SBEADMR 2024 Forest Disease Report

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Current Forest Disease Conditions

- Most diseases are persistent
- Aerial detection surveys mainly monitor insect damage
  - Diseases reported include aspen discoloration/dieback, needle casts, and root diseases (in some regions)
- Weather patterns influence disease dispersal and virulence
  - Previous years of higher moisture may cause residual pathogen pressure
- Current lack of snowpack could play a role in susceptibility
  - Decreased moisture may reduce spread of pathogens
  - Increased stress may exacerbate root diseases

Common tree diseases and damages in SW Colorado

- Wind Throw
- Root Diseases
- Needle Casts
- Aspen Decline

Common tree diseases and damages in SW Colorado

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Windthrow

- Continued failures caused by windthrow
- Typically associated with high prevalence of root disease and stem decay
- Concerns following treatments, especially when root disease is present
- May harbor bark beetles, if not removed/managed

Common tree diseases and damages in SW Colorado

- Wind Throw
- **Root Diseases**
- Needle Casts
- Aspen Decline

Root diseases

- “Diseases of the site”
- Persistent in Colorado forests
  - Armillaria root disease
  - Heterobasidion root disease
  - Tomentosus root disease
  - Ganoderma root rot
- Moisture increases spread, drought increases host susceptibility

Root diseases

- Management is difficult
  - Generally not necessary in forest setting
- Special Technology and Development
  - Armillaria root disease
  - Tomentosus root disease
- Improve identification and management tools
- Goal is to test field assays in 2024

Common tree diseases and damages in SW Colorado

- Wind Throw
- Root Diseases
- **Needle Casts**
- Aspen Decline

Needle Casts

- No acres were recorded via ADS in 2023
- Taylor Park/North of Pagosa Springs – *Lophodermella* needle cast of lodgepole pine
- Symptoms include browning (cast) in previous years needles with newly emerging needles green
- Regeneration was most heavily impacted

Common tree diseases and damages in SW Colorado

- Wind Throw
- Root Diseases
- Windthrow
- **Aspen Decline**

Aspen Decline

- Concentrated patches of dieback and mortality
- ADS identified in 2023
  - 6,100 acres of defoliation
  - 320 acres of discoloration
- Causal agents:
  - **Predisposing:** Low elevation, S-SW aspects, over mature
  - **Inciting:** Warm, dry conditions
  - **Contributing:** Cytospora, poplar borer, bronze poplar borer, aspen bark beetles

Aspen Decline

- Deterioration of mature stands continued
- Dense regeneration (~11,500 stems per acre)
- Unknown if regeneration will reach maturity
  - High prevalence of secondary biotic agents
  - Cytospora canker
  - Bark beetles, wood borers

Summary

- Windthrow continued to increase the awareness of root diseases and stem decays
- Reduced moisture limited fruiting bodies in SW Colorado
  - Many pathogens still thrived in stressed trees
- Sudden aspen decline continued to cause overstory mortality with prolific regeneration
  - Increased water stress will likely exacerbate mortality

Bark Beetle Update for the GMUG National Forest

SBEADMR Annual Meeting 2024, Montrose, CO

- Amy Lockner, Forest Entomologist
- Forest Health Protection

GMUG
Worst offenders: bark beetles and defoliators

- Spruce beetle
- Mountain pine beetle
- Douglas-fir beetle
- Western spruce budworm (defoliator)

