Kenai Peninsula
Forest Health Update

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Kenai Peninsula — All Lands All Hands bi-annual meeting

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Outline

Acknowledgments

Climate: Recent Past

Forest Insect Events 2015-2017
  Spruce Aphid
  Spruce Bark Beetle

Climate: Near Future

Forest Pest Outlook

References
Acknowledgments

- Tom Heutte (USFS) provided aerial survey data.
- John Lundquist and Bryan Box (both USFS) sent me summary data, graphics, and accounts.
- Scott Slavik (USFWS) gave me photos of USFWS personnel felling recently beetle-killed trees.
Climate: Recent Past

- PDO switched to positive in 2014.

Image from https://www.ncdc.noaa.gov/teleconnections/pdo/
Climate: Recent Past

Summer 2015 average temperatures

Image from https://www.ncdc.noaa.gov/temp-and-precip/us-maps/
Climate: Recent Past

summer 2016 average temperatures
Climate: Recent Past

summer 2017 average temperatures
Forest Insect Events 2015-2017
Spruce Aphid

_Elatobium abietinum_

Forest Insect Events 2015-2017

Spruce aphids, Homer, March 29, 2016.
Spruce aphid damage, Homer, March 29, 2016.
Spruce aphid damage, Homer, March 29, 2016.
Spruce aphid damage, Homer, March 29, 2016.
1,400 acres affected by spruce aphid in 2015
15,400 acres affected by spruce aphid in 2016

Data courtesy USFS and Alaska DNR
- Infestation began in 2015 and persisted to 2016 [1, 2]

- 0 acres affected by spruce aphid in 2017

- Colder winter 2016–2017 appears to have drastically reduced spruce aphid populations on the southern Kenai Peninsula.

- Temperatures of -7°C (19°F) or lower have been shown to reduce spruce aphid populations [3].

Data courtesy USFS and Alaska DNR
New growth on Sitka spruce following spruce aphid infestation, summer 2017. Image provided by John Lundquist, USFS.

- 0 spruce aphids collected in traps on the southern Kenai Peninsula in 2017.
- Most (~89%) of spruce trees affected in 2015–2017 are recovering.
Spruce Bark Beetle

*Dendroctonus rufipennis*

Spruce bark beetle, Swanson River Road, July 28, 2016 (https://www.inaturalist.org/observations/3761945).
spruce beetle trap catches
2015

Image courtesy Bryan Box, USFS
Forest Insect Events 2015-2017

spruce beetle trap catches 2016

2016 Trap Collections by site

Image courtesy Bryan Box, USFS
Forest Insect Events 2015-2017

spruce beetle trap catches

2017

Image courtesy Bryan Box, USFS
7,200 acres affected by spruce bark beetle in 2015

Data courtesy USFS and Alaska DNR
16,200 acres affected by spruce bark beetle in 2016
50,200 acres affected by spruce bark beetle in 2017

Data courtesy USFS and Alaska DNR
Forest Insect Events 2015-2017

- Historically, cool phase PDO preceded spruce bark beetle outbreaks \[4\]
- Possibility of outbreak had been predicted in 2015 due to warming summers \[5\]
- Cooler summer of 2017 may slow outbreak, but...

Data courtesy USFS and Alaska DNR
At least some trees hit by spruce bark beetles recently have yet to show red needles.
There is overlap in the 1989–2000s outbreak and the current outbreak, at least on the northern Kenai Peninsula.
Climate: Near Future

- Winter 2017–2018 temperatures predicted to be colder than average.

Image from http://www.cpc.ncep.noaa.gov/products/predictions/long_range/
Climate: Near Future

- Late spring through early summer 2018 predicted to be warmer than average.
Climate: Near Future

- Summer 2018 predicted to be warmer than average.

Image from http://www.cpc.ncep.noaa.gov/products/predictions/long_range/
Forest Pest Outlook

- Spruce aphid should not cause conspicuous damage on the Kenai Peninsula in 2018.
- Spruce bark beetle damage likely to continue.
- Over the long term, both of these species will be a part of forest dynamics on the Kenai Peninsula.
Forest Pest Outlook

- Earthworms are beginning to change our forests [7].
Forest Pest Outlook

- Additional tree species will become a part of Kenai Peninsula forests [8].
References


