Society To Prevent Dutch Elm Disease
(Incorporated 1993)

April 1, 2016 - March 31, 2017 Report

The Society To Prevent Dutch Elm Disease (STOPDED) Board and its membership, would like to thank Alberta Ministry of Agriculture and Forestry for their annual financial support. Without this financial support from government and all of STOPDED's volunteers throughout the province, the level of vigilance we maintain would be impossible.

The experience in the Provinces that are fighting DED has proven that a *Provincial Dutch Elm Disease Prevention Program* is effective and essential if we want to save the approximately 1,000,000 elms growing in urban and rural Alberta.

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Society To Prevent Dutch Elm Disease
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1. STOPDED Partners

The Society to Prevent Dutch Elm Disease (STOPDED) is a non-profit organization which takes an active leadership role in the development and delivery of the *Provincial Dutch Elm Disease Prevention Program.* The society took the program over from the government in 2005 and since then has been administrating and operating this successful prevention program. They work hard to avoid the economic, environmental and social impacts from Dutch elm disease (DED) and other invasive alien tree pest species.

The Society is committed to developing partnerships and working relationships and have an extensive network of partners across the province. A big thank you to the following partners for helping STOPDED fulfill their mandate.

- Alberta Agriculture and Forestry
- Alberta Environment and Parks
- Olds College
- University of Alberta
- Canadian Food Inspection Agency (CFIA)
- Canada Border Services Agency (CBSA)
- Canadian Forest Service
- Northern Forestry Centre (CFS)
- Agriculture Fieldmen
- Alberta Municipalities
- Landscape Alberta
- International Society of Arboriculture (ISA) Prairie Chapter
- Professional Vegetation Managers Association of Alberta (PVMA)
- Alberta Invasive Species Council (AISC)
- Alberta Recreation & Parks Association (ARPA)
- Communities in Bloom
- And all other volunteers

A special thanks to Shelley Barkley for helping with the web site, Phil Merrill and Cypress County for empting and disposing of the firewood collected in the Alberta – Montana border bins and to Cathy Reed for administering STOPDED's Facebook.

STOPDED communicates regularly to their members and partners. Updated information on DED and other invasive alien tree pest species is distributed by STOPDED e-Bulletin, STOPDED website and Facebook.

2. STOPDED Mandate and Objects

Mandate: To foster and promote the survival of the American elm (*Ulmus americana*) in Alberta and the desire to protect Alberta's landscape trees threatened by pests with emphasis on invasive alien species.

Objects or Constitution of STOPDED:

- To primarily foster and promote the survival of the American elm (*Ulmus americana*) in Alberta by preventing the establishment of Dutch elm disease and its insect vectors.
- To protect other Alberta landscape trees threatened by pests with emphasis on invasive alien species.
- To advocate for the restriction of movement of pest carrying wood or firewood into and within Alberta.
- To increase the awareness in the horticultural industry, in the general public, and in our governments of the immense value of our landscape trees, the value of our urban forests and of the possible insect and disease threats to them.
- To assist and fund research on highly destructive landscape insect and disease pests.
- To facilitate, for the public and for government agencies, the early detection of and rapid response to destructive invasive alien species that imperil landscape trees.

3. Integrated DED Prevention Program Essential Components

A successful prevention program integrates all the following components. If any of these are reduced or eliminated, the overall program effectiveness is significantly decreased. STOPDED uses all these components for the *Provincial Dutch Elm Disease Prevention Program.* In this way, Dutch elm disease (DED) has been kept out of Alberta (AB).

This model program can be used for all threatening tree pests.

This program cannot be maintained without adequate funding.

a. Response plan
b. DED prevention/control measures are enforceable under the Agricultural Pests Act (APA).
c. Elm firewood collection and disposal is essential to insure DED vector infested elm firewood is not stored or transported within or into AB.
d. Monitoring for DED vectors include the smaller European elm bark beetle *(SEEBB),* native elm bark beetle *(NEBB*) and the banded elm bark beetle *(BEBB)* using pheromone baited sticky traps.
    - Provides vital information for DED detection since the beetles can carry the DED spores from one elm tree to another. As they move from breeding sites, such as DED-infected trees or firewood, to feed on healthy elm trees, DED can be spread
    - Number of traps placed in each municipality depends on location of the municipality, number of elms and if any insect vectors have been trapped in previous years. Approximately one trap for every 500 trees. However, some municipalities with less than 500 trees have traps because of their location is close to the Saskatchewan or Montana border.
    - Beetle populations must be monitored in municipalities, recreational/campgrounds, Travel Alberta Information Centres, Alberta-Montana border crossings, and nurseries that sell elms.
e. Surveillance of elm trees for DED symptoms is done where vectors have been found.
f. Sampling of DED suspicious elm trees.
g. Public awareness on the disease identification and prevention is essential since DED detection and prevention often dependents on the public scrutiny.
h. Train the trainer to insure enforcement officers such as the Agricultural Fieldmen and Custom Officials are aware of DED and how to recognized and prevent the disease.
i. Provincial elm inventory supplies the basic information necessary for an effective prevention program and identifies areas where intensive surveillance is necessary.
j. Provincial and inter-provincial network to maintain a liaison with all program partners and co-operators.
k. Research is supported to find resistant varieties of elm trees, new control techniques until there is a cure for DED.
l. Partnerships are needed with like-minded organizations in order to make good use of all resources.

