



# Chasing bats: Citizen science acoustic driving surveys in Southeast Alaska

Michael Kohan and Karen Blejwas

Alaska Department of Fish and Game, Wildlife Diversity Program



## Citizen Science Need

- There are 7 species of bats in Southeast Alaska.
- Little is known about bat species' distribution and range.
- It is logistically difficult to collect data in Southeast's island archipelago.
- A citizen science project run solely by volunteers in remote communities is difficult to maintain.
- Libraries in small communities in Southeast Alaska serve as 'hubs' for information sharing (Fig. 1).

## Concept

To partner with community libraries to implement a citizen science acoustic driving survey to collect baseline data on bat distribution, habitat use and seasonal activity in Southeast Alaska.



Fig. 2. Gustavus librarian, Kate Boesser, discusses the driving survey transect with community members during a training session.

## Acoustic Driving Surveys

### Equipment

Driving survey kits were staged at libraries in each community

- Roof-mounted ultrasonic microphone
- AnaBat SD2 bat detector
- GPS

### Protocol

- 20-30 miles per survey
- Speed ~ 20 mph
- 30-45 minutes after sunset
- 2 surveys a month (~ every two weeks) April-September

### Analysis

Acoustic files were viewed using AnalookW. Files were manually filtered to identify species' specific calls.

