

MEMORANDUM FOR RECORD

SUBJECT: Kahuku Training Area Fires 27 July-9 August 2018

1. Summary

Two fires occurred at Kahuku training area on the same day and time. The fire's cause is unknown but pyrotechnics, illumination rounds and simulators, were found in area. The areas burned were dominated by introduced trees and shrubs. Some native vegetation was also burned. There are no known endangered species in these areas except for acoustic detection of the listed endangered Hawaiian Hoary bats, *Lasiusurus cinereus semotus*. Post fire surveys were conducted in order to determine the scale of potential effects from these training related fires to trees >15 feet tall, potential bat roosting trees, as the fire occurred during known bat pupping season, June 1-Sept 15.

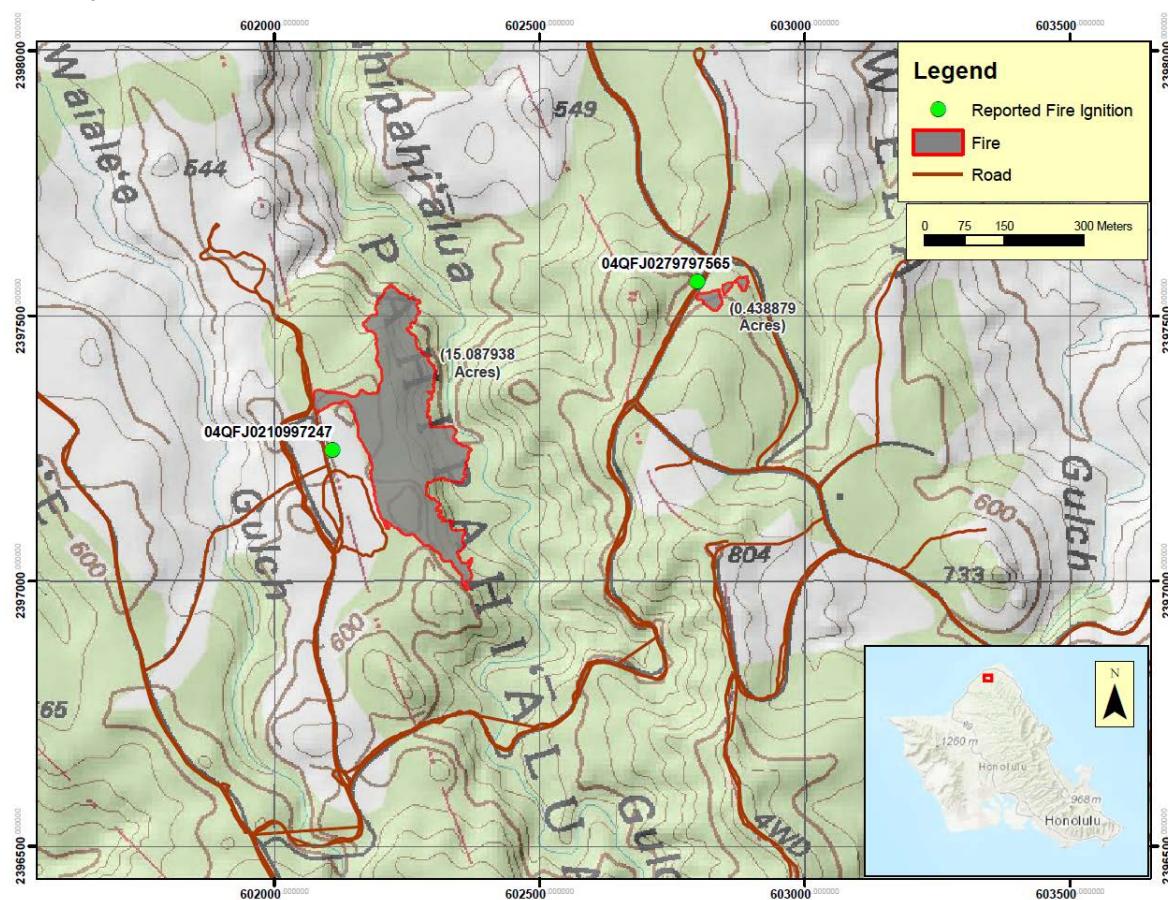
The two fires will be referred to as the X-strip fire and the Bravo gate fire. X-strip is a landing zone (LZ) adjacent to the western of the two fires. Bravo gate is located on the perimeter of the second, eastern fire. The Army's wildland fire crew was on the scene, fighting the fire using ground and Army air assets.