4. Background Information

a. Since the introduction of Dutch elm disease (DED) in 1930, the disease has destroyed millions of American elm trees across North America, because no prevention was in place.
b. DED is now well established in Manitoba (MB) and Saskatchewan (SK). These provinces are now forced to spend millions of dollars annually in control.
c. DED is caused by three species of invasive alien fungus (*Ophiostoma ulmi. Ophiostoma nova ulmi* and *Ophiostoma himal-ulmi*) that can affect any elm (*Ulmus* spp.) tree. Once infected, the elm tree dies.
d. The invasive alien insect vectors for DED are:
    i. Smaller European Beetles (SEEBB) (*Scolytus multistriatus*, Marsh)
    ii. Native elm bark beetle (NEBB) (*Hylurgopinus rufipes*, Eichh)
    iii. Banded elm bark beetle (BEBB) (*Scolytus schevyrewi*)
e. SEEBB, NEBB and the DED pathogens are declared pests under the *Agricultural Pests Act*.(APA)
f. The Canadian Food Inspection Agency administers the *Plant Protection Act* which regulates the movement of disease from DED infested provinces to DED free provinces.
g. Human vector - domestic firewood movement.
h. A provincial elm inventory was completed in all the municipalities by STOPDED from 1998- 1999.
i. Up to 50% of the overall tree plantings in municipal landscapes are elms.
j. According 1999 tree inventory and value calculation at that time, AB has an estimated 750,000 mature elm trees. A total of 250,000 elms, valued at $700 million dollars, grow in Alberta's urban areas. The remaining 500,000 elms grow in provincial parks, farm shelterbelts and rural homesteads.
k. Edmonton has 100,000 elms and Calgary 50,000 elms.
l. Using the 1999 International Society of Arborists tree valuation calculator many AB elms are valued at approximately $4,800 to $$6,000 dollars each.
m. The elm has been the preferred tree to plant, not only for its stately beauty, but also for the tree's impressive list of useful properties.
    i. growing fast on a wide variety of soils
    ii. tolerant to drought conditions
    iii. high salt tolerance in urban boulevard plantings
    iv. one of the few species that can thrive in the AB extreme climactic conditions
n. In 1975, DED was found in Winnipeg, Manitoba
o. In 1976, both the pathogen and its beetle vectors where included in the APA.
p. In 1981, DED found in Regina, Saskatchewan.
q. DED is found in municipalities throughout Montana, USA.
r. Since 1994, SEEBB and BEBB have been found in AB municipalities across the province.
s. In 1998, an isolated case of DED was found in Wainwright by STOPDED. This tree was removed and properly disposed of immediately.
t. As a result of vectors being found in AB, trapping locations and elm surveillance has been increased.
u. From 1976 to 2004, AB government operated the *Provincial Dutch Elm Disease Prevention Program*.
v. Since 2005, STOPDED has received Government funding to operate and administrate the program.
w. Alberta is one of the last geographic areas in North America still DED free.

5. Current DED and Vector Situation in BC, AB, SK, MB and Montana

a. **British Columbia**
   i. SEEBB are found in high numbers in the southern part of the province. DED has not been found.

b. **Alberta**
   i. SEEBB has been found in municipalities throughout Alberta since 1994.
   ii. One BEBB was found in City of Medicine Hat in 1996. Since then the numbers of BEBB have increased substantially.
   iii. BEBB are being found in lower numbers in municipalities in the south eastern part of province.
   iv. All DED suspect 2016 elm samples have tested negative.

c. **Saskatchewan**
   i. Survey conducted by SK Ministry of Environment in 2016 showed DED remains well established in its traditional southeastern part of the province. DED has affected high numbers of elm along the Fort Qu'Appelle River all the way to Buffalo Pound Park just north of Moose Jaw.
   ii. BEBB found in high numbers along the south western part of the province.
   iii. In 2012, one DED infected elm tree in Maple Creek, 100 km east of Medicine Hat, was found. Monitoring and surveys was increased and no DED was found.
   iv. In 2015, one DED infected elm tree was found in Saskatoon for the first time.

d. **Manitoba**
   i. DED is well established in the southern area of the province. It now extends throughout the entire natural range of elms in MB.
   ii. With an effective DED Prevention/Management Program in place, the **City of Winnipeg's** elm losses averaged approx. 1.5%-2% annually or 2,900 trees. Even though there has been a loss of 60,000 trees in the last 35 years, the city's elm population is still 160,000. Since 1975, Winnipeg has spent $69 million to protect their elm population
   iii. City of Winnipeg still plants 20% of whole reforestation program with various variety of elms.

e. **Montana, USA**
   i. DED and SEEBB are found directly south of Alberta in Montana and throughout the rest of USA.

6. Budgets for DED Prevention & Management Program in SK, MB and AB

- City of Winnipeg 2016 budget was 4.2 million, this includes 1 million from the province.
- Province of Manitoba is $1.5 million plus one full time person.
- Province of Saskatchewan is $100,000.00 plus one full time person.
- City of Regina annual budget is $145,000.00.
- Province of Alberta annual grant for the basic prevention program is $110,000.00.

7. STOPDED Provincial DED Prevention Program

a. **Monitoring for DED vectors**

i. Monitoring season runs from April 1st to Sept. 30th to determine if the elm bark beetles are present

ii. A total of 1713 traps and lures are set by STOPDED and the larger cities province wide.

iii. Traps are placed in:

- 116 Municipalities (cities, towns, villages, hamlets),
- 31 - Nurseries
- 30 - Parks (Provincial and Municipal)
- 5 - US/Canada Port of Entry

iv. The locations monitored: **(See appendix I)**

v. The City of Edmonton, Calgary, Red Deer Lethbridge and Medicine Hat are responsible for the purchase, distribution and processing of the traps and lures for each of these municipalities. The City of Medicine Hat has an agreement with the City of Edmonton to scan all Medicine Hat's traps.

vi. To increase the amount of municipalities monitored in the province the Cities of Edmonton, Calgary, Red Deer and Lethbridge are also responsible for the distribution and scanning of traps in their buffer zone municipalities also referred to as Satellite communities. Traps for the buffer zone municipalities are purchased by STOPDED.

vii. STOPDED purchases and distributes traps to the remaining locations in the province. These traps are scanned at Olds College by Dr. Ken Fry and his students, Results: **(See appendix II and III)**

viii. BEBB were found in 2006 for the first time in City of Medicine Hat. Since then the BEBB have been found in municipalities throughout the province.