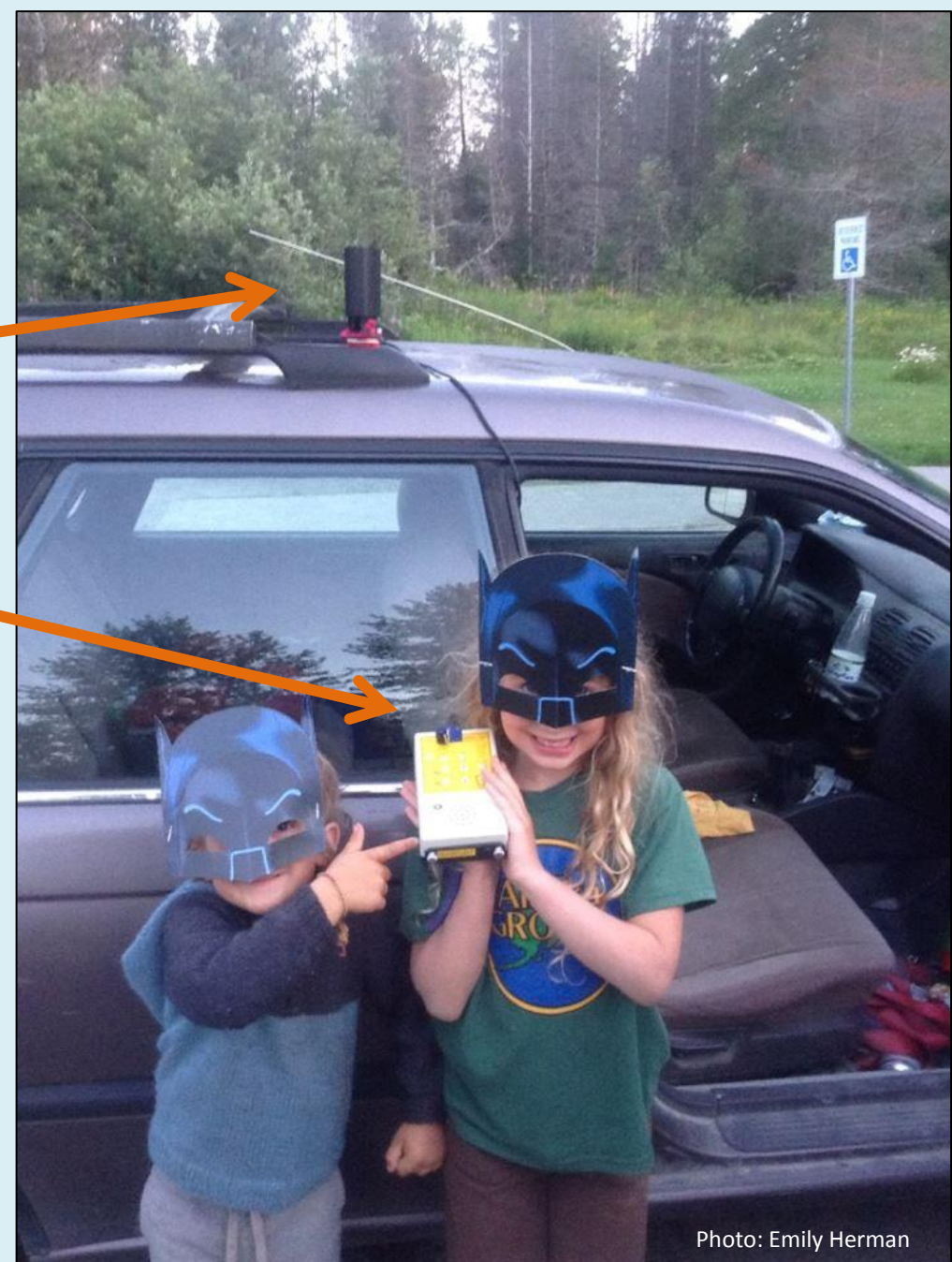


Fig. 3. Gustavus volunteers starting a driving survey.

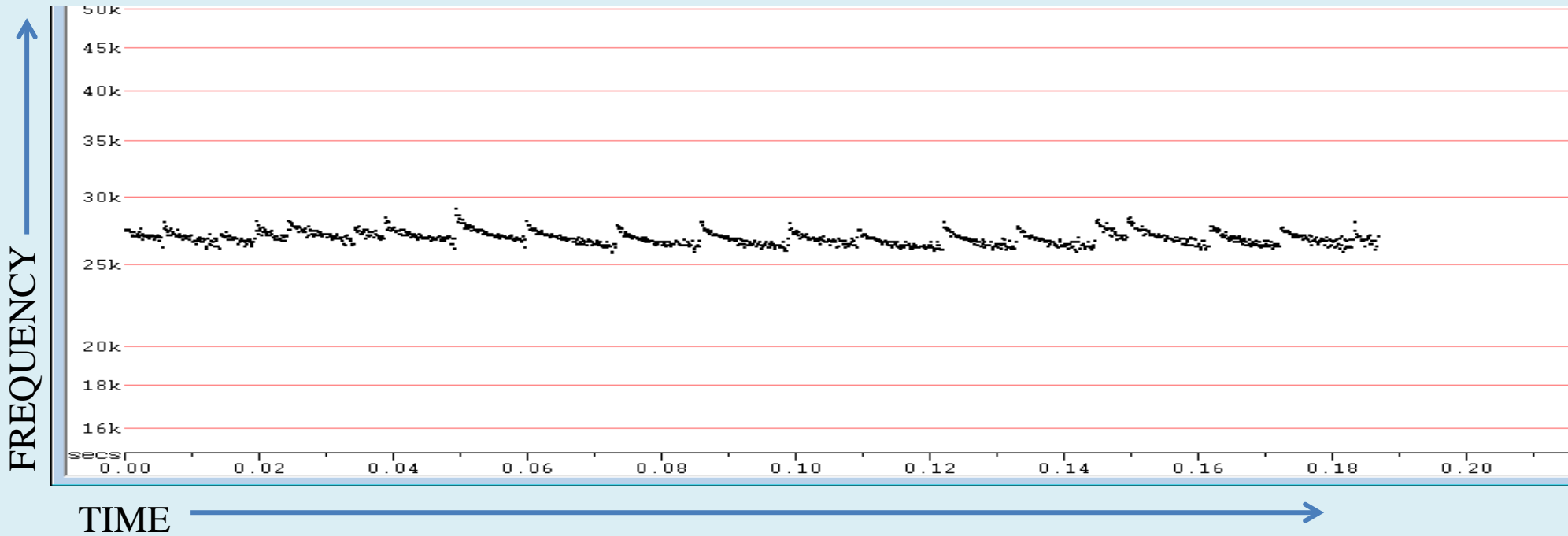


Fig. 4. An example of an acoustic call file from a silver-haired bat analyzed in Analook.