2. X-strip fire

The total area burned in this fire was 15.08 acres (map below). The vegetation burned was primarily ironwood. Some of the fire perimeter occurs along the margin of the open X-strip LZ. This forest, grassland buffer is preferred foraging habitat for hoary bats. At least $\frac{1}{2}$ of the acreage burned was covered by trees >15 feet tall, potential bat roosting trees. As this fire occurred during bat pupping season, 1 June-15 Sept, there was potentially an effect on non-volant, roosting bat pups.



Panorama of burn site from X strip LZ. This edge is favorable foraging habitat for hoary bats.



Burned Ironwood forest, some younger trees completely scorched, taller ones still green at top of canopy



Burned ulei, *Osteomeles anthitifolia*, a native woody vine.

Bottom of Pahipahialua gulch in the distance.

The X-strip fire burned to the gulch bottom in numerous locations.

3. Bravo gate fire

The total area burned in this fire was .44 acres (map above). The vegetation burned was primarily ironwood and Eucalyptus. Twenty-five *Eucalyptus* trees >15 feet tall burned entirely. Roughly 33 other trees >15 feet including *Eucalyptus* and Ironwood in the surrounding area were affected by the fire. As this fire occurred during bat pupping season, 1 June-15 Sept, this fire potentially affected non-volant, roosting bat pups in trees >15 feet tall.

4. A list of plant species burned in both the KTA fires are included in the table below. Both fires were dominated by *Casurina glauca*, ironwood, and are likely to re-colonize with this invasive tree. This taxon re-sprouts readily from roots. In addition, not all the tops of the ironwoods were burned, some trees were scorched closer to the bottom and should recover with time.

Native Plants	
Scientific Name	Common Name
<i>Psydrax odoratum</i>	alahe'e
<i>Osteomeles anthydifolia</i>	ulei
<i>Sphenomeris chinensis</i>	pala'a
<i>Styphelia tameiameiae</i>	pukiawe
<i>Waltheria indica</i>	uhaloa
<i>Wikstroemia oahuensis</i>	akia

Non-Native Plants	
Scientific Name	Common Name
<i>Ardisia elliptica</i>	shoebutton ardisia
<i>Casurina glauca</i>	Ironwood
<i>Chromolaena odorata</i>	Devil weed
<i>Clidemia hirta</i>	Koster's curse
<i>Cordyline fruticosa</i>	Ti
<i>Eucalyptus robusta</i>	Swamp Mahogany
<i>Lantana camara</i>	lantana
<i>Leucaena leucocephala</i>	koa haole
<i>Phymatosorus grossus</i>	laua'e
<i>Morinda citrifolia</i>	noni
<i>Nephrolepis brownii</i>	
<i>Oplismenus hirtellus</i>	basket grass
<i>Passiflora suberosa</i>	corky passion vine
<i>Phelodium aureum</i>	
<i>Pluchea carolinensis</i>	
<i>Psidium cattleianum</i>	Strawberry guava
<i>Psidium guajava</i>	common guava
<i>Urochloa maxima</i>	Guinea grass

5. Lessons Learned

- The Wildland fire program should be outfitted with GPS units and GIS capabilities so that fires can be accurately mapped in real time. The Natural Resource Program is relied on heavily during fires to provide maps and GPS services.
- The SIR reports should include coordinates for both fires when two separate locations are burning. This allows for easier post fire survey follow up.

6. The potential effect on roosting Hawaiian hoary bat pups is impossible to quantify. Although more data is being collected on detection rates for bats in the Kahuku vicinity, these data do not provide information on how frequently bats use forested areas of Kahuku training area for roosting. Since this taxon is a solitary rooster, locating roosting sites is challenging. A total of 15.5 acres of habitat forested in trees >15 feet tall were impacted in these two fires.

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