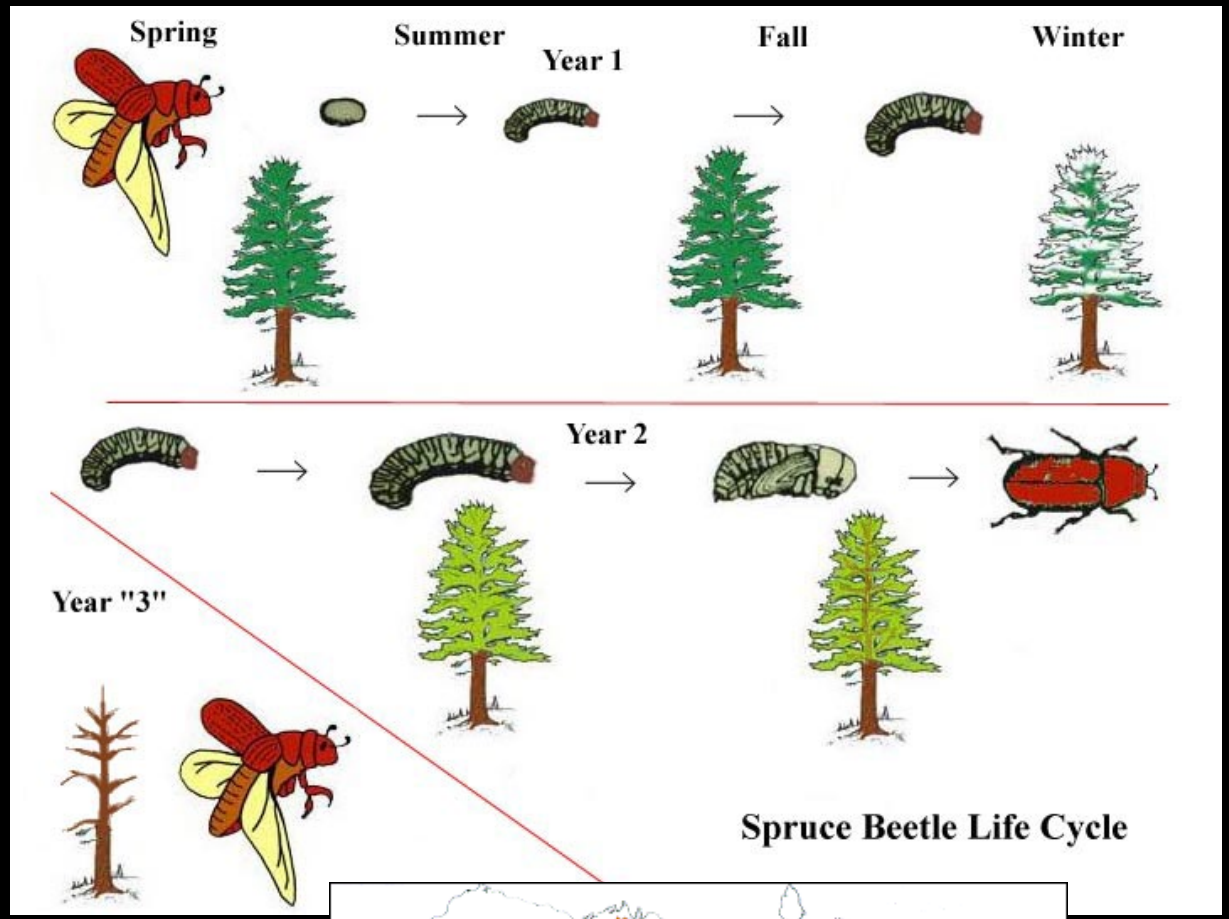
Honorable mentions

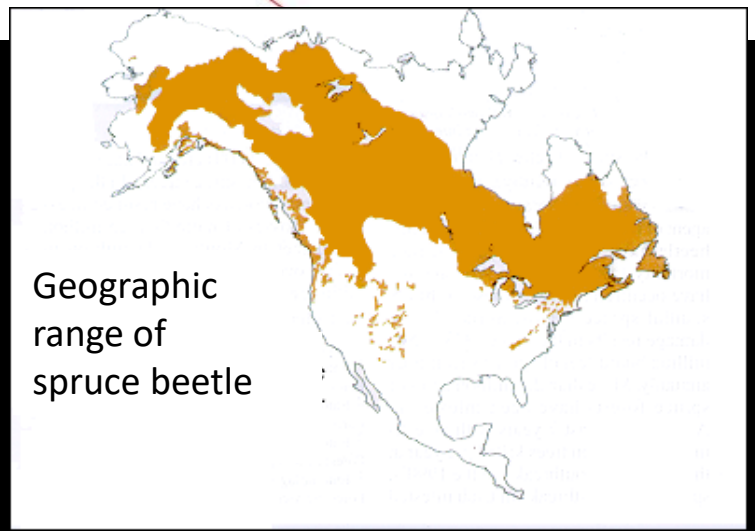
- Bark beetle complex in ponderosa pine
- Fir engraver (Ouray)
- Western balsam bark beetle
- Ips spp. (engraver beetles)
- Aspen defoliators
  - Large aspen tortrix, western tent caterpillar, aspen twoleaf tier caterpillar