ix. Traps placed in municipalities outside of the larger cities by the STOPDED program are replaced twice a season whereas the cities change their traps monthly.

b. **Surveillance of elm trees:**

An elm survey for the DED was completed in municipalities in the southern part of the province where the vectors (BEBB and SEEBB) have been found. No DED suspect elms were found.

c. **DED suspect sampling**:

i. Arrangements were made to have samples taken from all suspect DED elm trees samples by STOPDED. These were sent to Alberta Agriculture and Forestry Plant Health Lab.

ii. A total of 7 samples were submitted from the City of Edmonton and 5 from City of Calgary.

iii. All elm samples sent to the lab for culturing tested negative for DED.

d. **Public awareness:**

STOPDED undertakes many initiatives to promote DED prevention among Alberta citizens and to visitors to Alberta. **(See appendix IV).**

e. **Train the trainer:**
   i. Contact was made with Custom Officials to insure that they understood the importance of collecting firewood. Since not all custom officials can identify firewood by the bark. they were encouraged to collect all firewood that includes bark and have it placed in the STOPDED firewood bins. STOPDED regularly disposes of all wood by having it burned.
   ii. STOPDED e-Bulletins are sent out regularly to Custom Officials, Agriculture Fieldman and Municipalities on DED prevention and other IAS tree pests.

f. **Provincial elm inventory** was done in all AB municipalities in 1999. Some Cities are updating this inventory. Inventory can be found at www.stopded.org under "Province wide Elm Inventory"

g. **Provincial and inter-provincial network**
   i. E-bulletins sent to British Columbia, Saskatchewan and Manitoba contacts.
   ii. Communication is made via email and phone for regular pest's updates.

h. **Elm firewood collection and disposal**
   i. Travellers are requested to leave firewood in the bins in order to reduce the risk of importing insect vectors or disease through highway signage.
   ii. The Society owns and maintains firewood collection bins and a collection trailer.
   iii. Bins are placed at all US/AB ports of entry and at all Travel Alberta Information Centres. Collection trailer is parked at Chief Mountain Port of Entry.
   iv. All firewood is confiscated at the US/AB ports whereas the bins at the information centres are volunteer bins. All bins were emptied and firewood disposed by burning.
   v. Wood confiscated from travellers is mainly spruce, pine and some elm.

i. **Research**

   Using casino funds, STOPDED funds research projects that support the objectives of the Society. All projects funded are reviewed and recommended by the Research Committee and approved by the Board. 2016 projects approve are:
   i. Monitoring for EBB in the months of April and October to support the Agriculture Pests Act (APA)
   ii. Supporting CFIA with the monitoring for Emerald Ash Borer in AB
   iii. Monitoring for Invasive Alien Wood Boring Species in Alberta
   iv. Provincial Elm Tree Inventory & Valuation Update

j. All municipalities, counties and MD's in the province of Alberta have the responsibility and authority to prevent and control DED under the Alberta *Agricultural Pests Act* (APA) *"Pest and Nuisance Control Regulation* (PNCR). The APA provides a means for enforcement. Several sections of the APA and the Regulation can be applied. It is an offence not to take "active measures" and not to follow an inspector's notice.

k. **Alberta DED Prevention/Control Measures** have been updated February, 2017

l. **Alberta DED Response Plan** is in place**.**

m. **"Provincial Elm Pruning Ban"** runs from April 1st to September 30th

8. 2016 Research Projects

a. Monitoring for EBB in the months of April and October

The elm bark beetles (EBB) and Dutch elm disease (DED) have been declared pests under the Agricultural Pests Act (APA) since 1976. As a prevention and control measure under this act, the provincial elm pruning ban which runs from April 1 to September 30 has been in place since that time. These dates were based on the beetle activity of the NEBB and the SEEBB in other parts of Canada mainly Manitoba where DED was found.

In the past years a new EBB, the banded elm bark beetle, has been found in many Alberta municipalities. There is little known about the flight period of this beetle and there is a concern the pruning ban dates in place are appropriate for Alberta. In order to change these dates under the APA a minimum of 3 years of data must be collected province wide to support the change. STOPDED's goal is to collect data collected from separate traps set up in April and October.

Starting in 2015, traps have been placed in the towns and villages by Nigel Seymour for STOPDED and by cooperators in the cities. All traps are sent to Mike Jenkins, project lead, for processing. 2016 was the second year of data collection.

Traps have been place in the following municipalities in locations that have historically caught EBB.

- Edmonton 12 traps
- Lethbridge 8
- Medicine Hat 8
- Red Deer 6
- Calgary 10
- Acadia Valley 1
- Dunmore 1
- Walsh 1
- Bow Island 1
- Warner 1
- Milk River 1
- Magrath 1
- Cardston 1
- Taber 1

b. Monitoring for Emerald Ash Borer in AB

The emerald ash borer (EAB) was first detected in Canada in 2002, in Windsor, Ontario. The beetle has proven to be highly destructive. Since its arrival, it has killed tens of millions of ash trees and continues to spread into new areas, with considerable economic and ecological impacts.

Emerald ash borer in Canada has spread rapidly through Ontario and has made its way into Quebec. In 2014, CFIA consolidated the regulated areas within Ontario and Quebec into one larger regulated area. All of these areas are regulated by federal ministerial orders that prohibit movement of potentially infested ash commodities.

The area infested by emerald ash borer is expected to continue to expand, mostly through human movement of infested material such as firewood.

CFIA is the lead on EAB monitoring in AB through regulatory means and surveys. STOPDED has partnered with CFIA helping with the coordination of placement of the traps. STOPDED also sends information on EAB and updates to their members by way of e-Bulletin.

c. **Monitoring Invasive Alien Wood Boring Insects in AB**

The establishment and expansion of the global marketplace has resulted in an increased risk of introduction of alien invasive insect species into Alberta. These invasive species threaten our urban and rural trees and provincial forests. Early detection of alien invasive species (IAS) of wood boring insects is essential to protect our trees and to avoid negative economic, environmental and social impacts.