ADFG Biologist



Education

Citizen Science Projects with Bats in Southeast Alaska



Wednesday, November 12  
5:30 pm  
Haines Borough Public Library  
Alaska Department of Fish and Game  
(907) 465-8155

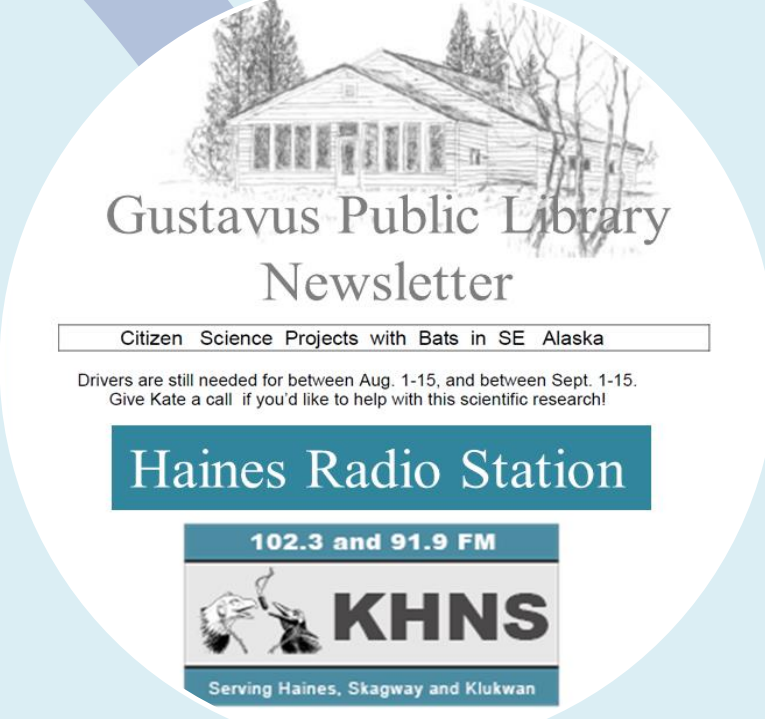
Communication



Library



Outreach



Community Interactions



Training



Fig. 1. Libraries are a communication hub in small communities and successful at managing aspects needed to implement and sustain citizen science projects.

## Summary

- The successful partnership established between ADFG biologists and community libraries will enable us to continue collecting data on bat populations in these remote communities.
- Through this citizen science effort, we are able to identify which species are present in these remote communities. Unlike driving acoustic surveys, stationary detectors cannot cover large geographical areas and can miss species' detection.
- The areas of high activity indicate possible bat 'hot spots' which may help guide future research in these communities.
- This program expands the outreach and education of bat ecology and the importance of diversity species in Southeast Alaska.

## Further Work

- We are expanding our citizen science driving survey project to 4 additional communities in Southeast this summer.
- We will contribute data to a new national database for monitoring bat population trends (USGS, NABat Program).
- Data will be published on our website: [www.citizenscience.adfg.alaska.gov](http://www.citizenscience.adfg.alaska.gov).

## Results

- 2 communities: Gustavus and Haines
- 30 volunteers participated
- 3 driving transects: Gustavus, Haines-1 and Haines-2
- 15 surveys were conducted from April-September recording a total of 367 bat calls
- Areas of high bat activity were identified for all driving transects (Fig. 5)
- The mean number of call files per survey was 24.5 and ranged from 0 (April 4, Gustavus) to 55 (August 16, Haines-1)
- Bat calls per survey in Haines increased over the survey season
- Haines had higher species diversity, with 8% of the detections being silver-haired bats (Fig. 6)