Douglas-fir dying from Douglas-fir beetle near Gunnison

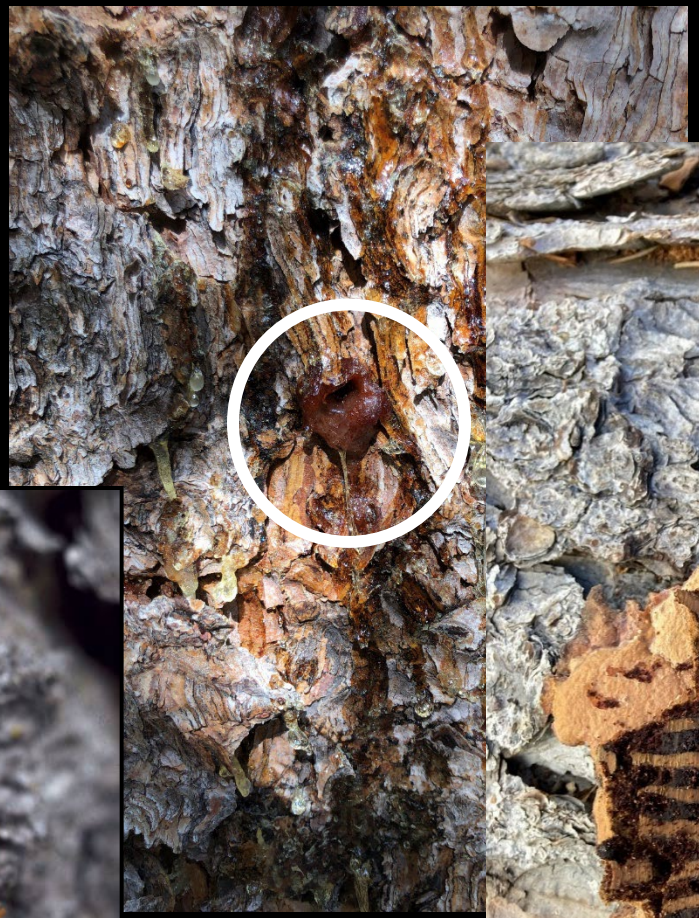
Spruce Beetle

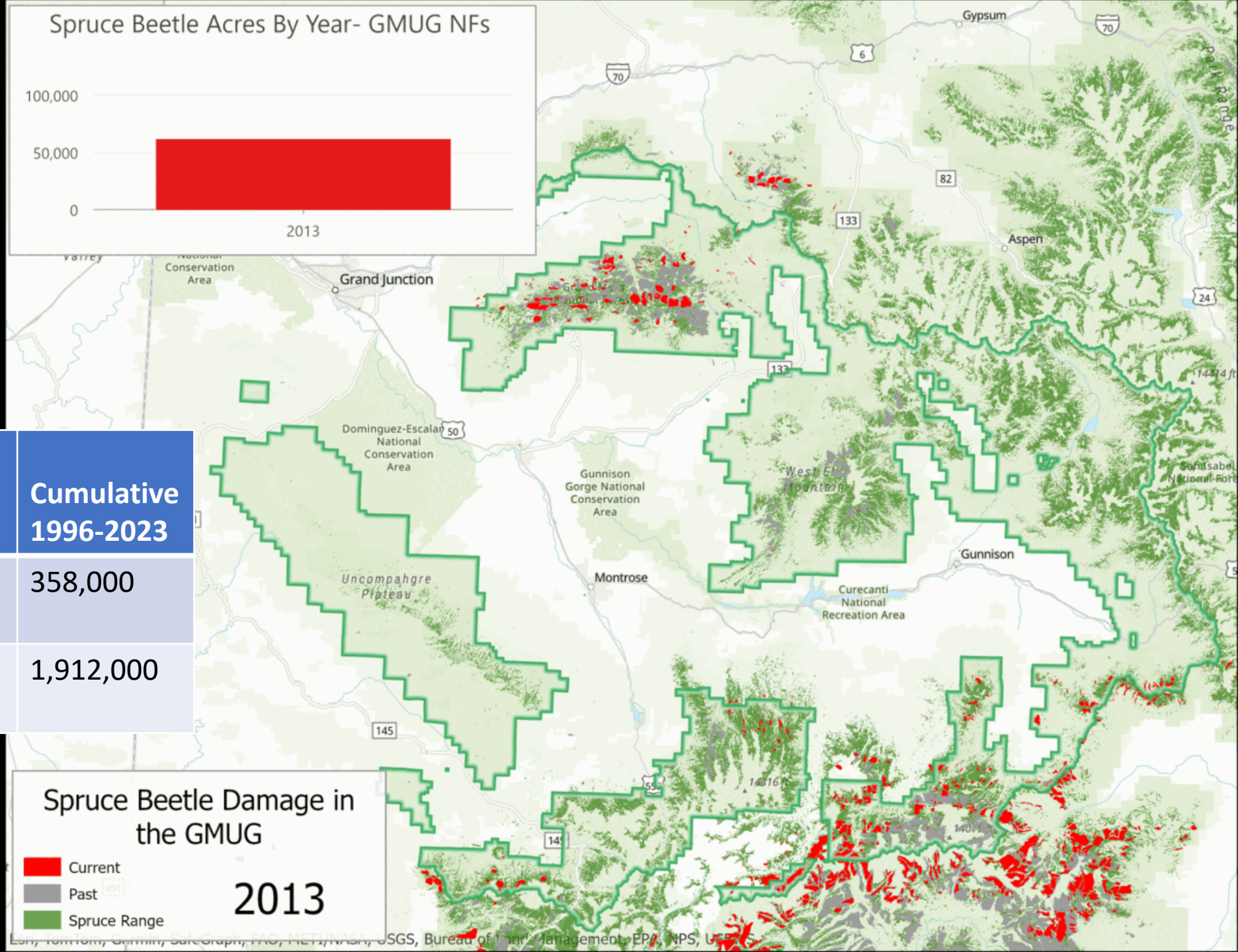
- Host: Engelmann spruce and blue spruce
- Mature, >16 in DBH
  - Outbreak, down to 4 in DBH
- Two-year life cycle in Colorado
- Avalanches/windthrow create problems
- Remove downed trees when possible





