Society to Prevent Dutch Elm Disease (STOPDED)
Research Project – 2017 Elm Bark Beetle Surveillance Results in Alberta

Alberta has the largest Dutch elm disease (DED) free stand of elms in North America. In an effort to preserve this status, the Society to Prevent Dutch Elm Disease (STOPDED) has undertaken a project of annually monitoring for elm bark beetles (EBB) capable of vectoring DED throughout the province.

Alberta monitors for the following invasive alien EBBs:

- Smaller European Beetles (SEEBB) (*Scolytus multistriatus*, Marsh)
- Native elm bark beetle (NEBB) (*Hylurgopinus rufipes*, Eichh)
- Banded elm bark beetle (BEBB) (*Scolytus schevyrewi*)

SEEBB, NEBB and the DED pathogens are declared pests under the *Agricultural Pests Act*. (APA)

Monitoring for the vectors involves setting up large white sticky traps baited with host and beetle odors on vertical structures (utility poles, non-elm trees, etc.) in villages, towns, cities, nurseries and Provincial parks across Alberta. All US/AB Ports of Entries are also monitored with these sticky traps. EBB monitoring season runs from April 1st to Sept. 30th.

The Province is divided into DED management regions. A region includes a municipality that currently has a DED prevention program in place, and a number of municipalities in their satellite/buffer zone. Regions includes Cities of Edmonton, Lethbridge, Red Deer and Calgary. In order to have more municipalities monitored, these four Cities organize to have traps set up in their management region municipalities. Traps set up in management region municipalities are supplied by STOPDED and inspected by City employees. All suspect EBB are verified by Dr. Ken Fry.

The remaining of the traps set up in the province are coordinated by Janet Feddes-Calpas, STOPDED. Traps are sent out and erected by cooperators twice per season, first set up in April/May and replaced in July. STOPDED funds Olds College to have Ken and his students inspect all STOPDED traps for the presence of EBB. The results of the trap servicing are forwarded to STOPDED whereupon any trap positive for either of the SEEBB or the BEBB could result in increased trapping in the area of the positive trap as well as a site visit for visual inspection of the trees in the community.

There are a total of 198 monitored locations in Alberta 465 trapping sites. Some locations have multiply traps trapping sites.

- 123 municipalities
- 33 nurseries
- 37 Provincial Parks and campgrounds
- 5 AB/USA Ports of Entry

The number of monitored locations throughout the province could not be possible without the dedication of the Dr. Ken Fry and his students, the management regions, and all the cooperators working with STOPDED.

The 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.

Together we can keep Alberta DED free!

2017 EBB results report from DED Management Regions

- Edmonton: City of Edmonton 2 SEEBB,
  Buffer zone municipality - Stoney Plain 18 SEEBB
- Medicine Hat: City of Medicine Hat 3289 BEBB
- Red Deer: City of Red Deer - Suspect beetles have been sent to Olds College
  Buffer zone communities- no EBB found
- Calgary: City of Calgary 2 BEBB, 1 SEEBB
  Buffer zone municipalities- no EBB found
- Lethbridge: City of Lethbridge - Suspect beetles have been sent to Olds College.
  Buffer zone communities:
  Town of Coalhurst 2 EBB, Village of Barons 5 EBB
  Town of Taber 27 EBB, Park Lake Provincial Park 1 EBB

2017 STOPDED Elm Bark Beetle Trap Servicing Project Results

Respectfully submitted by Dr. Ken Fry, Olds College

Session 1 traps:

In 2017 Elm Bark Beetle traps were received at Olds College for assessment. For the summer trapping period, a total of one hundred five (105) out of one hundred thirty (130) traps were received from the summer trapping period for inspection. Nine (9) traps were not returned and sixteen (16) were lost due to wind storms. This is a return rate of 88%.

A total of one (1) Smaller European Elm Bark Beetle was detected on Trap 37.1 at Drayton Valley.

A total of fifty-two (52) Banded Elm Bark Beetles were detected at nine (9) different localities (Table 1). Of note, the Grande Prairie locality recorded six (6) BEBB, and one trap at Oyen, trap 91.1, recorded twenty-eight (28) BEBB.