Provincial and Municipal departments with a mandate to protect and manage our urban landscapes are direct recipients of the results of this project. The public and private sector stakeholders in Alberta will benefit through timely notification of these invaders. This information will also benefit commercial tree nursery operations.

This project builds on a pilot project conducted by STOPDED from 2007-2009 (Invasive Alien Species Partnership Program Project #1294. Protocols and methodologies have been established for trap deployment and collection, trap residue processing, and reporting. A partnership was developed in 2011between CFIA, Olds College and STOPDED that exploits the resources and capabilities of their respective organizations in pursuit of the protection of Alberta's trees. Cooperation between these organizations is integral to the project.

Twenty trapping sites identified as highest risk introduction sites for alien invasive species are monitored.

Trap set up is done by cooperators in the following locations:

- City of Grande Prairie (1 site)
- City of Lloydminster (2 sites)
- City of Edmonton (5 sites) coordinated and processed by City staff
- City of Red Deer (1 site)
- City of Calgary (1 site)
- City of Lethbridge (2 sites)
- City of Medicine Hat (2 sites)
- City of Fort McMurray (1 site)
- ARD Crop Diversification Centre, Brooks (1 site)
- ESRD – 4 locations
    - Boyle Dump
    - Janvier commercial waste site
    - CNRL Wolf Lake
    - Cold Lake Dump

This project is coordinated by STOPDED, traps and lures funded by CFIA and curration of samples completed by Dr. Ken Fry and students at Olds College using Casino research funding. Thanks again to all the cooperators for setting up traps and collecting the samples. No IAS have been found to date.

IAS Data 2016 can be viewed at:
http://docs.google.com/spreadsheets/d/1WinCXw-ee5o21ejVBpqI6gfdkB7x-QR4nF3EbToy4Bs/edit?usp=sharing&invite=CNve98IB&ts=58e669e7

d. **Provincial Elm Tree Inventory & Valuation Update**

In March 1999, an elm inventory was completed in all the 551 communities (cities, towns, villages and hamlets) in the province of Alberta by the Society to Prevent Dutch Elm Disease (STOPDED). This was a 2 year project.

A site specific elm inventory supplies the basic information necessary for an effective Dutch elm disease (DED) prevention/management program. The information also identifies areas where more intensive monitoring and surveillance is necessary due to the number and/or condition of the elm trees. Knowing the value of elms is important in order to justify a prevention program.

Using 1999 elm numbers and values, the inventory showed that a total of 219,334 elms valued at $634 million grow in Alberta's municipalities.

The method used to access the value of the elm trees was developed by the Council of Tree and Landscapes Appraisers (CTLA) and is used by the International Society of Arboriculture (ISA). Since 1999 this method to access the value has increased.

Since 1999, elm trees have been planted and removed throughout the province.

STOPDED's goal is to update the elm inventory and elm values. STOPDED would also like to re-introduced municipalities to the elm inventory and the advantage of knowing the total and value of their elms through public awareness.

1. Provide a quantified elm tree inventory number to better reflect actual numbers.
2. Provide a monetary value of the elms trees in the province to qualify the tree care and continued retention of elms in the province.
3. Re-engage the municipalities and rural areas about STOPDED; educate the public about the monetary and environmental value of the elm tree population.

Project lead is Verna Mumby with Mumby's Arboriculture Consulting.

9. STOPDED Accomplishments

a. Reliable system & infrastructure to survey for DED and DED vectors monitoring is in place.
b. Reliable system & infrastructure to survey for other IAS tree pest.
c. Highway signage at all AB entrances and exits asking to prevent DED by not transporting firewood.
d. **STOPDED Hotline** 1-877-837-ELMS is in place.
e. Memorandum of Understanding between Olds College and STOPDED was signed in 2009. STOPDED's Invasive Alien Species (IAS) insect collection is housed at Olds College. Olds College has made a commitment to provide 25 hours per year of expert scientific entomological support to assist with curation of trapped insect material. CFIA has made a commitment to supply trapping supplies. Casino funds are used for the insect curation done by Dr. Ken Fry and students.
f. Two workshop/conferences held at Olds College per year. An average of 60 people attend.
g. Volunteers are secured for a casino fund raising events. These funds are being used for research, additional public awareness and educational workshops.
h. Agriculture Fieldmen and their Assistants are recognized as associate membership. This recognizes our ongoing working relationship/partnership to help prevent DED.
i. **Research Committee established terms of reference,** mandate and composition Key functions:
    i. make recommendations to the STOPDED Board of Directors regarding the merit and suitability research funding requests and project funding requests made to the Society
    ii. provide oversight for research and science-related projects undertaken by the Society to ensure quality and that the Society's interests are maintained.
j. **STOPDED Research Work Plan:** the Society is directly delivering research projects. This plan establishes the accountability for clearly identifying objectives, desired outcomes and performance measures (measures of success) for each phase of the anticipated project. It also establishes clear expectations of the direction, focus, and accountability. Casino funds are used for research projects.
k. **Scholarships:** Using casino funds STOPDED annually presents Olds College $2000.00 towards a scholarship. This scholarship awards 4 students $500.00 each from the horticultural and arboricultural programs.
l. **STOPDED website (www.stopded.org)** is housed under AF "Ropin' the Web."
m. **Facebook page**
n. Updated **DED Prevention/Control Measures Feb 2016**

8. STOPDED Goals for the Future

- Continue to secure funding from Government to operate the *Provincial Dutch Elm Disease Prevention Program.*
- Continue to form partnerships so prevention program components and projects can be done more efficiently and effectively.
- BEBB is a new vector of DED and has been found in larger number in City of Medicine Hat. STOPDED needs to concentrate on working with those municipalities in the south eastern corner of AB and Agriculture Fieldman to minimize the threat of DED.
- Continue holding workshops/ conferences on DED and other invasive tree pests.
- Continue research effective methods of advertising.
- Update and elm inventory and elm tree value when needed.
- Update DED Response Plan when needed.
- Keep Alberta free of DED and other IAS tree pests.