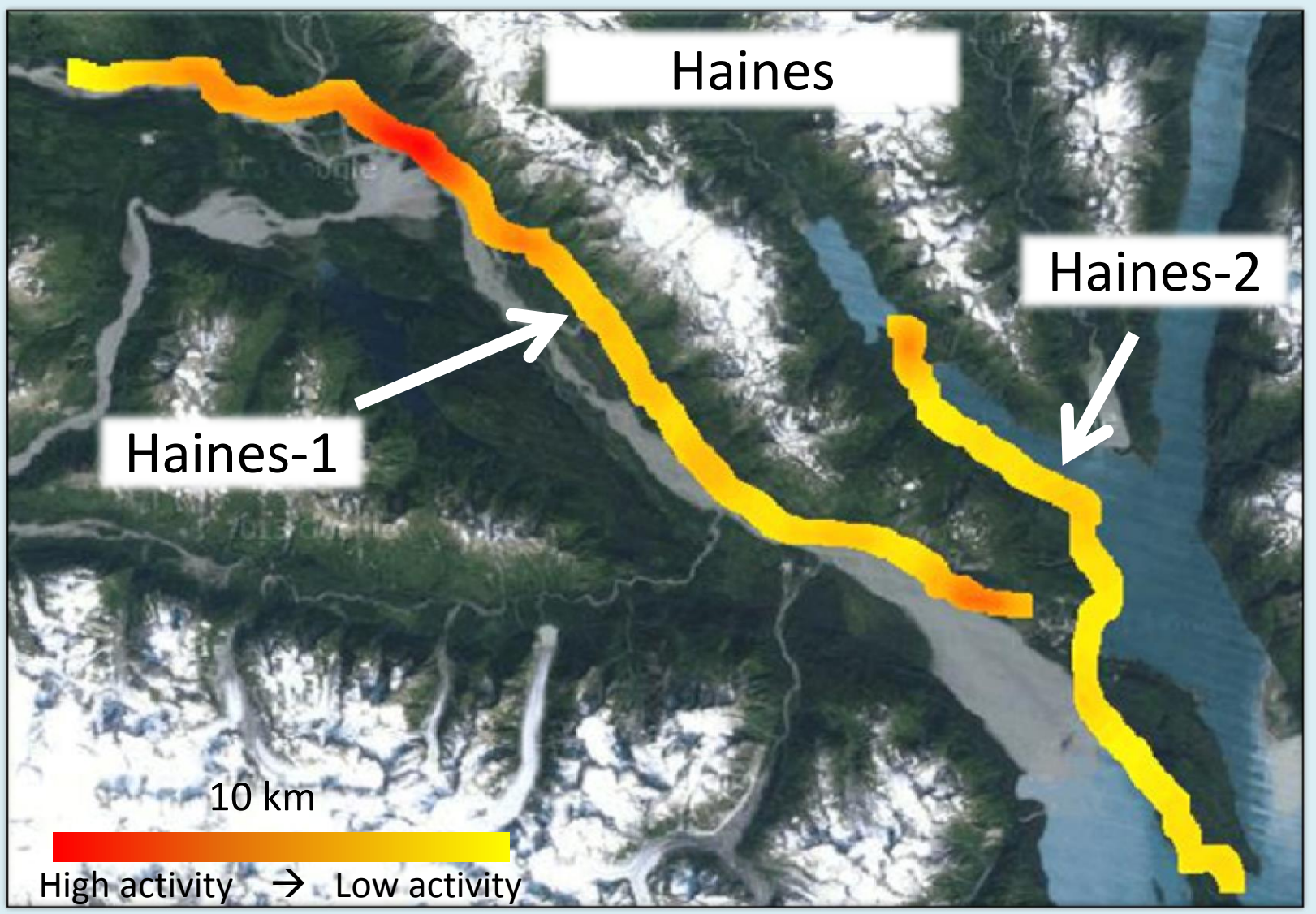