Signs of Spruce Beetle Activity

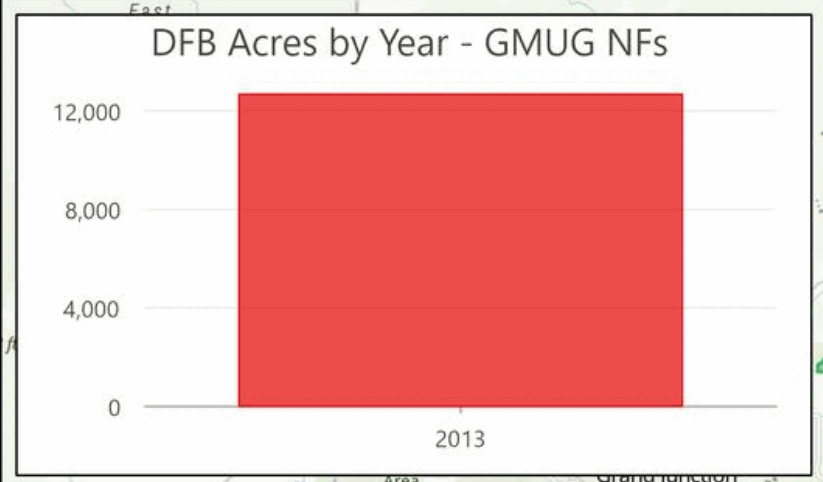




Spruce Beetle acres mapped	2022	2023	Cumulative 1996-2023
GMUG	7,400	3,600	358,000
Colorado	29,000	19,000	1,912,000

Douglas-fir beetle

- Host: Douglas-fir
- Prefer mature trees, but will attack smaller, including windthrow/fire scorch
- One year life cycle
- Heavy populations in Colorado
- MCH