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Appendix l - Provincial Monitored Locations

The following list indicates the number of trap sites in each location and the responsible party.

LEGEND: CGY - Calgary; EDM - Edmonton; SC - Strathcona County; LB – Lethbridge; MH - Medicine Hat; RV- Rocky View MD#44; STOPDED; StC - Sturgeon County

Municipality	Sites	Responsibility
AcadiaValley, M.D. of	1	STOPDED
Airdrie, City of	2	CGY
Ardrossan, Hamlet of	1	SC/EDM
Balzac, Hamlet of	1	CGY
Barnwell, Village of	1	LB
Barrhead, Town of	1	STOPDED
Barons, Village of	1	LB
Beaumont, Town of	1	EDM
Beiseker, Village of	1	RV/CGY
Bentley, Village of	1	RD
Bon Accord, Town of	1	EDM
Bonnyville, Town of	1	STOPDED
Bowden, Town of	1	RD
Bow Island, Town of	1	MH
Brooks, Town of	7	STOPDED
Bruderheim , Town of	1	SC/EDM
Calgary, City of	57	CGY
Calmar	1	EDM
Camrose, City of	3	STOPDED
Camrose, County of	2	STOPDED
Round Hill, Hamlet of	1	STOPDED
New Norway, Hamlet of	1	STOPDED
Cardston, Town of	1	STOPDED
Castor, Town of	1	STOPDED
Cereal, Village of	1	STOPDED
Chauvin, Village of	1	STOPDED
Chestermere, City of	1	CGY
Claresholm, Town of	2	STOPDED
Coaldale, Town of	2	LB
Coalhurst, Town of	2	LB
Consort, Town of	3	STOPDED
Coronation, Town of	2	STOPDED
Coutts, Village of	2	STOPDED
Dalroy, Hamlet of	1	RV/CGY
Daysland, Town of	1	STOPDED
Delburne, Village of	1	RD
Devon, Town of	2	EDM
Diamond Valley	1	LB
Drayton Valley, Town of	1	STOPDED
Drumheller, Town of	3	STOPDED
East Coulee, Hamlet of	1	STOPDED
Nacmine, Hamlet of	1	STOPDED
Rosedale, Hamlet of	1	STOPDED
Eckville, Town of	1	RD
Edgerton, Village of	1	STOPDED
Edmonton, City of	48	EDM
CDCN	1	STOPDED
Elnora, Village of	1	RD
Empress, Village of	2	STOPDED
Enchant, Village of	1	STOPDED
Forestburg, Village of	5	STOPDED
Fort Macleod, Town of	1	LB
Fort Saskatchewan, City of	6	EDM
Gibbons, Town of	1	EDM
Grande Prairie, City of	3	STOPDED
Grassy Lake, Hamlet of	1	MH
Hanna, Town of	2	STOPDED
High Prairie, Town of	2	STOPDED
High River, Town of	2	STOPDED
Innisfail, Town of	1	RD
Irvine, Village of	1	MH
Kathyrn, Hamlet of	1	RV/CGY
Keoma, Hamlet of	1	RV/CGY
Killam, Town of	2	STOPDED
Lacombe, Town of	3	RD
Langdon, Hamlet of	1	RV/CGY
Leduc, City of	3	EDM
Legal, Town of	1	SA/EDM
Lethbridge, City of	48	LB
Leth Correctional Centre	1	LB
Leth Research Centre	1	LB
Leth. Wilson Siding	1	LB
Lloydminster, City of	7	STOPDED
Magrath, Town of	1	LB
Medicine Hat, City of	36	MH
Milk River, Town of	2	STOPDED
Mirror, Village of	1	RD
Monarch, Hamlet of	1	LB
Morinville, Town of	1	EDM
Nanton, Town of	1	STOPDED
Nobleford, Village of	1	LB
Okotoks, Town of	2	CGY
Olds, Town of	1	STOPDED
One Four, Hamlet of	1	MH
Oyen, Town of	2	STOPDED
Picture Butte, Town of	1	LB
Pincher Creek, Town of	1	STOPDED
Ponoka, Town of	2	RD
Provost, Town of	2	STOPDED
Raymond, Town of	3	LB
Redcliff, Town of	1	MH
Red Deer, City of	48	RD
Redwater, Town of	2	EDM
Rimbey, Town of	1	RD
Sherwood Park	2	SC/EDM
Springbank, Hamlet of	1	RV/CGY
Springbrook, Hamlet of	1	RD
Spruce Grove, City of	2	EDM
St. Albert, City of	12	SA/EDM
Stettler, Town of	2	STOPDED
Stirling, Village of	1	LB
Stony Plain, Town of	3	EDM
Strathcona County	8	EDM
St. Paul, Town of	2	STOPDED
Strathmore, Town of	2	CGY
Suffield, Hamlet of	1	MH
Sylvan Lake, Town of	1	RD
Taber, Town of	5	LB
Three Hills, Town of	1	STOPDED
Vauxhall, Town of	2	STOPDED
Vegreville, Town of	2	STOPDED
Vermilion, Town of	1	STOPDED
Veteran, Village of	1	STOPDED
Viking, Town of	1	STOPDED
Vulcan, Town of	1	STOPDED
Wainwright, Town of	4	STOPDED
Walsh Travel Info. Centre	1	MH
Warner, Town of	2	STOPDED
Wetaskiwin, City of	3	STOPDED
Youngstown, Village of	1	STOPDED

