

# Rapid Lesson Sharing

**Event Type:** Yellow Jacket Stings

**Date:** August 2019 (Multiple Incidents)

**Location:** Swan Lake Fire  
Kenai Peninsula near  
Soldotna, Alaska



Top: Aerial yellow jacket. Bottom: Alaska yellow jacket.

## Narrative

Several yellow jacket sting incidents were reported on the Swan Lake Fire, including multiple occurrences (within one week) of anaphylaxis requiring epinephrine injections and emergency medical transportation to a hospital. One of these incidents requested a helicopter evacuation, which was cancelled due to visibility impacts from smoke. The backup plan included a significantly more time-consuming, rough ride in a UTV to get the patient to the nearest paved road and higher-level care.

## Alaska Situational Awareness

Two types of yellow jackets, aerial yellow jackets and Alaska yellow jackets—both insects in the wasp family—are more abundant than usual this year in Alaska. According to a local entomologist, this year's abundance is part of a two to three year cycle and is similar to what was experienced in the area in 2016. The bees get more aggressive in late summer and fall while protecting their colonies toward the end of their life cycle. The hot, dry weather also influences yellow jacket behavior, causing them to become more active and potentially more aggressive. Time of day and associated temperature changes also influence behavior. Yellow Jackets tend to be less active and less aggressive when temperatures drop and when it's dark.

Alaska yellow jackets commonly build nests in the ground and tend to be more territorially aggressive than aerial yellow jackets, which usually build nests in trees and on structures. Ground nests are generally more of a threat to people because there is a higher likelihood for people to disturb them, and they are commonly inhabited by the more aggressive Alaska yellow jacket. If walking in a line, people toward the back of the line are more likely to be stung. This is because yellow jackets may become increasingly agitated by what they perceive as repeated threats.

## Lessons and Considerations

- ❖ Does your medical transportation plan have multiple options (PACE – “Primary, Alternate, Contingency, and Emergency” model)? Are you relying on air resources for timely medical transportation? How do the different options affect the amount of time it takes to get patients to definitive medical care? Like safety zone considerations, transportation time to definitive care should be reevaluated often—especially as you move farther from helispots, roads, etc.
- ❖ What are your mitigations? Epinephrine and antihistamine (such as Benadryl) may or may not be effective. Think of them as similar to fire shelters: good to carry in case they are needed, but better to avoid having to put their effectiveness to the test. Where you build line, time of day, weather, temperature and seasonality may all play a role in the likelihood of being stung. Consider adjusting strategies and tactics to minimize

exposure to nests. **If bees are likely to be a factor, those who have a history of allergic reactions or anaphylaxis should strongly consider when, where, how or if they should engage at all.**

- ❖ People who have a history of allergic reactions to insect stings and bites should take extra precautions when working around stinging/biting insects. It is important for those with known allergies to make supervisors and coworkers aware, so an appropriate response may be planned and ready to implement. That said, everyone should be prepared and understand how to respond to an allergic reaction. Immune responses can change and reactions can be unpredictable. A previous “normal” reaction does not mean the next one won’t be a serious allergic reaction.



Aerial yellow jacket nest.

### Prevention and Avoidance

- ❖ Avoid insect nests and communicate their location to others. Clearly mark their location with flagging if you feel it is safe to do so. Consider other means of communicating nest locations to others (such as “Collector app” that is used by many IMTs to create a common operating picture using GPS layers and “crowd source” inputs for any number of important landmarks—<https://www.esri.com/en-us/arcgis/products/collector-for-arcgis/overview>).
- ❖ Be alert when there is food or drink present—the scent may attract insects.
- ❖ Avoid swatting or crushing insects. When some insects are injured, they send chemical signals that incite other insects to attack.

### General Treatment for Insect Stings and Bites

- ❖ All individuals suffering from insect stings and bites should be watched for signs of an allergic reaction.
- ❖ If you’ve been stung by a bee, look for the barbed stinger and venom sac that may be embedded in your skin. It’s best to remove the venom sac and stinger by scraping the area with a straight-edged object, such as a credit card.
- ❖ Yellow Jackets do not lose their stingers so they may sting (and/or bite) multiple times.



- ❖ Take off rings and tight-fitting jewelry and wash the area of the sting or bite with soap and water, or with an antiseptic wipe.
- ❖ Elevate the affected area and use ice or a cold compress to reduce swelling and pain.
- ❖ If needed, apply a topical steroid ointment or take an over-the-counter oral antihistamine, such as Benadryl or Chlor-Trimeton to help reduce swelling, itching, and redness. An anesthetic spray containing benzocaine may provide some pain relief. Hydrocortisone cream or calamine lotion applied to the skin may also relieve itching and swelling.
- ❖ Monitor for advanced symptoms, allergic reactions.

Alaska yellow jacket nest.

### Anaphylaxis

Anaphylaxis is a serious and potentially life-threatening medical situation that requires immediate emergency treatment. Someone with allergies usually will begin to show signs of a reaction within 15 minutes after an insect sting or bite. Sometimes a reaction may not begin for up to four hours.

#### If you are allergic and have been stung:

- ❖ If you have been prescribed epinephrine by your doctor, administer the proper dose. Antihistamines may provide some relief, but they are no substitute for epinephrine.
- ❖ Make sure your coworkers know that you've been stung or bitten and that you may suffer an allergic reaction. **Ensure your coworkers know the location of your epinephrine and know how to administer the dose.**
- ❖ Remain calm; anxiety increases blood flow and can worsen the situation.
- ❖ Contact EMS.

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