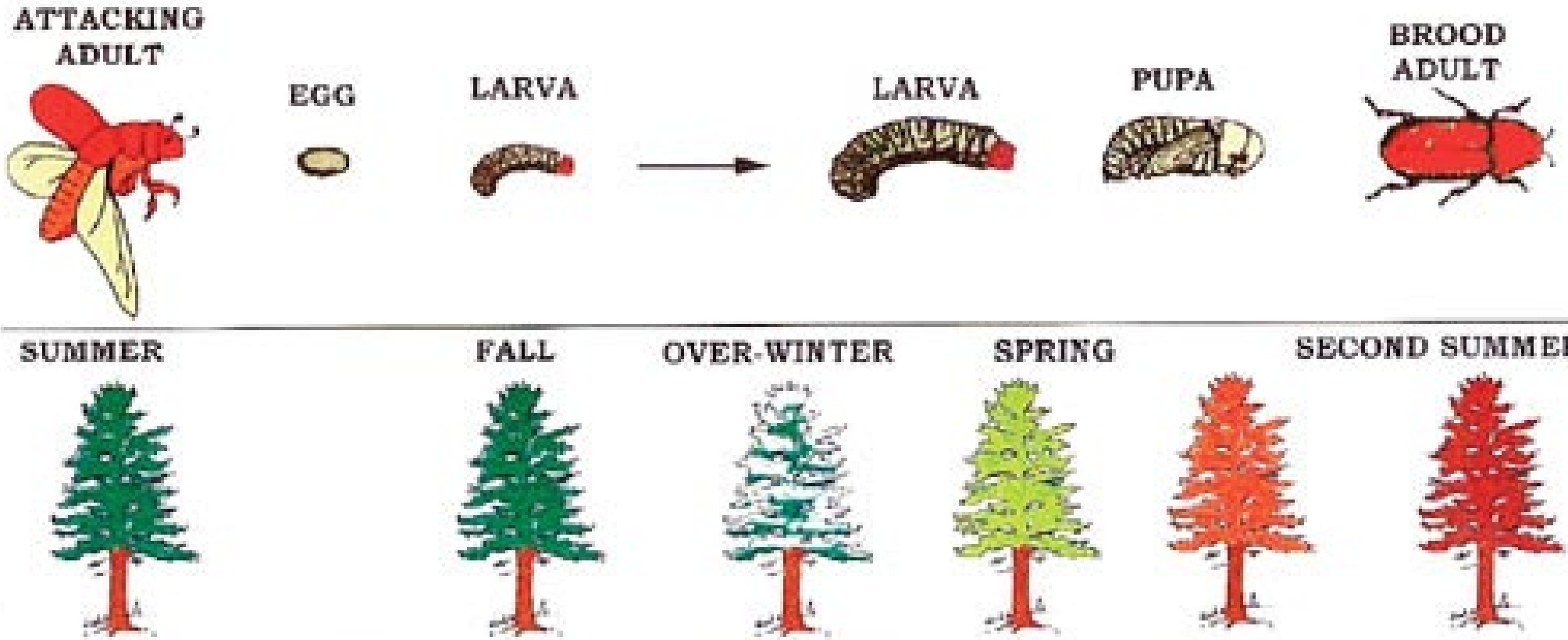


Douglas-fir beetle acres mapped	2022	2023	Cumulative 1996-2023
GMUG	1,100	2,800	72,000
Colorado	9,700	17,000	480,000

Mountain Pine Beetle

- Hosts: Lodgepole, ponderosa, whitebark, limber, and bristlecone pine
- Dense, mature, even-aged pine
- Large diameter is preferred, >8 DBH
- 1 year life cycle

- **Current outbreak** near Gunnison in lodgepole
  - Taylor park/Crested Butte (lodgepole)
  - Outbreak on Uncompahgre (ponderosa)



MOUNTAIN PINE BEETLE LIFE CYCLE

Signs of Mountain Pine Beetle

Pitch tubes

Long galleries

adults, pupae, and larvae

Roundheaded Pine Beetle (and friends…)

- ***COMPLEX!***
- Host: Ponderosa pine
- Prefer smaller diameter, but will kill large in outbreak
- One year life cycle; late fall flight
- Outbreak on Uncompahgre near Iron Springs (IBT sale)
- Dolores, CO (complex of beetles)
  - Roundheaded, Mountain, southwestern, and ips spp.