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Nurseries	#Sites	Responsible
Alberta Tree Movers	1	CGY
Arrowhead Nurseries	1	EDM
Bluegrass Nurseries	1	CGY
Blue Grass Sod Farms	1	RD
Cheyenne Tree Nursery	1	EDM
Coaldale Nurseriers Ltd	1	LB
Economy Landscaping	1	StC/EDM
Foothills Landscaping	1	CGY
Golden Acre Garden Centre	1	MH
Golden Acre Garden Sentres NE and Greengate	2	CGY
Green Haven Tree Farm	1	LB
Greenland Nursery	1	EDM
Heritage Nurseries	1	StC/ED
Heritage Tree Nurseries	1	CGY
Lacombe Tree Farms	1	RD
Millcreek Nursery	1	EDM
Old Man Creek	1	EDM
Parkland Nurseries	1	RD
Pireira and Monez Landscaping	1	StC/EDM
Poplar Ridge Tree Farm	1	RD
Salisbury Greenhouses	1	SC/EDM
Simon Bos Nurseries Ltd.	1	LB
Spruce Lanes	1	CGY
Sunnyside Greenhouses Ltd.	1	CGY
Sunshine Tree Nursery	1	StC/EDM
Sunstar Nurseries	1	EDM
Tom's Tree Farm	1	EDM
Vollmin Tree Movers	1	CGY
West Edmonton Treeland	1	EDM
William Holt Nurseries	1	CGY
Windmill Garden Centre	1	MH

Parks	#Sites	Responsible
Aspen Beach PP	3	STOPDED
Big Knife PP	1	STOPDED
Buffalo Lake PP	1	STOPDED
Dillberry PP	1	STOPDED
Dinosaur PP	1	STOPDED
Dixon-Stevenson Rest Stop	1	RV/CGY
Elkwater Cabin Area	1	STOPDED
Gooseberry Lake PP	1	STOPDED
Half Moon Lake Resort	1	SC/EDM
Island Buffalo Jump PP	1	STOPDED
Jarvais Bay PP	1	RD
Kinbrook PP	1	STOPDED
Meyerthorpe Campground1	1	STOPDED
Little Bow PP	1	STOPDED
Little Fish PP	1	STOPDED
Midland PP	1	STOPDED
Pine Lake PP	1	RD
Parkland PP	1	RD
Reesor Lake PP	1	STOPDED
Rochan Sands PP	1	STOPDED
Sherwood Forest Campground	1	SC/EDM
St. Mary Reservoir	1	STOPDED
Strathcona Science PP	1	SC/EDM
Taber PP	1	LB
Tillibrook PP	1	STOPDED
The Narrows PP	1	STOPDED
Tolman Bridge PRA	1	STOPDED
Vermillion PP	1	STOPDED

Port of Entry	#Sites	Responsible
Chief Mountain	1	STOPDED
Carway	1	STOPDED
Coutts	1	STOPDED
Del Bonita	1	STOPDED
Wild Horse	1	STOPDED

Society To Prevent Dutch Elm Disease
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Appendix ll

Respectfully submitted by Ken Fry, Olds College

1. Elm Bark Beetle Surveillance

Session 1:

In 2015 Elm Bark Beetle traps were received at Olds College for assessment. A total of one hundred nine (109) out of one hundred twenty-five (125) traps were received from the summer trapping period for inspection. Eleven (11) traps were lost to weather/wind. Five (5) traps were not returned. This is a return rate of 95%.

A total of one (1) Smaller European Elm Bark Beetle was detected on Trap 115.1 at Wainwright.

A total of forty-nine (49) Banded Elm Bark Beetles were detected at eleven (11) different localities (Table 1).

Table 1. Incidence of Banded Elm Bark Beetle on Traps, Summer 2016

Site	Trap Number	Number of BEBB
MD of Acadia Valley	1.1	2
MD of Acadia Valley	2.1	11
Brooks	8.1	3
Village of Consort	28.1	1
Village of Coutts	34.1	1
Village of Coutts	35.1	1
Village of Empress	48.1	2
Village of Hays	52.1	8
Village of Irvine	53.1	4
Village of Bow Island	60.1	2
Oyen	91.1	11
Provost	93.1	1
Vauxhall	104.1	1
Vauxhall	105.1	1
Total # of Sites = 11		Total # of Beetles = 49

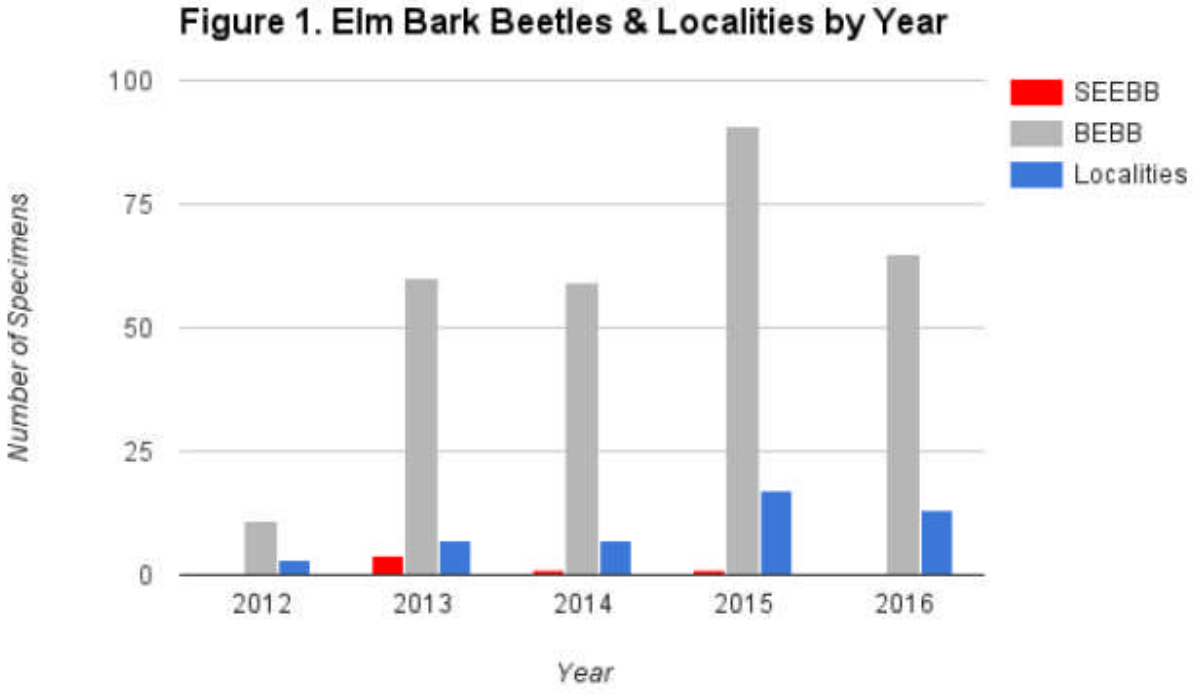
For the fall trapping period a total of one hundred forty (140) out of one hundred forty-nine (149) traps were received for inspection. This is a return rate of 94%.