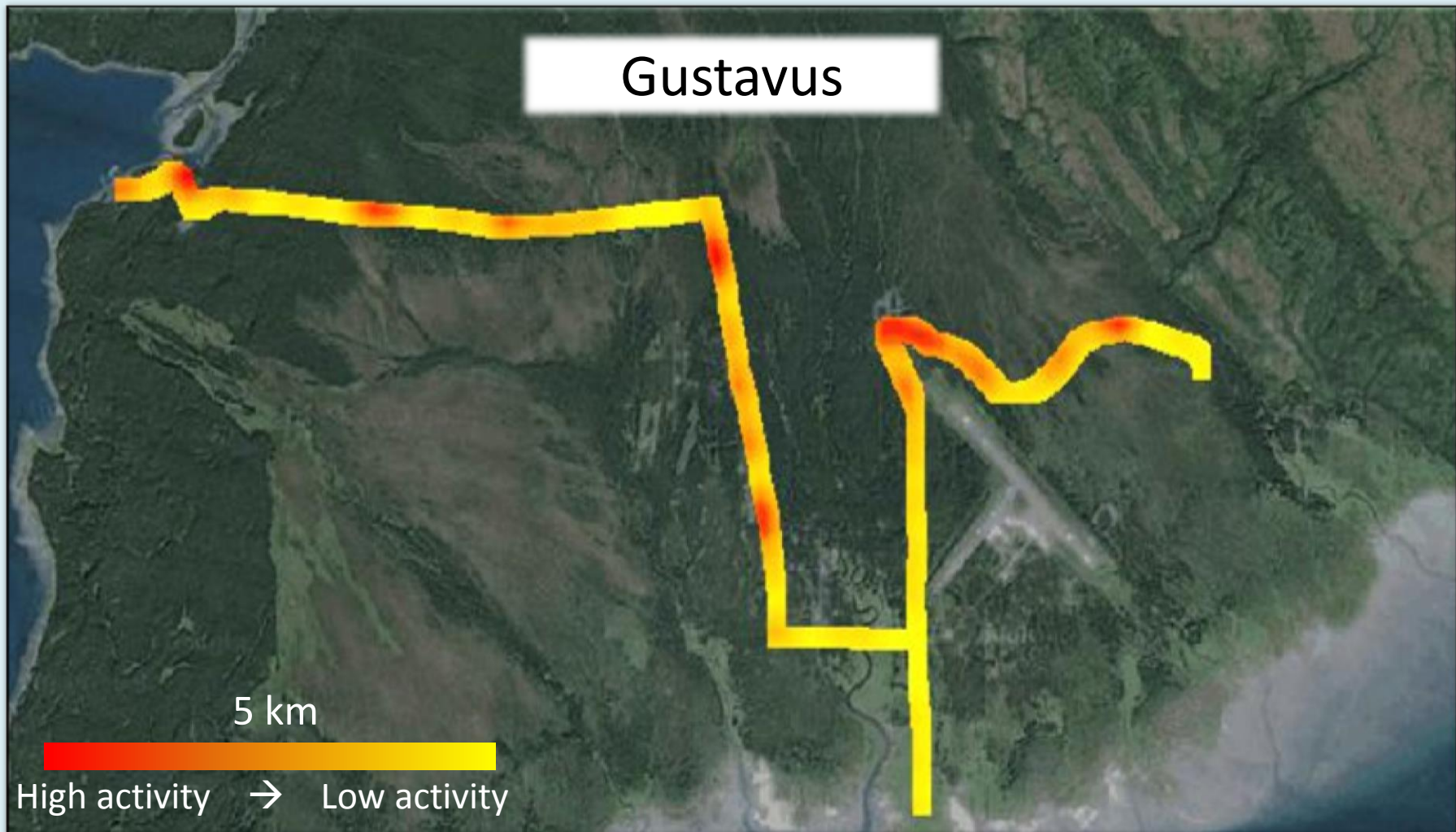
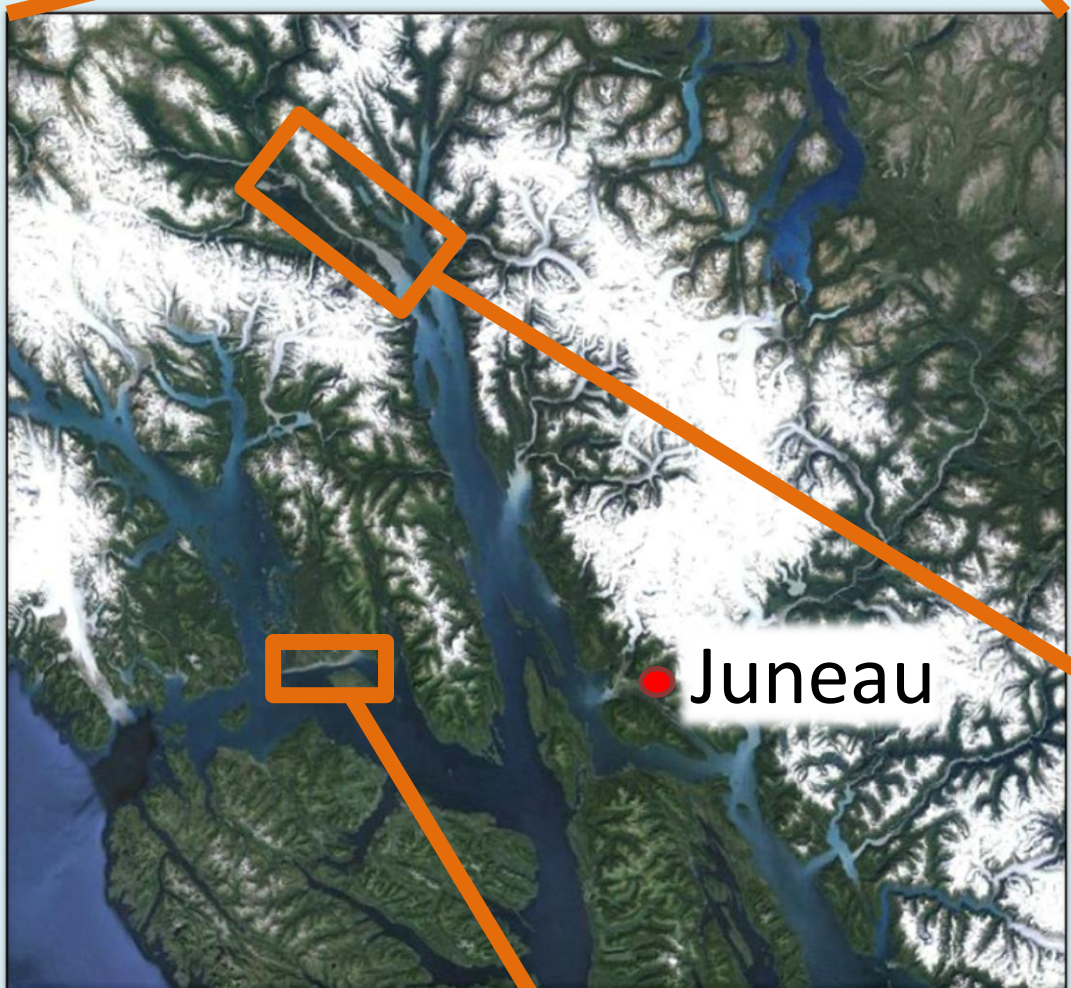