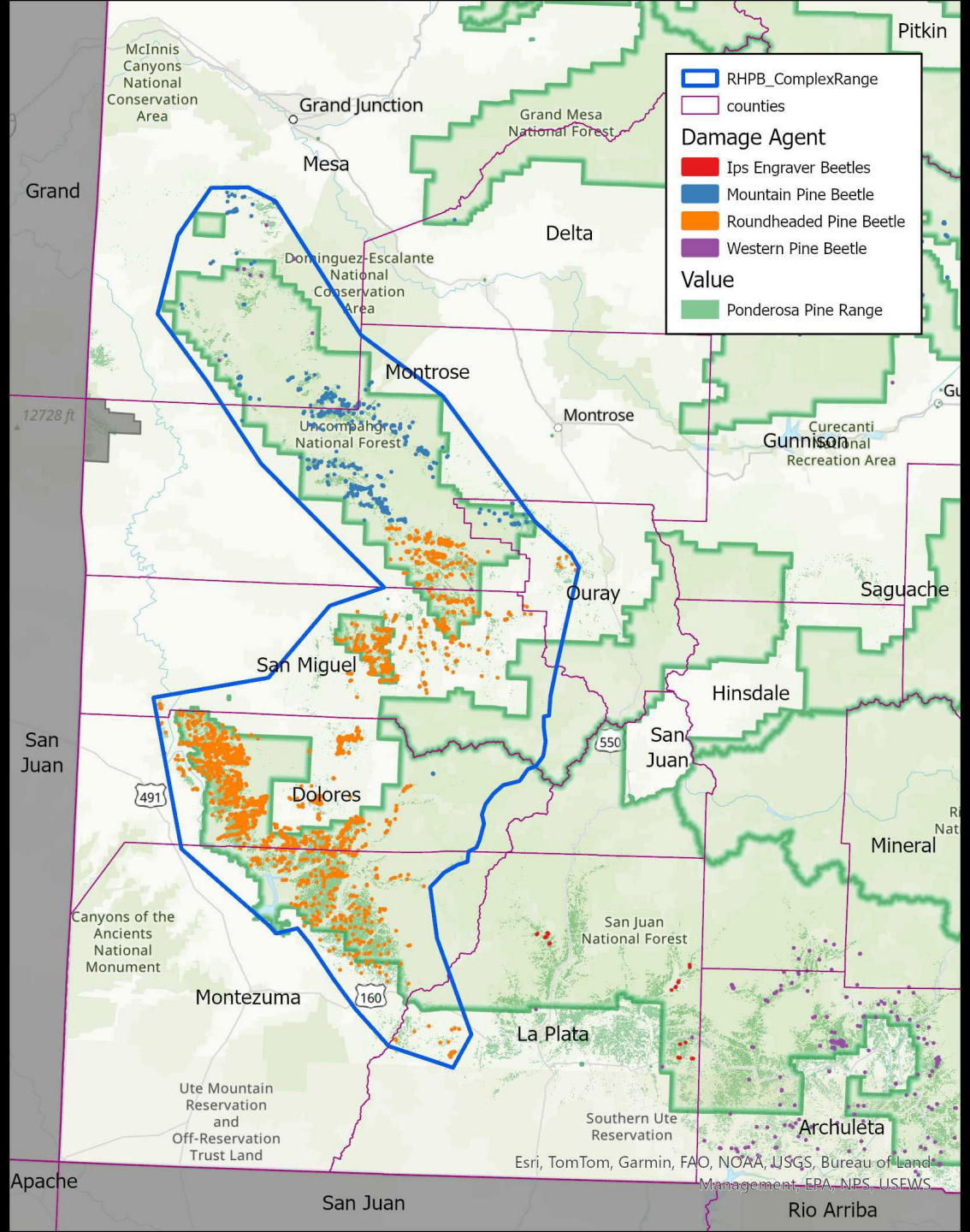
What we know:

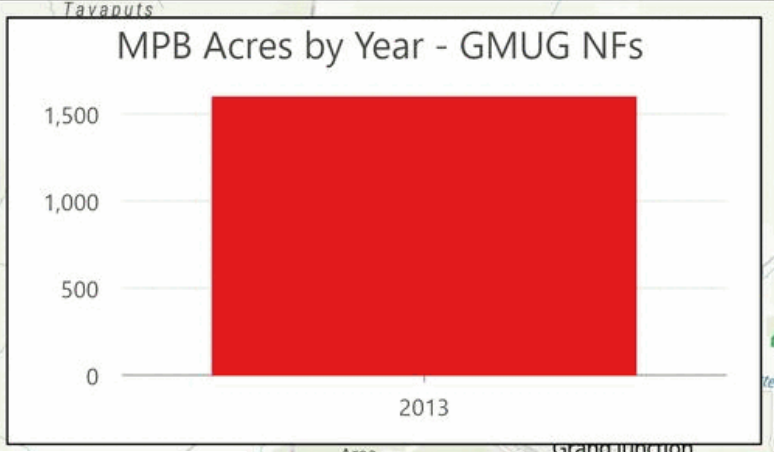
1. Four major beetles all working together
   - Roundheaded pine beetle
   - Southwestern pine beetle
   - Mountain pine beetle
   - Ips spp.