Table 1. Incidence of Banded Elm Bark Beetle on Traps, Summer 2017

Site	Trap Number	Number of BEBB
MD of Acadia Valley	1.1	3
MD of Acadia Valley	2.1	1
Brooks	8.1	5
Brooks	14.1	1
Village of Consort	30.1	1
Village of Coutts	33.1	1
Dunmore	58.1	3
Village of Bow Island	60.1	1
Grande Prairie	65.1	6
Oyen	90.1	1
Oyen	91.1	28
Wetaskiwin	120.1	1
Total # of Different Sites = 9	Total # of Traps = 12	Total # of Beetles = 52

Forty-one (41) traps had the lures removed or were lost on site, and two (2) traps had no indication of a lure being present.

The mean number of trapping days was 73, the shortest trapping period was 31 days, and the longest was 145 days.

Session 2 traps:

For the fall trapping period a total of one hundred thirty-seven (137) out of one hundred fifty-seven (157) traps were received for inspection. This is a return rate of 88%.

No Smaller European Elm Bark Beetle were detected.

A total of one hundred eighty-four (184) Smaller European Elm Bark Beetles were detected at fifteen (15) localities (Table 2). Of note, the village of Consort had unusually high numbers of BEBB with ninety-six (96) beetles collected on three traps.

Table 2. Incidence of Banded Elm Bark Beetle on Traps, Fall 2017

Site	Trap Number	Number of BEBB
Brooks	8.2	17
Brooks	11.2	7
Brooks	12.2	2
Brooks	13.2	1
Brooks	14.2	6
Brooks	15.2	3
Chauvin	25.2	1
Consort	28.2	73
Consort	29.2	10
Consort	30.2	13
Coronation	32.2	1
Coutts	34.2	1
Coutts	35.2	1
Drumheller East Coulee	38.2	1
Drumheller	43.2	2
Drumheller	45.2	1
Village of Empress	48.2	2
Village of Hays	52.2	1
Village of Irvine	53.2	1
Village of Bow Island	60.2	3
Lloydminster	83.2	1
Oyen	90.2	18
Provost	93.2	1
Provost	94.2	5
Provost	97.2	9
Vauxhall	104.2	1
Vulcan	113.2	2
Total # of Different Sites = 7	Total # of Traps = 27	Total # of Beetles = 184

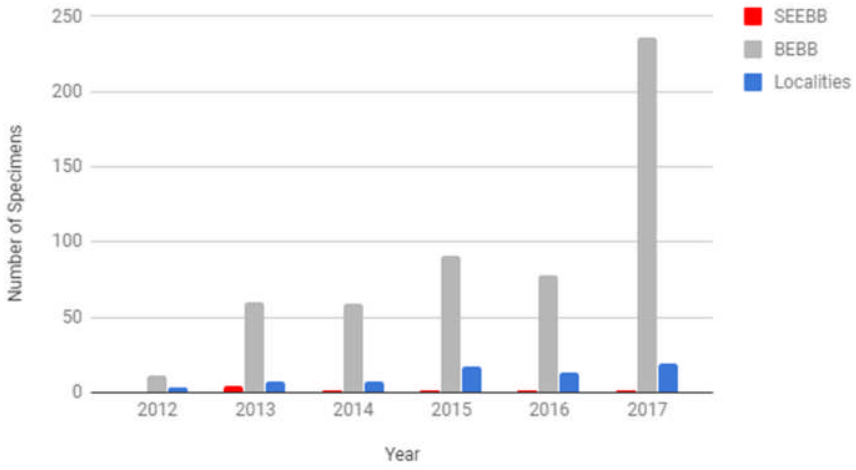
Fifty-two (52) traps had the lures removed or were lost on site, and eight (8) had no indication of a lure being present.

The mean number of trapping days was 75 days, with a low of 20 days and the longest trapping period being 105 days.

One (1) student was trained to inspect the traps for Session 1. All session 2 traps were inspected by Dr. K. Fry. All detections of bark beetles or those insects suspected of being bark beetles were verified by Dr. K. Fry. Questionable specimens were removed from the traps, cleaned in a solvent and inspected under a microscope.

The number of elm bark beetles and number of localities is increasing year over year (Figure 1).

Figure 1. Elm Bark Beetles & Localities by Year



Trap return rates have increased year over year (Figure 2).

Figure 2. Trap Return Rate by Year