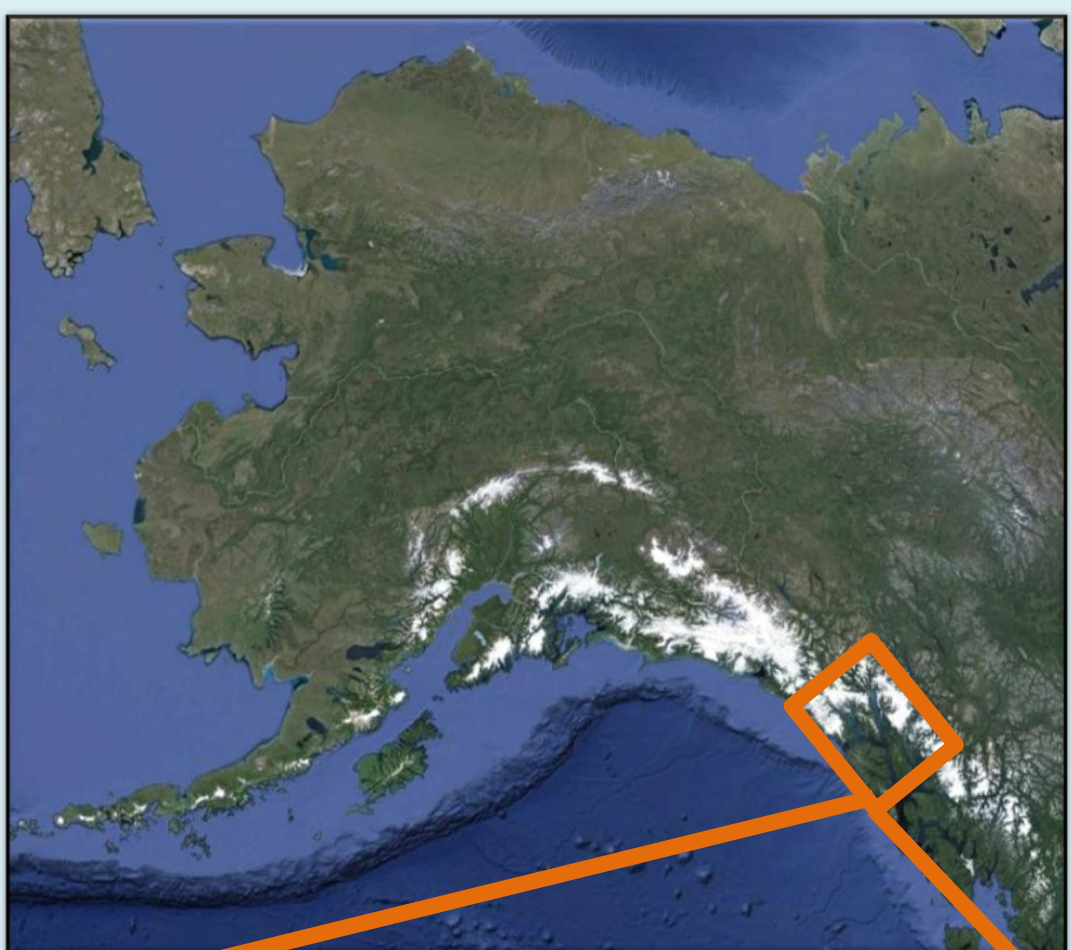


