Uninvited Guests:
What to expect from insects and other small creatures dwelling in your garden

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Conclusions

- Ask questions. Know the players in your garden ecosystem. You can!

- Share knowledge in a way that it is readily discoverable.

- Experts are fallible.
Democratization of Identification

Expert help
Citizen science

Alaska IPM Citizen Monitoring Portal

- Photos of pests, weeds, and diseases scrutinized by knowledgeable, Alaskan IPM experts
Democratization of Identification

**BugGuide.Net**

- Insect photos identified by the community
- Often delivers good identifications
iNaturalist.org

- Postings of images reviewed by the community
- Searchable
- Confirmed observations submitted to GBIF (http://www.gbif.org)
DNA-based identification

LifeScanner.net

- $35 consumer-ready DNA-based identification kit
- Sequences and occurrence records can be made public

Image from https://pbs.twimg.com/media/CVy48OZUAAEfFJ-.jpg:large.
A Digression: Climate
A Digression: Climate

2016

- Warmer than average [1].
- Precipitation close to average [1].
A Digression: Climate

2017 Spring

• Predicted to be warmer than average [2, 3].

• Precipitation predicted to be not far from average [2, 3].
A Digression: Climate

2017 Summer

- Predicted to be warmer than average [3].
- Precipitation predicted to be not far from average [3].
The Guests
The Guests

Yellowjackets

(1) New queens overwintering

(2) Spring queen emergence, first cohorts of workers produced

(3) Peak of nest activity, males and new queens produced, then the death of old queen & workers

Northern hemisphere


Jan  Feb  Mar  Apr  May  Jun  Jul  Aug  Sep  Oct  Nov  Dec

Wasp abundance

High

Low

Image from [4].
The Guests

**Yellowjackets**

- Density dependent: high numbers in one year mean low numbers the next [4, 5].
- Weather: spring weather seems important with warm, dry springs favoring yellowjackets [4, 6].
- Our cold winters do not appear to affect yellowjackets much [7].

Implications for 2017 season:

- 2016 appeared anecdotally to be a “wasp year” [8–10] so we would expect fewer in 2017, but...
- 2017 spring predicted to warm [2] (= favorable for yellowjackets?).
The Guests

**Northern red-banded yellow-jacket**  
*Vespula intermedia*

- Small colonies (50–250)
- Generally not pestiferous

Image by Todd Eskelin ([http://www.inaturalist.org/observations/5571328](http://www.inaturalist.org/observations/5571328)).
Common aerial yellowjacket
*Dolichovespula arenaria*

- Nests in trees or under eaves
- Mostly predacious [11]
- Comparatively mild-mannered

Image by Matt Muir (http://www.inaturalist.org/observations/800456).
The Guests

Common aerial yellowjacket
*Dolichovespula arenaria*
The Guests

**Alaska yellowjacket**  
*Vespula alascensis*

- Mainly subterranean nests
- Larger colonies of 2,000–4,000+  
  
  [11]
- Notorious scavengers  
  
  [11]

Image by Derek Sikes  
(https://flic.kr/p/8s2LZa).
The Guests

Alaska yellowjacket
*Vespula alascensis*

- Chemical-free removal method worked, but was hazardous
The Guests

Alaska yellowjacket
*Vespula alascensis*

- Not bad, but not worth the trouble
Yellowjacket control

- Harvest berries early and often [12]
- Row covers over strawberries
- Widespread use of pesticides appeared to reduce yellowjacket populations in Great Britain [13]

Image by Jeff Hahn, University of Minnesota (http://www.extension.umn.edu/garden/yard-garden/fruit/integrated-pest-management-for-home-raspberry-growers/fruit-eating-beetles/).
The Guests

**Slugs**

**Marsh slug**

*Deroceras laeve*

- A small, native slug
- Can be a garden pest [14], but in my experience I have only seen it eating mushrooms. This species has never been a pest in my high tunnels even though I have seen it on my property.
Reticulate Taildropper  
*Prophysaon andersoni*

- Native

- Common in Homer and present in my neighborhood in Kasilof, but not problematic in my high tunnels.

- Yes, a taildropper can self-amputate a part of its tail!
The Guests

Gray garden slug
*Deroceras reticulatum*
and/or
Field slug
*Deroceras agrestes*

- Exotic
- #1 worst pest in my high tunnels
Field slug

*Deroceras agreste*?
The Guests

European black slug
*Arion ater*

- Exotic, reported from Soldotna [15, 16], but I have not seen it.
- Pestiferous and invasive

Image by Paul Norwood (http://www.inaturalist.org/observations/3219824).
 Slug control

- Metaldehyde and iron phosphate slug baits[17]
- Hand picking
- Traps
- Biological control? (*Scaphinotus* spp. [18])
- Saponins? [19]
The Guests

Root maggots

- Turnip root fly, *Delia floralis*

- *Delia planipalpis*

- Cabbage root fly, *Delia radicum* not yet known from Alaska [20]

- All feed on roots of crucifers

The Guests

**Root maggot control**

- Crop rotation [21]
- Protective coverings [21]
- Reduce nearby populations of wild mustards [22]
- Trap cropping [23]
The Guests

**Seedcorn maggot**

- Seedcorn maggot, *Delia platura*
- Bean seed fly, *Delia florilega*
- Feeds on a wide variety of seeds in soil [24]
- In Kenai Peninsula gardens, legumes and cucurbits susceptible

Images by Leon Higley from [24].
Seedcorn maggot control

- Delayed planting [24]
- Reduce moist, decaying plant or animal material around germinating seeds [24, 25]

Image by Leon Higley from [24].
The Guests

Large yellow underwing

- *Noctua pronuba*


- Active in fall and spring

- Generalist that consumes a wide variety of plants

Image by Paul Norwood (http://www.inaturalist.org/observations/3680687).
Large yellow underwing
*Noctua pronuba*

Aphids

**Potato aphid**

*Macrosiphum euphorbiae*

- Feeds on over 200 species of plants
- Solanaceous plants (potatoes, tomatoes, etc.) and lettuces affected in our area.
The Guests

**Potato aphid**

*Macrosiphum euphorbiae*

- Native and ubiquitous (?) throughout our area
The Guests

**Peach aphid**
*Myzus persicae*

- Major pest of peach trees
- Also feeds on cabbages, potatoes, and many weeds

Aphid control

- For lettuces, plant resistant varieties (crisphead varieties generally less resistant than butterhead varieties [27])
- Various biocontrol agents
- Insecticidal soaps
- Neem [28]
- Pyrethrin
Earthworms

- None native to Southcentral Alaska
- 17 species now present in Alaska
- 7 species on Kenai Peninsula

map by John S. Schlee, U.S. Geological Survey
(http://www.americanroads.us/oceanlinks/pleistocene_NA_map.jpg).
The Guests

Nightcrawler
*Lumbricus terrestris*

- Large worms
- Superlative mixers of soil
- Consume leaf litter including seeds
- Invasive ecosystem engineers, even in Alaska [29]
The Guests

Red Wiggler
*Eisenia fetida*

- Popular, amazing composting worms
- Not soil-dwelling
- Not cold-hardy [30, 31]
Conclusions

- Do what it takes to get to know your guests.
- Share what you learn.
- Be prepared to be corrected.
Questions?
References


REFERENCES