No Smaller European Elm Bark Beetle were detected.

A total of twenty-nine (29) Smaller European Elm Bark Beetles were detected at seven (7) localities (Table 2).

Table 2. Incidence of Banded Elm Bark Beetle on Traps, Fall 2016

Site	Trap Number	Number of BEBB
MD of Acadia Valley	1.2	1
MD of Acadia Valley	2.2	13
Bonnyville	7.2	1
Drumheller East Coulee	38.2	1
Village of Empress	48.2	10
Village of Hays	52.2	1
Vauxhall	105.2	1
Wainwright	115.2	1
Total # of Sites = 7		Total # of Beetles = 29



Society To Prevent Dutch Elm Disease
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Appendix III - EEB found in AB since 19994

Table 1

	2013	2014	2015	2016
Acadia Valley	2 BEBB	3 BEBB	5 BEBB	27 BEBB
Bow Island	5 BEBB	5 BEBB	14 BEBB	2 BEBB
Bonnyville				1 BEBB
Brooks	5 SEEBB	5 BEBB	14 BEBB	3 BEBB
Calgary	500 SEEBB	17 SEEBB	9 SEEBB, 1 BEBB	17 SEEBB, 5 BEBB
Castor			1 BEBB	
Chauvin			1 BEBB	
Coalhurst	1 SEEBB			
Consort			4 BEBB	1 BEBB
Coutts	2 BEBB	2 BEBB		2 BEBB
Drumheller East Coulee			1 BEBB	1 BEBB
Dunmore	43 BEBB	43 BEBB	1 SEEBB 18 BEBB	
Edmonton	14 SEEBB, 1 BEBB	14 SEEBB	82 SEEBB	12 SEEBB
Empress	1 BEBB	1 BEBB	11 BEBB	12 BEBB
Fort Saskatchewan		2 SEEBB	6 SEEBB	
Hays			5 BEBB	9 BEBB
Irvine	2 BEBB	1 BEBB	4 BEBB	4 BEBB
Lethbridge		7 SEEBB	4 SEEBB 1 BEBB	
Lethbridge Research Center				1 BEBB
Medicine Hat	4067 BEBB	1033 BEBB	3448 Mainly BEBB	2544 BEBB, 19 SEEBB
Morinville		1 SEEBB		
Oyen			1 BEBB	11 BEBB
Onefour			1BEBB	
Provost			3 BEBB	1 BEBB
Ralson			1 BEBB	
Red Deer		1 SEEBB		1 SEEBB
Spruce Grove			3 SEEBB	4 SEEBB
St Albert	5 SEEBB	3 SEEBB	10 SEEBB	2 SEEBB
Stony Plain		1 SEEBB	5 SEEBB	
Strathcona County			12 SEEBB	
Taber		1 SEEBB	4 BEBB	18 BEBB
Tillebrook PP			1 BEBB	
Walsh	5 BEBB	5 BEBB	5 BEBB	
Vauxhall				3 BEBB
Wainwright				1 BEBB
Provincial EBB Total	4653	1141	3639	
# positive locations	13	18	26	21

