Annual Report 2017 Summary
Forest Health and Adaptation

Introduction

The 2017 Forest Health and Adaptation Annual Report summarizes provincial aerial and ground survey data and the details regarding the management of insects and diseases. Summaries of forest genetics research, seed research, collection and storage are also included in this report. The report also outlines the Ministry of Agriculture and Forestry (AAF) Forestry Division's involvement with collaborative projects, including those led by the Canadian Forest Service, Canadian Food Inspection Agency and endangered tree species recovery.

Summary

Mountain pine beetle is the primary bark beetle causing tree mortality. Single tree cut-and-burn control operations were used to remove 92,230 mountain pine beetle infested trees. Spruce beetle activity continued to occur at endemic levels. Aspen defoliation was largely attributed to forest tent caterpillar and large aspen tortrix. Spruce budworm populations continued to decrease since peaking in 2012. Die-back has affected 350,158 hectares of forest which, in aspen stands, can mainly be attributed to drought and repeated defoliation. Pine needle cast affected 354,898 hectares of regenerating and mature pine.

In 2017, the Alberta Tree Improvement and Seed Centre received 256 new seedlots which represented 38 different species for registration and storage in 2017. Over 1,000 kilogram of tree, shrub, grass, and forb seed were withdrawn from the seed bank for reclamation and reforestation projects. Research on whitebark and limber pine seed longevity and rust resistance continued in 2017.

Canada thistle, scentless chamomile, perennial sow thistle and tall buttercup were the most common invasive plants noted during surveys. In 2017, 95 per cent of prohibited noxious infestations were controlled on Forestry Division sites and overall 68 per cent of the infested survey area was managed. Biological control was successfully employed to manage infestations of hound's tongue, scentless chamomile, and yellow toadflax.

Alberta Agriculture and Forestry participated in Canadian Food Inspection Agency-led surveys to detect gypsy moths and assisted with the Climate Change Impacts on the Productivity and Health of Aspen project led by the Canadian Forest Service. Other collaborative projects included the implementation of plans for the recovery of whitebark and limber pine. Department staff also assisted with forest condition surveys for the Wood Buffalo Environmental Association's Terrestrial Environmental Effects Monitoring program.

Staff participated in and/or led events to increase awareness about forest health damage agents, forest genetics and tree improvement. These events included training courses, community outreach events, and guest lectures at academic institutions. Activities performed by staff ranged from operating information booths to giving detailed public presentations about forest health.

Please see the 2017 Annual Report: Forest Heath and Adaptation in Alberta for further detail.

Alberta

Table 1. Summary (in hectares) of Alberta forest disturbance agents mapped during aerial overview surveys.

	2015	2016	2017
Bark beetles			
Eastern Larch Beetle	918	6,583	2,459
Spruce beetle	1,405	10,465	3,138
Total bark beetles	**2,323**	**17,048**	**5,597**
Defoliators			
Aspen serpentine leafminer	--*	--*	1,277
Aspen two-leaf tier	536	18,786	--
Bruce spanworm	3,564	--	--**
Forest tent caterpillar	1,586,486	525,135	593,986
Large aspen tortrix	54,444	213,316	294,123
Linden looper	--	--	25,503
Spearmarked black moth	--	--	710
Spruce budworm	51,750	19,265	17,337
Unknown	--	859	8,270
Willow leafblotch miner	--*	--*	16,646
Total Defoliators	**1,696,780**	**777,361**	**957,852**
Diseases			
Armillaria root disease	--*	--*	9,782
Dwarf mistletoe	--*	--*	16,370
Pine needle cast	20	36,097	53,861
Other	--	--	3,224
Total diseases	**20**	**36,097**	**83,237**
Other			
Dieback	23,657	115,728	47,659
Flooding	5,457	2,415	9,684
Foliar damage	--*	34,000	37,407
Hail	1,419	1,050	11,840
Mechanical - unknown	--	--	1,872
Mortality	--*	144,693	15,376
Windthrow/blowdown	1,204	1,338	2,534
Winter desiccation	15,341	7,766	--
Total Other	**47,078**	**306,990**	**126,372**
Total Disturbance	**1,746,201**	**1,137,496**	**1,173,058**

*Observed on the ground but not formally assessed from the air.
** Co-occurred with large aspen tortrix and defoliation by the two agents could not be mapped separately due to overlap.