confirmed by ground surveys of other portions of the area that covered comparable areas for both years and showed a 62 per cent decrease. These data combined with field reports confirm a very significant drop in deer numbers in this area.

See the attached table for a summary of these comparisons.

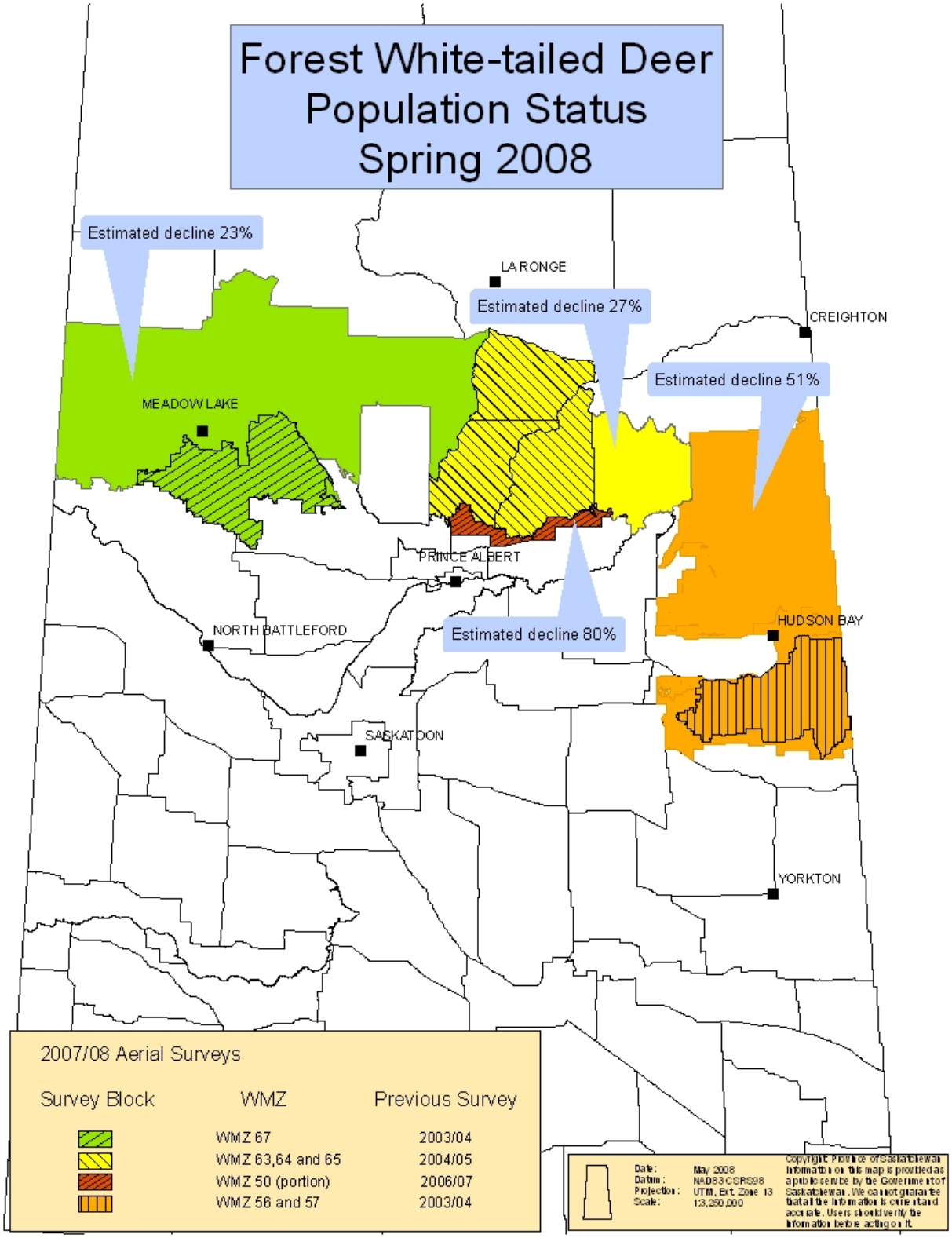
Post Survey Mortality

2008 surveys were flown in January or February, it is expected that winter mortality has occurred since the surveys. Previous winter mortality surveys have shown that losses in the range of 12 per cent can be expected during a 'normal' winter with this number increasing to 35 per cent after severe winters.

While the 2007-08 winter was not 'severe', it was significant in terms of deer mortality. Ministry of Environment wildlife managers estimate that winter losses could be in the range of 25 per cent with the majority of this mortality occurring after the surveys.

The attached map illustrates estimated population declines across the forest and forest fringe. Declines in deer densities has been extrapolated into WMZs that were not surveyed. This was done based on snowfall records and habitat considerations. The areas that were not surveyed are known to have overall lower habitat capability for white-tailed deer, resulting in similar or perhaps higher winter mortality than the surveyed areas.

2007-08 Forest White-tailed Deer Aerial Survey Results/Winter Mortality Estimates				
Deer Survey	Survey	Survey	Survey	Survey
	Porcupine WMZ 56-57	Divide WMZ 67	Candle WMZ 62-65	WMZ 50
2007-08	13,343 deer ± 20.0 % **1.47 deer/km^2**	13,145 ± 17.9 % **2.20 deer/km^2**	688 ± 28.7 % **0.08 deer/km^2**	**0.33 deer/km^2**
Last Comparable Survey	19,500 deer ± 20.8 % **3.04 deer/km^2** [2003/04]	17,813 ± 18.4 % **2.85 deer/km^2** [2003/04]	949 ± 25.5 % **0.11 deer/km^2** [2004/05]	**1.37 deer/km^2** [2006/07]
Deer Density Decline (survey results)	-51%	-23%	-27%	-76%


Forest White-tailed Deer
Population Status
Spring 2008
Estimated decline 23%
LA RONGE
Estimated decline 27%
CREIGHTON
Estimated decline 51%
MEADOW LAKE
PRINCE ALBERT
NORTH BATTLEFORD
Estimated decline 80%
HUDSON BAY
SASKATOON
YORKTON
2007/08 Aerial Surveys
Survey Block
WMZ
Previous Survey
WMZ 67
2003/04
WMZ 63,64 and 65
2004/05
WMZ 50 (portion)
2006/07
WMZ 56 and 57
2003/04
Date: May 2008
Datum: NAD83 CSRS98
Projection: UTM, Ert. Zone 13
Scale: 1:3,250,000
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Implications for White-tailed Deer Management and Hunting Opportunities

Ministry of Environment wildlife managers have reacted to this widespread population decline by making significant changes to white-tailed deer seasons. Both the Saskatchewan Resident Second Either-sex licence and Saskatchewan Resident Anterless licence have been removed across the forest and forest fringe zones.

Canadian Resident and Non-Resident seasons and quotas have not been modified for the 2008 hunting season but future changes may be made dependant on the recovery of deer populations. For details on available hunting opportunities in these areas consult the 2008 Hunting Guide.