Table 2

Dutch Elm Disease Vectors (elm bark beetles EBB) found in Alberta since 1994

SEEBB- smaller European elm bark beetle; BEBB- banded elm bark beetle

Location	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Acadia Valley																				2 BEBB	3 BEBB	5 BEBB	27 BEBB
Balzac						1 SEEBB																	
Barnwell										1 SEEBB									1 SEEBB				
Beiseker									1 SEEBB														
Bow Island																				5 BEBB	5 BEBB	14 BEBB	2 BEBB
Brooks												1 SEEBB							3 SEEBB	5 SEEBB	5 BEBB	14 BEBB	3 BEBB
Calgary	80 SEEBB	60 SEEBB	10 SEEBB	31 SEEBB	142 SEEBB	100 SEEBB	30 SEEBB	32 SEEBB	6 SEEBB	66 SEEBB	101 SEEBB	7 SEEBB	64 SEEBB	4 SEEBB	4 SEEBB	6 SEEBB	19 SEEBB	2 SEEBB 4 BEBB	20 SEEBB 6 BEBB	500 SEEBB	17 SEEBB	9 SEEBB 1 BEBB	17 SEEBB 5 BEBB
Castor																						1 BEBB	
Chauvin																						1 BEBB	
Coaldale										1 SEEBB					5 SEEBB				1 SEEBB				
Coalhurst																				1 SEEBB			
Consort																		1 SEEBB				4 BEBB	1 BEBB
Coutts						1 SEEBB		1 SEEBB								1 SEEBB 2 BEBB				2 BEBB	2 BEBB		2 BEBB
Drumheller																	1 SEEBB					1 BEBB	1 BEBB
Dunmore																		5 BEBB	8 BEBB	43 BEBB	43 BEBB	1 SEEBB 1BEBB	
Edmonton		4 SEEBB	4 SEEBB	4 SEEBB	13 SEEBB	7 SEEBB	3 SEEBB	3 SEEBB	1 SEEBB	39 SEEBB	14 SEEBB	1 SEEBB	5 SEEBB	1 SEEBB	1 SEEBB	2 SEEBB	1 SEEBB	1 BEBB	31 SEEBB	28 SEEBB 1BEBB	14 SEEBB	82 SEEBB	12 SEEBB
Empress																				1 BEBB	1 BEBB	11 BEBB	12 BEBB
Forestburg												1 SEEBB											
Fort SK																1 SEEBB			2 SEEBB		2 SEEBB	6 SEEBB	
Green Haven Garden Ctr															1 SEEBB								
Hays																			1 BEBB			5 BEBB	9 BEBB
High River				4 SEEBB																			
Irvine																2 BEBB			1 BEBB	2 BEBB	1 BEBB	4 BEBB	4 BEBB
Killam							1 SEEBB																
Kipp (Marshalling Yard)																			1 SEEBB				
Lethbridge								2 SEEBB	1 SEEBB			1 SEEBB	1 SEEBB	1 SEEBB	53 SEEBB	9 SEEBB	2 SEEBB	3 SEEBB 1 BEBB	13 SEEBB			4 SEEBB 1 BEBB	
Lethbridge Research Ctre																			1 SEEBB		7 SEEBB		1 BEBB
Lloydminster							1 SEEBB										3 SEEBB	1 SEEBB					
Medicine Hat					21 SEEBB	5 SEEBB	1 SEEBB						1BEBB	5 SEEBB	3 SEEBB	2 SEEBB	5 SEEBB 62 BEBB	4 SEEBB 600 BEBB	2 SEEBB 1998 BEBB	4067 BEBB	1033 BEBB	3448 BEBB	2544 BEBB 19 SEEBB
Milk River										1 SEEBB													
Morinville																					1 SEEBB		
Oyen																						1 BEBB	11 BEBB
Onefour																						1 BEBB	
Picture Butte																		1 SEEBB					
Provost														1 SEEBB								3 BEBB	1 BEBB

Appendix IV - Public Awareness

- **Advertisements placed focusing on all firewood transportation and the elm pruning ban**
  - 2016 Travel Alberta Campground Guide
  - 2016 Alberta Guide to Hunting Regulations
  - 2016 Alberta Sportfishing Regulations
  - Landscape Alberta Nursery Association (LANTA) LANDX (nursery resource listing)
  - The Alberta Association of Landscape Architects 2016 Membership Roster
  - Green Industry Conference and Trade Show 2016 edition
  - Alberta Outdooorsman
  - Stettler and Area Coffee News, 1 year
  - Communities in Bloom, ARPA
  - Today's Grandparent ad and article, May-Sept Spring and Fall edition
- **DED Public Awareness Week** was recognized province wide from June 24th to June 30th. Article placed in Agri News which was picked up by local papers across the province. Many of the larger cities put on a public awareness campaign during this week.
- **STOPDED E-Bulletin's**
  As part of the ongoing efforts to keep members informed on DED and other related tree pest issues, an information E-Bulletin is regularly sent out.
- **STOPDED display units on DED and IAS purchased**
  6 separate displays units are available for use by Municipals or Provincial Parks.
- **Posters and brochures**
  - Brochures and posters were sent to Municipalities and Provincial contacts to be placed in Municipal/Provincial campgrounds, provincial ports of entry and local information centres. These brochures and posters focus on the transportation of wood with bark.
  - Brochures and posters were sent to all 49 Accredited Community and Regional Visitors Information Centres and **Travel Alberta Visitor Information Centres.**
  - Brochures and posters were designed to focus more on municipalities outlining the elm pruning ban and storage of elm firewood.
- Purchased and distributed **Hazard elm tape and Save our Elms** packing tape for municipalities.
- Purchased promotional items, six-pack coolers, safeguard aluminum wallets, folding foam can coolers, measuring spoons and umbrellas for tradeshows.
- **Conferences/Tradeshows attended with display**
  - Green Industry Conference/ Trade Show, Edmonton – Nov 19-20, 2016
  - International Society of Arboriculture (ISA) Prairie Chapter Tradeshow, Red Deer, Oct 20-Nov 1, 2016
  - Annual Provincial Agricultural Service Board Conference, Jan 24,-27, 2017
  - Professional Vegetation Managers Association (PVMA) Tradeshow, Edmonton, Feb 28 – March 1, 2016
  - Alberta Invasive Species Conference and AGM attended with booth March 10, 2016
  - Sawmilling and Wood Waste Workshop, Red Deer, February 29, 2016

- **STOPDED Hotline – 1-877-837-ELMS (3567)**
  - 236 calls on the DED Response Plan, Agricultural Pests Act, Plant Protection Act of Canada, storm damage, pruning ban, proper disposal tree care and DED symptoms.
- **STOPDED Website: DED website** updated when needed by Shelley Barkley, ARD. The ARD site is linked to www.stopded.org
- **STOPDED Facebook** administered by Cathy Reed**,** Strathcona County

Appendix V - STOPDED Board and Research Committee

Chair:	Jacqueline Powell Certified Arborist & Utility Specialist Red Deer Regional Hospital
Past Chair	Milton Davies Arbor-Pro Tree Consulting Ltd.-Consultant Edmonton
Vice Chair	Michael Jenkins Biological Technician City of Edmonton
Secretary	Dr. Ieuan Evans Agri Trends - Consultant Spruce Grove
Treasurer	Laura Gillespie Horticulturist Town of Innisfail
Director North	Scott Stanley Tree Services Team Lead City of St. Albert
Director Central	Susan Katzell Urban Forestry Technician City of Red Deer
Director South	Craig Renny Horticulture Service Foreman City of Medicine Hat
Research Committee	Lindsay Bell — Ieuan Evans Jackie Powell — Jacquie Randle
Executive Director	Janet Feddes-Calpas