Fig. 5. Compiled maps of bat activity along driving transects in Gustavus and Haines. Red indicates areas of higher bat activity.

## Bat Species Detected

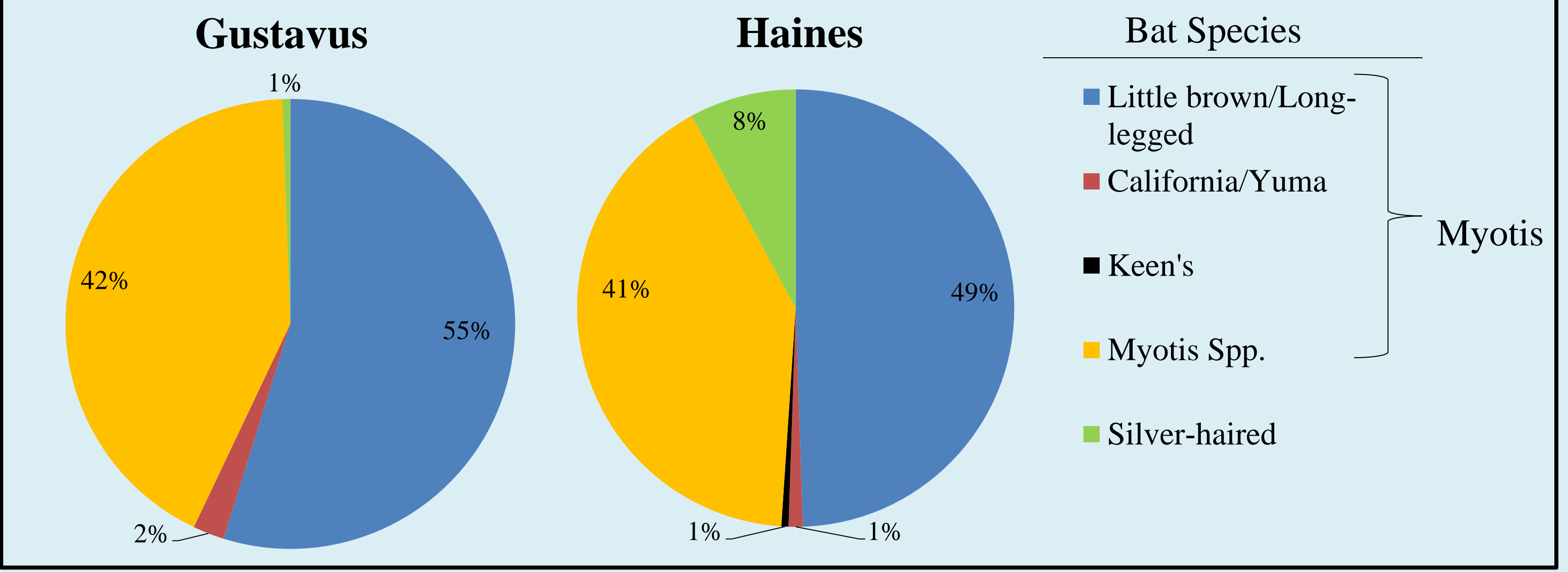


Fig. 6. Community species composition from all bat surveys.



Fig. 7. A long-legged bat captured in Haines, Ak.

## Thank You

We would like to thank the citizen scientists of Gustavus and Haines, especially the librarians, Kate Boesser and Jessie Morgan. Also, thanks to Dave Gregovich (ADFG) for spatial visuals.