2. Roundheaded not acting “normally”

COMPLEX!

Continued monitoring, trapping, and beetle identification

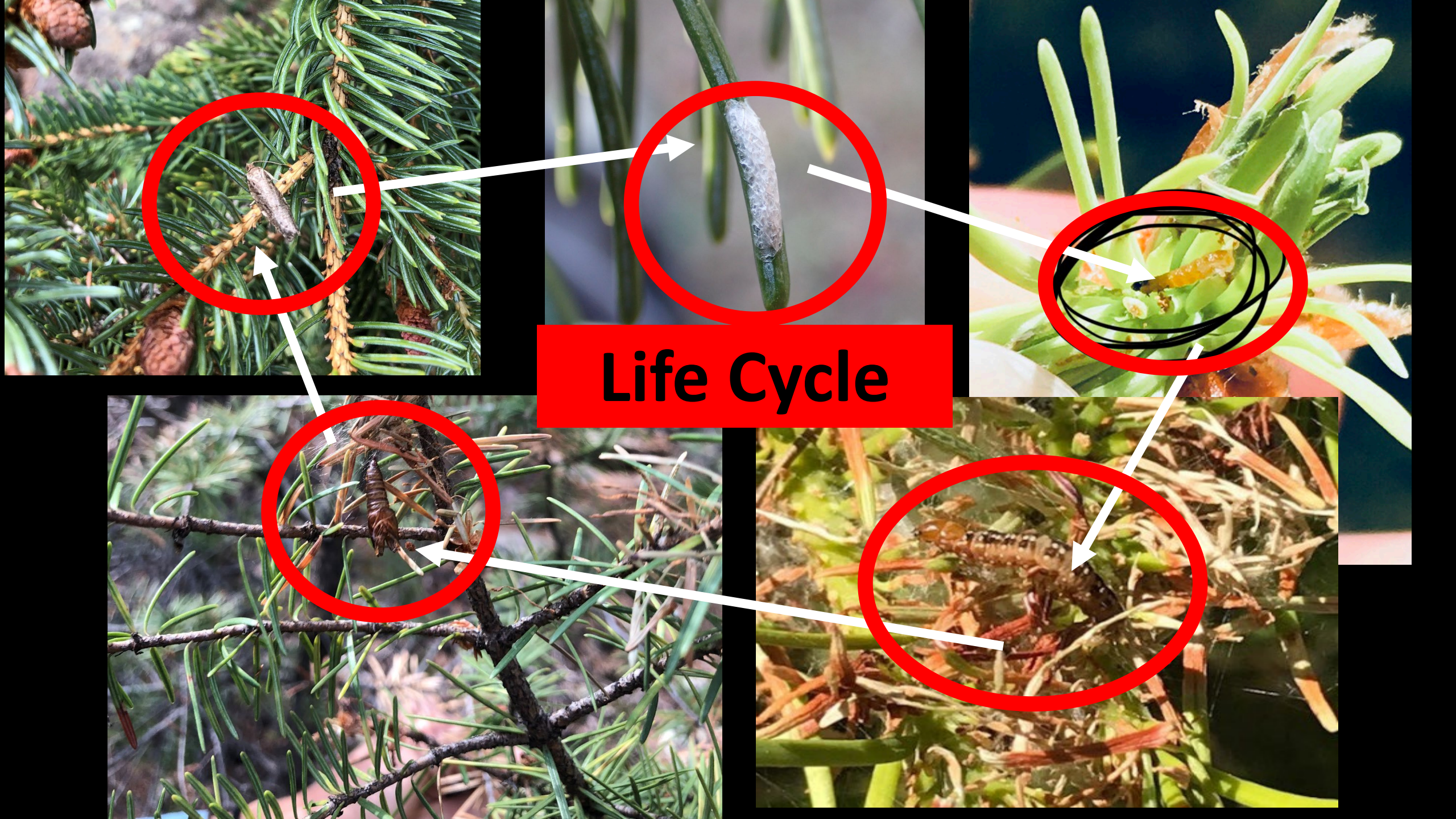


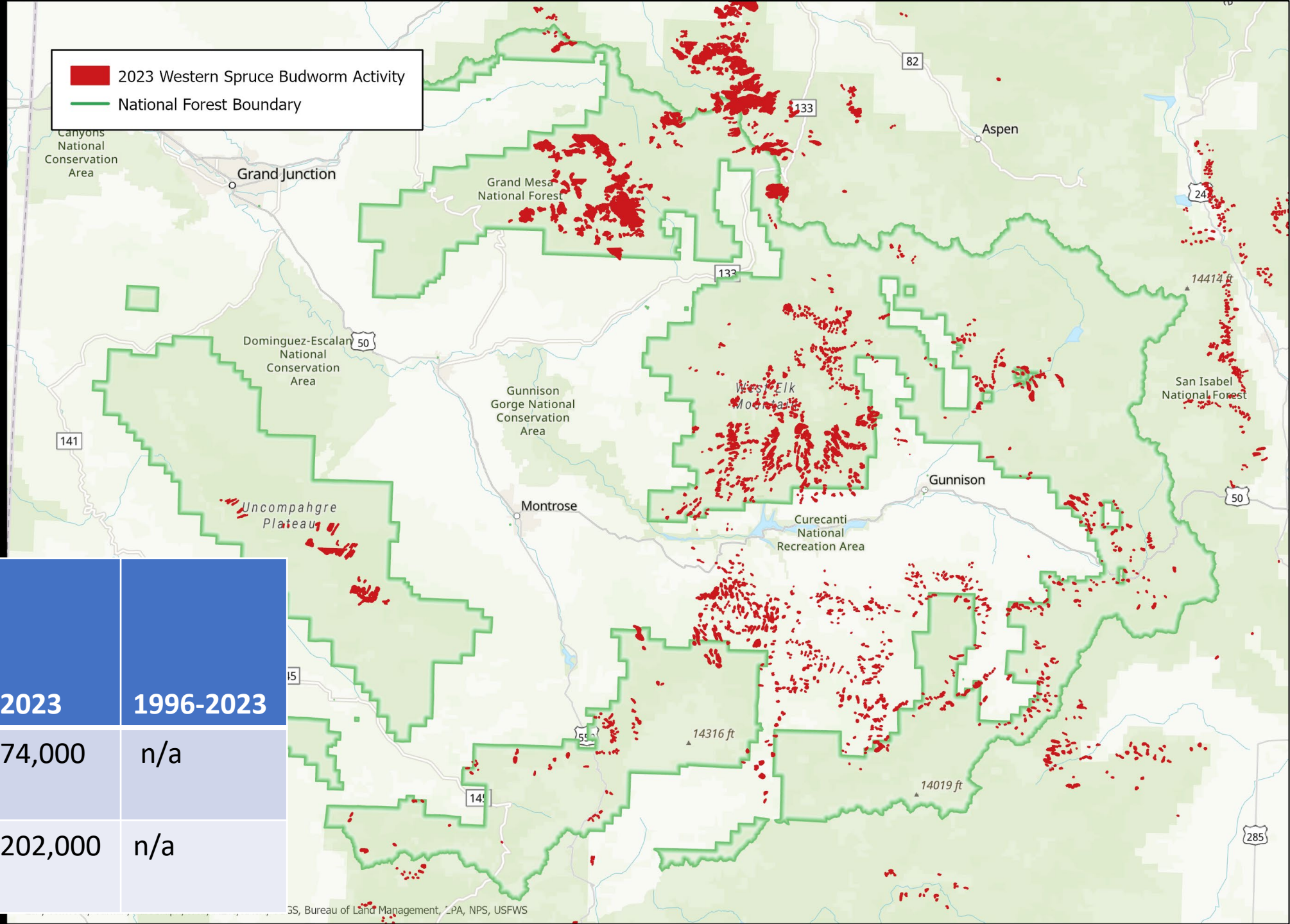


Mountain pine beetle acres mapped (ALL HOSTS)	2022	2023	Cumulative 1996-2023
GMUG	1,000	1,400	20,000
Colorado	2,400	3,100	3,385,000

Western spruce budworm

- Hosts: Douglas-fir, white fir, subalpine fir, Engelman spruce, and blue spruce
- One year life cycle
- Only feeds in caterpillar stage (30-40 days)
- Voracious feeders – brown/rusty needles
- Continued annual defoliation stunts and can kill trees


Life Cycle



Western Spruce Budworm acres mapped	2022	2023	1996-2023
GMUG	27,000	74,000	n/a
Colorado	112,000	202,000	n/a

Questions?

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Caring for the land and serving people

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